UNIVERSITY OF THESSALY

DEPARTMENT OF ECONOMICS

Earnings quality under financial crisis of 2008: A global empirical investigation

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This thesis is presented for the Degree of Doctor of Philosophy of University of Thessaly - Department of Economics under the supervision of Professor George Iatridis

3 ARTICLES WERE PUBLISHED FOR THE PURPOSE OF THIS THESIS, AS FOLLOWS:

1) **Persakis, A. and Iatridis, G. (2015), "Earnings quality under financial crisis of 2008: An international investigation", Journal of Multinational Financial Management, Vol. 30, pp. 1-35.**
2) **Persakis, A. and Iatridis, G. (2015), "Cost of capital, audit and earnings quality under financial crisis: A global empirical investigation", Journal of International Financial Markets, Institutions & Money, Vol. 38, pp. 3-24.**
3) **Persakis, A. and Iatridis, G. (2016), "Audit quality, investor protection and earnings management during the financial crisis of 2008: An international perspective", Journal of International Financial Markets, Institutions & Money, Vol. 41, pp. 73-101.**

Acknowledgements

I would like to thank my supervisor Professor George Iatridis for his great direction, support, encouragement, and guidance. I cannot adequately express my gratitude to Professor George Iatridis who continuously stood by my side throughout the various ups and downs of my PhD journey. Without his support, I would not have been able to complete my thesis. Lastly and most importantly, I wish to express my gratitude to my family for all their support, encouragement, and sacrifice.

Abstract

This PhD paper investigates a) the impact of the financial crisis of 2008 on earnings quality, b) the joint effect of financial crisis of 2008 and investor protection on audit quality, c) the joint effect of audit quality and investor protection on earnings quality and d) the cost of capital and the changes of audit quality and earnings quality influencing on it due to financial crisis of 2008 in publicly listed firms in advanced countries as per level of investor protection. The sample is categorized into three clusters. Cluster 1 is referred as outsider economies with strong outsider protection and legal enforcement and clusters 2 and 3 are referred as insider economies with better and weaker legal enforcement systems respectively. Using linear regression analysis, 137.091 firm-years observations are analyzed, the earnings quality is examined by using 10 different measures (conservatism, value relevance, accruals quality, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness), the audit quality is examined by using 6 different measures (audit fees, modified audit report opinion, auditor switch, status of audit firm, existence of audit committee and demand for auditing), the investor protection is examined by using 8 different metrics adopted from World Economic Forum (property rights, judicial independence, transparency of government policymaking, strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, strength of investor protection and legal rights index), and the cost of equity capital under constant growth model introduced by Palea (2007) and under PEG ratio method introduced by Easton (2004) is examined. The results are mixed among clusters and research periods. Specifically, first, the results show that during the financial crisis, earnings quality is decreased. However, this deterioration on earnings quality appears to be more severe in clusters 2 and 3

which are characterized by medium and weak shareholder protection. Particularly, for all clusters, the study shows that in an attempt to cope with recession, managers have an incentive to choose more aggressive conservatism, lower the earnings predictability and book more accruals. Countries in clusters 2 and 3 report more relevant financial numbers and follow artificial smoothing during the financial crisis while the countries in cluster 1 are to some conflicting. Second, the results show that all measures of audit quality is positively associated with most of institutional factors of investor protection in all clusters except audit fees which is not correlated with none of investor protection indexes. Third, against of expectations, it is found that audit quality is lower during financial crisis in all clusters and in most of audit quality measures. Fourth, the findings indicate that audit quality is higher (lower) in firms with strong (weak) investor protection and legal enforcement during financial crisis in all clusters except from audit fees. Fifth, it is reported that earnings quality is stronger (weaker) in countries with strong (weak) investor protection in all clusters in pre and crisis period. Sixth, the results confirm the findings of vast majority of previous literature that higher (lower) audit quality implies higher (lower) earnings quality in all clusters, irrespective of the financial crisis. Seventh, this PhD paper indicates that higher (lower) audit quality implies higher (lower) earnings quality in countries with high (low) investor protection in all clusters, irrespective of the financial crisis. Eighth, the results show that the financial crisis of 2008 has had positive impact on the cost of equity capital for all clusters and the cost of debt for clusters 1 and 2. The cost of equity is negatively associated with firms that are audited by Big Four auditors and have an audit committee in all clusters, and with firms that switch auditors in cluster 2. Firms that are audited by Big Four auditors in cluster 1, firms with a modified audit report in cluster 2 and firms that have an audit committee in cluster 3

have a negative association with the cost of debt. This study also shows that the association between earnings quality attributes and cost of capital is significantly negative before and during the crisis. Overall, the findings offer crucial insights to post crisis management, auditors, regulators and accounting standard setters in stabilizing investors' confidence and enhancing firm growth after the 2008 financial crisis.

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1. Introduction

In the last decade, there is an extensive attention from researchers to investigate the determinants and consequences of earnings management. However, they pay more attention on examining the earnings manipulation due to the incentives of managers individually and pay little attention in the economic environment of the firm. With other words, they claimed that the managers incentives are influenced mostly because of a poor cash position; obsolete inventory, receivable that are not collectible; unrealistic revenue and profit expectations; meet analyst's expectations; restrictive loan covenants that the company is violating (Harfenist, 2005). However, the financial crisis of 2008 proved that it influences the managers' incentives to produce financial reports that may paint an overly positive picture of a firm's business activities and financial position due to the existence of bankruptcy or delisting. Hence, although there are some evidence that economic downturn influence the earning management during the recent financial crisis (e.g. Filip and Raffournier, 2012; Kousenidis et al, 2013; Iatridis and Dimitras, 2013), **the purpose of this thesis is to enhance previous literature in the scope of exploration of the impact of financial crisis on the quality of earnings on listed firms of advanced countries worldwide.**

In accounting and finance literature, several papers have investigated the managers' incentives for earnings manipulation. Particularly, Iatridis and Kadorinis (2009) investigated the firms' financial motives for earnings management. They concluded that firms with low profitability and high leverage measures; firms that are in equity and capital need and are close to debt covenant violation; firms that tend to improve their financial numbers and subsequently reinforce their compensation and meet and/or exceed financial analysts' earnings forecasts are likely to use earnings management. Likewise, according to Bergstresser and Philippon (2006), the use of

discretionary accruals to manipulate reported earnings is more pronounced at firms where the CEO's potential total compensation is more closely tied to the value of stock and option holdings. Burgstahler and Dichev (1997), Degeorge et al (1999) and Burgstahler and Eames (2003) and Ayers et al (2006) provided evidence that firms manage reported earnings to avoid earnings decreases and losses.

Except from firm's attributes which proceed earnings manipulation, there are particular events which may create incentives to manage earnings. Johnson (1999), Conrad et al (2002), Agarwal et al (2007), Jenkins et al (2009), Strobl (2013), Li et al (2013) examined how earnings management varies over the business cycle. Johnson (1999) documented that earnings are more persistent when growth rates are high (i.e. in an expansion) and production is high (e.g. in an credit crunch period) than when the growth rates are low (i.e. in a recession) and the production is low (i.e. in a reliquification period) respectively. Similarly, Jenkins et al (2009) demonstrated that the earnings management is sensitive to the business cycle. With other words, conservatism and value relevance of current earnings are higher during economic contractions. Furthermore, according to Strobl (2013), during flourishing periods, firms have incentives to manage earnings upwards while in recession period, the overall performance of a firm declines and at this time managers usually have incentives to manage earnings downwards to conceal earnings in order to save for future needs. Li et al (2013) also found that economic cyclical fluctuations, as the basic economic operation in the macro economy, can exert a direct influence on the earnings persistence of firms by affecting firm fundamentals as well as earnings management. Therefore, earnings persistence significantly declines when the economic climate worsens. Additionally, Agarwal et al (2007) provided evidence about banks' earnings management behavior under three distinct economic

environments: a) high-growth with asset price bubble economy (1985-1990), b) stagnant growth with financial distress economy (1991-1996), and c) severe recession with credit crunch economy (1997-1999). Their results indicated that banks used security gains as a means to manage earnings throughout all three periods while banks used loan loss provisions to manage earnings during the first two periods.

Further, the recent financial crisis that started in the USA in 2007 has had severe effects on every aspect of every economy globally regardless of their distance or openness (Bedford, 2008). However, the level and the depth of these effects diversified among markets and countries which were transmitted through different channels. Based on Bedford (2008), international financial leverage is one of the affecting channels that include debt and equity which in turn are the factors that directly affect cost of capital. It is obvious that cost of capital plays an effective role in business decisions and therefore is one of the main factors affected by financial crisis in every market. **Hence, another area that this thesis offers insights is how the financial crisis of 2008 influences the cost of capital on listed firms of advanced countries worldwide.**

The first attempt of exploration the impact of the global financial crisis on the cost of capital comes from Mokhova (2011). She indicated that financial crisis that broke out in 2008 has had a big negative influence on the world economy. A lot of firms close to bankruptcy and financial performances hardly decreased. Regarding to cost of capital, the main consequences were lower return of investment, less liquidity, reevaluation of risks, difficulty to find long term loans and another financial resources, higher spreads, low availability of credit, new gearing and need of state guarantee. Thus, Mokhova (2011) concluded that the financial crisis of 2008 had great

influence on the cost of capital from the side of cost of equity and from the side of cost of debt.

Moreover, in previous literature, several papers have investigated the factors that influence the cost of capital. Particularly, the relationship between earnings quality and cost of capital has been examined thoroughly. Affleck-Graves et al (2002) found that firms with relatively less predictable earnings have a higher cost of equity capital. Bhattacharya et al (2003) resulted that an increase in overall earnings opacity has a positive effect in the cost of equity. Although, Francis et al (2004) found that seven attributes of earnings (accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism) are significantly associated with cost of equity capital, however, McInnis (2010) found no such pattern examining the association between earnings smoothness and cost of equity. In addition, Francis et al (2005) showed that firms with lower accruals quality have significantly larger earnings-price ratios relative to their industry peers. Chan et al (2009) supported that ex ante conservatism is associated with lower costs of equity, whereas ex post conservatism is associated with higher costs of equity capital. Moreover, Valipour and Moradbeygi (2011) found a negative and meaningful relationship between debt and earnings quality.

Another factor that influences the cost of capital is audit quality. According to Slovin et al (1990) and Datar et al (1991), auditing plays a key role in every organization, since a) the errors are located and the true and fair information about the business is available, b) frauds are discovered which increase the moral values of the staff, c) efficiency improves, d) the auditing accounts increase the credit standing of any firm and help the sole traders their business is going on properly, e) the investors' rights are protected, and f) creditors are protected. Thus, consistent with Khurana and

Raman (2004), Mansi et al (2004) and Pittman and Fortin (2004), there is negative association between audit quality and cost of capital. Particularly, Khurana and Raman (2004) found that firms that are audited by Big 4 is associated with a lower ex ante cost of equity capital in the U.S. but not in Australia, Canada, or the U.K. Similarly, Mansi et al (2004), Pittman and Fortin (2004) and Causholli and Knechel (2012) suggested that firms that use a Big 4 auditor have a lower cost of debt. The findings of Dhaliwal et al (2008) show that nonaudit fees are directly related to the cost of debt for investment-grade issuers and audit fees has no affect on the cost of debt for non-investment-grade firms. In addition, Fernado et al (2010) concluded that auditor size, auditor industry specialization and auditor tenure are negatively associated with small client firm's cost of equity capital. Chen et al (2011) claimed that the effects of Big 8 auditors on cost of equity capital are no consistent across SOEs and NSOEs. Particularly, cost of equity capital is significantly lower for NOSEs audited by Top 8 auditors than for NSOEs audited by non-Top 8 auditors, but not for SOEs audited by Top 8 and non-Top 8 auditors.

As it is explained above, given the austerity of the global financial crisis of 2008, there have been few papers that examined its effects on the financial reporting in general. However, it is surprisingly that there is no clearly evidence to its effects on the audit quality. More specifically, many economists have tried to pinpoint the role of auditors during the financial crisis of 2008 due to reduce information asymmetry (Knechel and Willekens, 2006). Other papers illustrated the effects of different aspects of audit quality on audit risk which in turn implies an increase of audit quality in periods of financial downturns. For instance, Bell et al (2001) and Hogan and Wilkins (2008) found that there is a positive relationship between audit fees and audit

risk. Hudaib and Cooke (2005) and Lin and Liu (2010) indicated that higher business risk leads to higher auditor turnover. Finally, Aldamen et al (2012) claimed that the presence of audit committee and audit committee characteristics is associated with lower information asymmetry and lower audit risk.

Considerably, the role of auditing in influencing earnings management during the financial crisis of 2008 is lacking except from the findings of Iatridis and Dimitras (2013) who found that firms that are audited by a Big 4 auditor are likely to exhibit lower discretionary accruals and higher value relevance irrespective of the crisis period. In the same vein, Johl et al (2007) and Chia et al (2011) examined the effects of Asian financial crisis on the association between earnings quality and auditing. Their results shown that Big auditors firms are able to significantly constrain the earnings management.

Further, recent researches suggested that strong investor protection, strong legal enforcement, and a common law legal system are vital determinants of a high quality financial statement numbers and high audit quality. Based on the findings of Guenther and Young (2000), Bushman and Smith (2001), Leuz et al (2003), Shen and Chih (2005), Burgstahler et al (2006), Nabar and Boonlert-U-Thai (2007), Cahan et al (2008) and Houque et al (2012) earnings quality is higher in countries with strong investor protection and legal enforcement regimes. Similarly, the results from Newman et al (2005) and Jaggi and Low (2011) confirmed their expectations that higher investor protection is associated with higher audit quality.

Thus, this thesis, also, examines the joint effect of financial crisis of 2008 and investor protection on audit quality and then the joint effect of audit quality and investor protection on earnings quality on listed firms of advanced countries worldwide.

Consequently, this paper makes several contributions to the current literature. **First,** the effect of financial crisis of 2008 on earnings quality is examined. Specifically, it is expected that earnings management is increased or earnings quality is decreased during the financial crisis of 2008. Based on the findings of previous literature (Jacob and Jorgensen, 2007; Ahmed et al, 2008; Wanrganegara and Vionita, 2010; Chia et al, 2011; Choi et al, 2011; Lu, 2012; Filip and Raffournier, 2012; Habib et al, 2013; Strobl, 2013; Vladu, 2013; Kousenidis et al, 2013; Habib et al, 2013; Iatridis and Dimitras, 2013), it is expected that a) the degree of conservatism in years of financial crisis of 2008 is significantly higher than the degree of conservatism in the years before the financial crisis of 2008, b) the value relevance of earnings is decreased during the financial crisis of 2008, c) the degree of accruals quality during the financial crisis of 2008 is significantly lower, d) the degree of value earnings persistence in years of financial crisis of 2008 is significantly lower, e) the earnings predictability will be lower during the financial crisis of 2008, f) upwards earnings management would be replaced by downwards earnings management in those ex-ante small losses firms so that the discontinuity around zero should be no longer existed in the earnings distribution during the financial crisis of 2008 and g) smoothing of reported earnings is lower during the financial crisis of 2008.

Second, it is investigated the cost of capital and the changes of audit quality and earnings management influencing on it due to financial crisis of 2008. Thus, based on the findings of previous literature (Easley and O' Hara, 2004; Francis et al, 2004; Francis et al, 2005; King, 2009; Fernando et al, 2010; Chen et al, 2011; Mokhova, 2011; Valipour and Moradbeygi, 2011) it is expected that the financial crisis of 2008 increased the cost of capital, and regarding the affect of audit quality on cost of capital, it is expected a negative sign. In addition, it is expected a statistically

negatively reliable association between each earnings quality attribute considered individually and measures of the cost of capital.

Third, it is analyzed the joint effect of financial crisis of 2008 and investor protection on audit quality. In detail, based on the results of Choi et al (2008) and Leuz et al (2003), it is expected that audit quality is positively associated with investor protection. Further, based on the findings of Houston et al (1999), Be'dard and Johnstone (2004), Hudaib and Cooke (2005), Lin and Liu (2010), Xu et al (2011) and Aldamen et al (2012), it is expected that audit quality is higher during financial crisis. Consequently, in accordance of the findings of previous expectations, it is expected that audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis. Moreover, it is analyzed the joint effect of investor protection and audit quality on earnings quality in pre and crisis period. Particularly, based on the findings of Nabar and Boonlert-U-Thai (2007), Cahan et al (2008) and Houque et al (2012), it is expected that there is significant positive association between earnings quality and investor protection, irrespective of the financial crisis. Correspondingly, based on the results of Becker et al (1998), Francis et al (1999), Balsam et al (2003) and Caramanis and Lennox (2008), it is expected that there is significant positive association between earnings quality and audit quality, irrespective of the financial crisis. Again, in accordance of the findings of previous expectations, it is expected that the joint effect of investor protection and audit quality is positively associated with earnings quality, irrespective of the financial crisis.

The choice of advanced countries has several advantages. **First**, the market capitalization of developed countries through the examined period amount almost

55% globally. Thus, the results are much closer to the reality in relation with other papers that used a representative sample which makes the findings questionable. **Second**, advanced countries have been severely affected during the financial crisis of 2008. Hence, it is expected a diversification of the impact of financial crisis of 2008 on earnings management before and during the crisis period through examining sample. **Third**, consistent with Filip and Raffournier (2012), most cited papers of all time conducted at a single country level which makes the results questionable. Consequently, this paper faces this geographical closeness of results by using 18 largest economies of the world and thus, provides stronger evidence. **Fourth**, it is the first attempt to analyze the research questions in the examining sample by categorizing the sample countries into 3 clusters depending on the level of investor protection: cluster 1 with strong shareholder protection and legal enforcement, cluster 2 with better legal enforcement systems and cluster 3 with weak investor protection and legal enforcement systems (Leuz, 2010). **Fifth**, this thesis uses countries that are complied with International Accounting Standards (IAS) until 2005 due to succeed a convergence on comparability of examining variables. **Sixth**, another advantage of conducting this thesis is that earnings management is measured by using 10 different approaches of earnings quality. More specifically, ex post and ex ante conservatism, value relevance, three accrual quality measures, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness are used as measurements of earnings quality. The sample is count on 137.091 firm-years observations and come from all advanced countries, as they are classified by International Monetary Fund.

This study provides evidence that the impact of financial crisis of 2008 on earnings quality diversifies among clusters. The findings indicate that, in general, the earnings quality decreases during the financial crisis. It means that earnings manipulation is increased during the financial crisis of 2008 which reflects an opposite sign from previous literature. Specifically, for all clusters, the results imply that in an attempt to cope with recession, managers have an incentive to choose more aggressive conservatism and more transitory earnings during financial crisis. Moreover, countries in clusters 2 and 3 report more relevant financial numbers during financial crisis while the countries in cluster 1 are to some conflicting. This thesis also shows that firms in all clusters book more accruals to depress earnings during financial crisis. Additionally, the findings demonstrate that countries in all clusters demonstrate lower level of earnings predictability during the financial crisis. Furthermore, countries in cluster 1 follow real smoothing which in turn increase earnings quality while countries in Cluster 2 and 3 follow artificial smoothing which in turn decrease the quality of earnings during the financial crisis.

Similarly, the findings of this thesis indicate that the different characteristics of three clusters lead to differences in the effects of global financial crisis of 2008, audit and earnings quality on cost of capital. In general, the results imply that the financial crisis of 2008 has positive association with a) cost of equity capital for all clusters, and b) cost of debt for clusters 1 and 2. Concerning the cost of equity capital, when it is measured by using the constant growth Gordon model introduced by Palea (2007), is negatively associated with firms that audited by Big Four auditors in clusters 1 and 2, and when it is measured by using the PEG approach introduced by Easton (2004), is negatively associated with firms that audited by Big Four auditors and have an audit committee in all clusters, and firms that switch auditor in cluster 2.

Further, firms that audited by Big Four auditors and audit fees in cluster 1, firms with a modified audit report in cluster 2 and firms that have an audit committee in cluster 3 have a negative association with cost of debt capital. Regarding the association between earnings quality attributes individually and cost of capital, is significant and with a negative sign in almost all measures of earnings quality and in all clusters in pre and crisis period.

Finally, against all odds, the results show that audit quality is negatively affected during financial crisis. Moreover, consistent with previous literature, investor protection have a positive impact on audit quality in all clusters except from audit fees which is not correlated with none of the investor protection indexes. In the same vein, the findings indicate that there is positive influence of investor protection and financial crisis on audit quality jointly. Further, examining the joint effect of investor protection and audit quality on earnings quality, the results are mixed among clusters and research periods. However, in general, investor protection and auditing have a joint role in the production of higher quality earnings numbers in pre and crisis period. The effects of the interaction terms of investor protection and financial crisis, and investor protection and auditing on audit quality and earnings quality respectively are more severe in countries with medium and weak investor protection (clusters 2 and 3).

1.1. Research question, sub-questions

In general, this PhD thesis will use and answer the following main question:

How has been the earnings quality in the advanced countries influenced by the financial crisis of 2008?

To answer this question, this thesis makes use of different sub-questions:

1. ***What is earnings quality and which methods have been developed to detect the earnings quality attributes?***
2. ***What is audit quality and which methods have been developed to detect it?***
3. ***What is investor protection and which methods have been developed to detect it?***
4. ***What is cost of equity and which methods have been developed to detect it?***
5. ***What is financial crisis?***
6. ***Which are the roots of the financial crisis of 2008?***
7. ***Which are the consequences of the financial crisis of 2008?***
8. ***What can be learned from prior research on this thesis?***
9. ***What is a proper design for this research?***
10. ***What are the results of the empirical research of this thesis?***

1.2.Structure

The remaining of this PhD thesis is organized as follows. The **chapter 2** explains different definitions of earnings quality and investigates seven different earnings quality proxies, its determinants (investor protection and audit quality) and its consequences (cost of equity capital and cost of debt). In **chapter 3** is explained

the recession of 2008. In **chapter 4** is an extensive literature review. This helps with developing hypotheses. **Chapter 5** presents the sample, research method and hypotheses. This is the first step in the empirical research. **Chapter 6** gives the results of the empirical study. That is the last step of the research. Finally, the PhD thesis ends with a conclusion.

2. Earnings quality, audit quality, investor protection and cost of capital

2.1. Introduction

This chapter focuses on different research approaches. Thus, if we want to research whether earnings quality is changed during the financial crisis of 2008 and how determinants and consequences have an impact on it during the financial crisis of 2008, we need to have a method to measure them.

The most comprehensive and representative paper understanding the earnings quality came from Dechow et al (2010). Thus, mainly, based on the findings of their almanac of earnings quality, this chapter is about the meaning of the word of earnings quality. Some definitions from previous research and standard setters will be described. Second, there will be analysis about the earnings quality proxies. Third, audit quality and investor protection will be examined as determinants of earnings quality. Finally, cost of equity (cost of debt and cost of equity capital) will be described as a consequence of quality of earnings. Hence, after this chapter the following sub-questions is answered:

1. ***What is earnings quality and which methods have been developed to detect the earnings quality attributes?***
2. ***What is audit quality and which methods have been developed to detect it?***
3. ***What is investor protection and which methods have been developed to detect it?***
4. ***What is cost of equity and which methods have been developed to detect it?***

2.2. Definitions of earnings quality

There are plenty of definitions of earnings quality but there is no agreed upon definition in the global literature. Teets (2002, p. 335) stated that “some consider

quality of earnings to encompass the underlying economic performance of a firm, as well as the accounting standards that report on that underlying phenomenon; others consider quality of earnings to refer only to how well accounting earnings convey information about the underlying phenomenon".

Gissel et al (2005) defined earnings quality as an important aspect of evaluating a firm's financial health, as the ability of reported earnings to reflect and predict the firm's true and future earnings, and as the stability, persistence, and lack of variability in reported earnings.

Chan et al (2001) defined the quality of earnings as the degree to which reported earnings indicate operating fundamental of an entity. This measure of quality is interested on the ability of reported earnings to predict future performance of entity.

According to Hodge (2003), earnings quality is the extent to which net income reported on the income statement differs from true earnings. Schipper and Vincent (2003) defined earnings quality as the extent to which reported earnings faithfully represent Hicksian income, which corresponds to the amount that can be consumed during a period, while leaving the firms equally well off at the beginning and the end of the period. Schipper and Vincent (2003) considered three earnings quality constructs: persistence, predictive ability and the time series variances of earnings as measures of earnings quality[1].

Following Black (1980), Beaver (1998), Ohlson and Zhang (1998) and Dechow and Schrand (2004), Li (2011) defined earnings quality as the closeness of reported earnings to "permanent earnings".

Another definition approach comes from Healy and Wahlen (1999) who defined earning management as the alteration of firm's reported economic

[1] The time series variance of earnings quality is: 1) the relations among cash, accruals and income, 2) the correspondence to relevance, reliability and comparability, and 3) the effects of implementation decisions.

performance by insiders to either mislead some stakeholders or to influence contractual outcomes.

Comiskey and Mulford (2000) defined earnings as high quality if the contemporaneous cash flows are greater (less) than the recognized revenues or gains (expenses or losses), and low quality if the associated cash flows are less than (greater than) the recognized revenues or gains (expenses or losses).

Dechow and Dichev (2002) defined earnings quality in terms of the relation between accruals and cash flows. Their definition does not distinguish among the various factors that influence this relation but some approaches to defining earnings quality do. They claimed that firms with high accruals quality will have high earnings persistence, which refers to high earnings quality.

Earnings is of good quality if it has high accruals quality or less absolute abnormal accruals and high earnings response coefficient (Balsam et al, 2003; Francis et al, 2003; Myers et al, 2003).

Earnings is of good quality if it is high persistent and if it is a good indicator of future earnings, which refers to substantial earnings (Penman and Zhang, 2002; Richardson, 2003).

Earnings quality is defined as the extent to which a firm's past earnings is associated with its future cash flows and refers to high predictive ability of earnings (Bricker et al, 1995; Mikhail et al, 2003).

Lang et al (2003) mentioned that earnings is viewed to be high quality if it is characterized by less evidence of earnings management, more timely recognition of bad news, and a higher association with share price.

Beneish and Vargus (2002) claimed that earnings quality is the likelihood that a firm can sustain current earnings in the future.

High earnings quality is in the sense that earnings is less likely to distort firms' underlying economic performance (DeFond et al, 2007; Dechow and Schrand, 2004).

Barragato and Markelevich (2008) defined high-quality earnings as an earnings stream more closely associated with future cash flows from operations. Their definition is consistent with the view that financial reporting should provide information that is useful in assessing the amounts, timing and uncertainties of prospective cash inflows.

Dechow et al (2010) defined the earnings quality as relevant of the fundamental earnings reported to the decision context of users. In this context the earnings quality is how earnings information is indispensible to markets participants in making decisions of resources allocation in the capital markets.

Li (2011) defined earnings quality as the ability of earnings to reflect company permanent earnings.

Srinidhi et al (2011) described earnings quality as the ability of current reported earnings to reflect the future cash flow and earnings. In this context earnings quality refers to how best current reported earnings can predict future performance of entity.

Finally, Ewert and Wagenhofer (2015) defined earnings quality as the average reduction of the market's uncertainty about the terminal value due to the earnings report in period 1, formally:

$$\mathrm{EQ} = \mathrm{E}[\mathrm{Var}(\tilde{\mathrm{x}}) - \mathrm{Var}(\tilde{\mathrm{x}}|\mathrm{m}_1)] \qquad (1)$$

A greater EQ implies higher earnings quality. They exploited a convenient feature of belief revisions of random variables with normal distributions that the conditional variance $Var(\tilde{x}|m_1)$ is independent of the realized earnings m_1. Therefore, EQ can be expressed as:

$$EQ = \frac{Cov\,(\tilde{x},\widetilde{m_1})^2}{Var\,(\widetilde{m_1})} \qquad (2)$$

Under this definition earnings quality is an ex ante measure of the information content of reported earnings which is equivalent to ex ante informativeness in Marinovic (2013) and captures the essence of the definition in Francis et al (2006).

According to Li (2011), earnings quality varies for three reasons. First, earnings quality represents a function of a firm's business model and economic situation. Second, earnings quality appears estimation errors. It means that firms, which have more accrual estimation errors, have lower persistence in earnings. Third, there could be intentional distortions due to earnings manipulation. It means that firms lower the ability of current earnings to predict future cash flows since managers have the intention to manipulate reported earnings due to capital market pressure or compensation contract.

There are plenty of papers that examined earnings quality (Bernstein and Siegel, 1979; Siegel, 1982; Lev, 1983; Kellogg, 1984; Dhaliwal et al, 1991; Jones, 1991; Imhoff and Lobo, 1992; Alford et al, 1993; Teoh and Wong, 1993; Krishnan, 1994; DeFond and Jiambalvo, 1994; DeAngelo et al, 1994; Hayn, 1995; Dechow et al, 1995; Sloan, 1996; Wild, 1996; Basu, 1997; Burgstahler and Dichev, 1997; Becker et al, 1998; DeFond and Subramanyam, 1998; Han and Wang, 1998; Baginski et al, 1999; Francis et al, 1999; Francis and Krishnan, 1999; Barth et al, 1999; Degeorge et al, 1999; Guether and Young, 2000; Graham et al, 2000; Hung, 2000; Graham and King, 2000; Morck et al, 2000; Ball et al, 2000; Ali and Huang, 2000; Lobo and

Zhou, 2001; Chan et al, 2001; Heninger, 2001; Fairfield and Whisenant, 2001; Ho et al, 2001; Chen et al, 2001; Frankel et al, 2002; Fan and Wong, 2002; Dechow and Dichev, 2002; Kinney and Libby, 2002; Beneish and Vargus, 2002; Penman and Zhang, 2002; Bauman and Bauman, 2002; Affleck-Graves et al, 2002; Johnson et al, 2002; Klein, 2002; Riahi-Belkaoui, 2002; Krishnan, 2003; Leuz et al, 2003; Myers et al, 2003; Cornell and Landsman, 2003; Balsam et al, 2003; Chen et al, 2003; Shrieves and Dahl, 2003; Chung et al, 2003; Bauwhede et al, 2003; Chung and Kallapur, 2003; Xie et al, 2003; Mitchell et al, 2003; Gul et al, 2003; Bhattacharya et al, 2003; Francis et al, 2003; Krishnan, 2003a; Fairfield et al, 2003; Mikhail et al, 2003; Nelson et al, 2003; Watts, 2003b; Watts, 2003a; Hodge, 2003; Raghunandan et al, 2003; Butler et al, 2004; Francis et al, 2004; Larcker and Richardson, 2004; Ashley and Yang, 2004; Lougee and Marquardt, 2004; Kang, 2004; Francis et al, 2004; Haw et al, 2004; Wysocki, 2004; Zhou and Elder, 2004; Carcello and Nagy, 2004; Choi et al, 2004; Van der Zahn and Tower, 2004; Be'dard et al, 2004; Ferguson et al, 2004; Abbott et al, 2004; Aboody et al, 2005; Anctil and Chamberlain, 2005; Webster and Thornton, 2005; Abdelghany, 2005; Sen, 2005; Ball and Shivakumar, 2005; Gosh and Moon, 2005; Ewert and Wagenhofer, 2005; Saleh and Ahmed, 2005; Davis-Friday and Gordon, 2005; Eng et al, 2005; Kothari et al, 2005; Chen et al, 2005; Shen and Chih, 2005; Li and Lin, 2005; Yang and Krishnan, 2005; Vafeas, 2005; Francis et al, 2005; Richardson et al, 2005; Ghosh et al, 2005; Cheng and Warfield, 2005; Dechow and Ge, 2005; Van Tendeloo and Vanstraelen, 2005; Davis-Friday et al, 2006; Ball and Shivakumar, 2006; Ecker et al, 2006; Yee, 2006; Niu, 2006; Wang, 2006; Lin et al, 2006; Burgstahler et al, 2006; Platikanova, 2006; Burgstahler et al, 2006; Boonlert-U-Thai et al, 2006; Lee et al, 2006; Maijoor and Vanstraelen, 2006; Antle et al, 2006; Davidson III et al, 2006; Gul et al, 2006; Jenkins et al, 2006; Kothari et al, 2006;

Desai et al, 2006; Piot and Janin, 2007; DeFond et al, 2007; Chia et al, 2007; Hribar and Nichols, 2007; Cheng et al, 2007; Piot and Janin, 2007; Soderstrom and Sun, 2007; Nabar and Boonlert-U-Thai, 2007; Johl et al, 2007; Srinidhi and Gul, 2007; Jaggi and Leung, 2007; Qin, 2007; Chen et al, 2007; Fan-fah et al, 2008; Roychowdhury and Watts, 2007; Doyle et al, 2007; Chih et al, 2008; Cahan et al, 2008; Jiang et al, 2008; Francis et al, 2008a; Barth et al, 2008; Huang et al, 2008; Sepe and Spiceland, 2008; Lo, 2008; Krishnan and Parsons, 2008; Francis et al, 2008; Guo et al, 2008; Francis and Wang, 2008; Ahmed et al, 2008; Herrmann et al, 2008; Van Tendeloo and Vanstraelen, 2008; Chen et al, 2008; Jayaraman, 2008; Ball and Shivakumar, 2008; Cheng et al, 2008; Siregar and Utama, 2008; Caramanis and Lennox, 2008; Dichev and Tang, 2008; Barragato and Markelevich, 2008; Kamel and Elbanna, 2009; Katz, 2009; Francis and Yu, 2009; Ayers et al, 2009; Chang et al, 2009; Jiang and Anandarajan, 2009; Mitra et al, 2009; Prawitt et al, 2009; Cahan et al, 2009; Hussainey, 2009; Gong et al, 2009; Lara et al, 2009; Baxter and Cotter, 2009; Lin et al, 2009; Chan et al, 2009; Chang et al, 2009; Frankel and Litov, 2009; Gul et al, 2009; Beisland, 2009; Kim and Qi, 2010; Rodriguez-Perez and Van Hemmen, 2010; Warganegara and Vionita, 2010; Vichitatsarawong et al, 2010; Stubben, 2010; McInnis, 2010; Givoly et al, 2010; Rusmin, 2010; Dechow et al, 2010; Chang and Sun, 2010; Labelle et al, 2010; Iliev, 2010; Iyengar et al, 2010; Jordan et al, 2010; Han et al, 2010; Guan and Pourjalali, 2010; Kwag and Stephens, 2010; Kamel and Elbanna, 2010; Gaio, 2010; Ahn and Kwon, 2010; Amar and Abaoub, 2010; Yunos et al, 2010; Chen et al, 2011; Skinner and Soltes, 2011; Sun et al, 2011; Mashruwala and Mashruwala, 2011; Boulton et al, 2011; Li, 2011; Louis and Sun, 2011; Kanagaretnam et al, 2011; Siagian and Tresnaningsih, 2011; Ahmad-Zaluki et al, 2011; Choi et al, 2011; Kabir et al, 2011; Gerayli et al, 2011; Kramer et al, 2011;

Alali, 2011; Valipour and Moradbeygi, 2011; Skinner and Soltes, 2011; Panahiam and Aminossadati, 2011; Lee and Swenson, 2011; Lu, 2012; Filip and Raffournier, 2012; Blaylock et al, 2012; Kim et al, 2012; Bhattacharya et al, 2012; Roychowdhury and Sletten, 2012; Jungeun et al, 2012; Gerakos, 2012; Houqe et al, 2012; Moraes da Costa et al, 2012; Iatridis, 2012; Hamdan et al, 2012; Gorgan et al, 2012; Hajizadeh and Rahimi, 2012; Reyad, 2012; Marinovic, 2013; Yung et al, 2013; Bhattacharya et al, 2013; Ahmed, 2013; Ismail et al, 2013; Nelson and Devi, 2013; Beneish et al, 2013; Huang and Wang, 2013; Ebaid, 2013; Demerjian et al, 2013; Dichev et al, 2013; Cheng et al, 2013a; Linck et al, 2013; Vladu, 2013; Kousenidis et al, 2013; Habib et al, 2013; Francis et al, 2013; Iatridis and Dimitras, 2013; Lee and Lee, 2013; Bepari et al, 2013; Yasar, 2013; Alves, 2013; Hamdan et al, 2013; Chandrasegaram et al, 2013; Artiach and Clarkson, 2013; Hasanzade et al, 2013; Sun et al, 2014; Perotti and Wagenhofer, 2014; Gonzalez and Garcia-Meca, 2014; Ames et al, 2014; Brown et al, 2014; Asthana, 2014; Salleh and Haat, 2014; Badolato et al, 2014; Sirait and Siregar, 2014; Soliman and Ragab, 2014; Gajevszky, 2014; Lyimo, 2014; Ismail et al, 2015; Shubita, 2015; Ji et al, 2015; Ahmed, 2015; Muttakin et al, 2015; Christensen et al, 2015; Hashim and Devi, 2015; Lee et al, 2015; Al-Dhamari and Ismail, 2015; Li, 2015; Khalifa and Othman, 2015; Vichitsarawong and Pornupatham, 2015; Ayemere and Elijah, 2015; Nakashima and Ziebart, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3. Earnings quality attributes

Using various definitions for earnings quality, researchers have developed several models, which were used for very narrow and specific purposes. Over the years, researchers have devised various measures of earnings quality to represent

decision usefulness in specific decision contexts. These measures, however, have become proxies for earnings quality in generic sense. Many researches divided earnings quality into three major categories: accounting based attributes, which are **persistence, predictability, quality of accruals, volatility, investment-based earnings quality measure, smoothness and earnings quality assessment** and market based measures, which are **value relevance, timeliness loss recognition, earnings response coefficients and conservatism,** and returns based representation of earnings quality.

As we mentioned above, Schipper and Vincent (2003) discussed empirical measures used in academic research to assess earnings quality and relates these measures both to decision usefulness and to the economics-based definition of earnings developed by Hicks (1939). They considered that earnings quality constructs derived from 1) the time-series properties of earnings, 2) selected qualitative characteristics in the FASB's Conceptual Framework, 3) the relations among income, cash, and accruals, and 4) implementation decisions.

Bhattacharya et al (2003) developed a new measure of earnings quality by combining earnings aggressiveness, loss avoidance and earnings smoothing: the earnings opacity. Using 58.653 firm-year observations from 34 countries for the period 1985-1998, they documented that, after controlling for other influences, an increase in overall opacity in a country is linked to an economically significant increase in the cost of equity and an economically significant decrease in trading in the stock market of that country.

Further, Gissel et al (2005) summarized eight models for measuring earnings quality from 1) Center for Financial Research and Analysis, 2) Empirical Research Partners, 3) Ford equity Research, 4) Lev-Thiagarajan, 5) Merill Lynch, 6) Raymond

James and Associates, 7) S&P Core Earnings, and 8) UBS (David Bianco). While the criteria used in these measures of earnings quality, they indicated that none of them provide a comprehensive view of it. Thus, they proposed an Earnings Quality Assessment that provides an independent measure of the quality of a company's reported earnings. This model uses 20 criteria that impact earnings quality and is more comprehensive than others models presented, considering revenue and expense items, as well as one-time items, accounting changes, acquisitions, and discontinued operations. This model also assesses the stability of a company, which leads to a more understanding of its future potential.

Li (2011) observed that to capture earnings quality, there are three approaches. The first approach uses properties of observed accounting numbers. The measures based on this approach include the level of accruals by Sloan (1996), the estimation error in accruals by Dechow and Dichev (2002), and the volatility of earnings. The second approach highlights the association between earnings and stock returns, which assumes market efficiency and extracts information about future earnings from stock prices (e.g. Basu, 1997; Collins et al, 1997; Francis and Schipper, 1999; Ecker et al, 2006). Finally, the third approach emphasizes the management perspective which may provide incremental information content to the measures that are based on historical accounting numbers or the information set of outside equity investors.

Considering all above, for the purpose of this research, seven measures of earnings quality are examined: conservatism, value relevance, accruals quality, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness.

2.3.1. Earnings conservatism

The most extreme definition of conservatism came from Bliss (1924) by using a motto: “anticipate no profit, but anticipate all losses”. This adage is interpreted as representing “the accountant’s tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses” (Basu, 1997, p. 7). It means that the greater the difference in degree of verification required for gains versus losses, the greater the conservatism. Thus, it is an issue of verifiability of conservatism. Based on this interpretation, Watts (2003a, 2003b) defined earnings conservatism as the differential verifiability required for recognition of profits versus losses.

In the UK, concept of conservatism is examined in Statement of Standard Practice No. 2 “Disclosure of Accounting Policies”, where conservatism is described as revenue and profits are not anticipated, but are recognized by inclusion in the profit and loss account only when realized in the form either of cash or of other assets the ultimate cash realization of which can be assessed with reasonable certainty; provision is made for all known liabilities whether the amount of these is known with certainty or is a best estimate in the light of the information available.

Beaver and Ryan (2000) characterized conservatism (or bias) as a persistent different difference between market value and book value that is distinct from temporary differences due to economic gains and losses that are recognized in book value gradually over time.

According to market-based approach, Ball et al (2000) defined conservatism as the differential ability of accounting earnings to reflect economic losses (measured as negative stock returns) versus economic gains (measured as positive stock returns).

Lara and Mora (2004) detected two types of conservatism: earnings conservatism by Basu (1997) and balance sheet conservatism by Feltham and Ohlson (1995). As I mentioned above, according to Basu (1997), earnings conservatism is a timelier recognition of bad news in earnings relative to good news. Thus, earnings conservatism is conservatism that has effect on the income which, however, does not have a consistent effect on the earnings because there is always a correction in a later period. For instance, if the manager expects profits which will not be recorded in the financial statement in the first year, the profits will be understated in this year. However, in the next year the profits will be written down and thus, the profits will be overstated in the next year (Lara and Mora, 2004). Therefore, earnings conservatism is also called temporary conservatism.

Balance sheet conservatism is a persistent understatement of book value of shareholders' equity (Feltham and Ohlson, 1995). On contrary from earnings conservatism, balance sheet conservatism has a persistently effect on the balance sheet which means that assets will be valued lower and/or liabilities will be valued higher. Therefore, balance sheet conservatism is also called consistently conservatism.

Watts (2003a, 2003b) gave three alternative explanations for conservatism: contracting, shareholder litigation, taxation and accounting regulation. "The contracting explanation implies that conservatism will exist even the absence of formal contractual use of financial statements" (Watts, 2003a, p. 207). According to Watts and Zimmerman (1986), every contract has its own constraints and conservatism measures, such as the debt contract or/and the management compensation contract. Thus, because gains will be lower in a financial crisis, the manager will reduce conservatism in order to comply with a contract.

Ryan (2006) provided useful guidance for empiricists interested in measuring conditional conservatism and in interpreting associations of those measured with variables of interest. He claimed that conditional conservatism involves the more timely recognition of bad news than good news in earnings, as occurs with impairment accounting for many types of assets.

Chan et al (2009) stated that there are two types of accounting conservatism: ex ante and ex post conservatism. Ex ante conservatism is accounting-based, balance sheet related, and unconditional or news independent. It reflects the understatement of book values of net assets and is unrelated to changes in future cash flows. On the other hand, ex post conservatism is market-based, earnings related, and conditional or news dependent.

Finally, Shroff et al (2012) tested the conservatism and asymmetric timeliness hypothesis by using information on extreme events as a measure of good/bad news. Particularly, they used two approaches to test this conservatism and asymmetric timeliness hypothesis. First, they used extreme returns to identify good/bad news and found that negative extreme returns have a significantly higher explanatory power for current earnings changes than positive extreme returns. Second, they defined positive/negative special items reported in the annual income statement as good/bad news.

Looking to the models of conservatism in the extant literature, there are plenty of approaches. First, Basu (1997) formulated conservatism which based on a regression of returns on earnings with an interactive dummy variable on returns to indicate whether the return was negative. The dummy variable D interacts with the

return variable R to proxy for bad news RD whilst the main effect on return (R) is a proxy for good news. Thus, the Basu's (1997) regression model is as follows:

$$E_{it}/P_{it-1} = \beta_0 + \beta_1 R_{it} + \beta_2 D_{it} + \beta_3 RD_{it} + \varepsilon_{it} \quad (3)$$

where E_{it} is annual earnings, P_{it-1} is lagged market capitalization, R_{it} is contemporaneous annual returns, D_{it} is a dummy variable equal to 1 if R_{it} is negative and 0 otherwise, ε_{it} is the error term. The value of β_3 reflects the incremental sensitivity of earnings to bad news compared to good news, commonly referred as asymmetric timeliness or ex post conservatism. β_3 is positive for conservative reporting because earnings reflect all the bad news but not the good news. Consequently, greater the degree of conservatism in reporting, the greater will be the value of β_3. In other words, β_3 captures the difference of timeliness of financial reports between bad news and good news which will be the conservatism level of the whole sample. Thus, **higher (lower) values of β_3 imply less conservative earnings and higher (lower) quality of earnings.**

Following Basu (1997), Ball et al (2000) measured conservatism as the ratio of the slope coefficients on negative returns to the slope coefficients on positive returns in a reverse regression of earnings on returns. Thus, they incorporated conservative asymmetry in accounting income timeliness as follows:

$$NI_{it} = \beta_0 + \beta_1 R_{it} + \beta_2 D_{it} + \beta_3 RD_{it} + \varepsilon_{it} \quad (4)$$

where NI_{it} is earnings yield estimated as accounting income scaled by economic income, and R_{it}, D_{it}, RD_{it} estimated as shown in equation (3).

Beaver and Ryan (2000) measured conservatism as downward bias in book value. They estimated this measure using fixed firm and time effects regression of book-to-market on current and lagged returns. Given that a return proxies for contemporaneous news, the return terms capture lags in book value. The firm intercepts capture biases. Hence, they used the opening ratio of book value of equity to market of equity[2] (book-to-market ratio) to measure ex ante conservatism. **Higher (lower) values of Book to market$_{it}$ imply less conservative earnings and higher (lower) quality of earnings.**

$$\text{Book to market}_{it} = \frac{\text{Book value of firm}_{it}}{\text{Market value of firm}_{it}} \qquad (5)$$

Another conservatism proxy came from Penman and Zhang's (2002). They used information from the financial statements to develop two indices of the quality of earnings. The first index (C-score) scores the degree to which the firm applies conservative accounting. The second index (G-Score) scores the quality of earnings that results from the joint effect of conservatism and changes investment activity.

They constructed C-Score based on the accounting treatment of three investments for which the accounting is relatively immune from managerial discretion after the expenditure has occurred: inventories, R&D and advertising. The accounting for these items follows mandates from accounting regulators or (in the case of LIFO) an accounting choice that management does not change from period to period. Thus:

$$C - \text{Score}_{it} = {}^{ER_{it}}/_{NOA_{it}} = (INV_{it}^{res} + RD_{it}^{res} + ADV_{it}^{res})/NOA_{it} \qquad (6)$$

[2] If the ratio is above 1 then the stock is undervalued and if it is less than 1, the stock is overvalued.

where ER_{it} is the level of estimated reserves created by the conservatism, NOA_{it} is net operating assets estimated as the book value of operating assets minus operating liabilities, INV_{it}^{res} is inventory reserve estimated as the LIFO reserve reported in the financial statement footnotes, RD_{it}^{res} is R&D reserve estimated as the estimated amortized R&D assets that would have been on the balance sheet of R&D had not been expensed, ADV_{it}^{res} is advertising reserve estimates as the estimated brand assets created by advertising expenditures. Firms with larger C-Scores are more likely to have conservatively reported financial statement than firms with smaller C-Scores.

Whereas the C-Score measures the effect of conservative accounting on the balance sheet, the Q-Score measures the effect of conservative accounting on earnings in the income statement. They computed Q-Score as follows:

$$Q-\text{Score}_{it} = 0.5(C-\text{Score}_{it} - C-\text{Score}_{it-1}) + 0.5(C-\text{Score}_{it} - \text{Industry median}C-\text{Score}_{it}) \quad (7)$$

The overall score can be interpreted as the unexpected C-Score where the expected C-Score is a simple average of last period's C-Score and the median C-Score for the industry.

Ball and Shivakumar (2005) used regressions based on accruals and cash flows to measure conservatism. They argued that the negative association between earnings and operating cash flows first documented by Dechow (1994) is less pronounced in bad news periods as a consequence of the asymmetric verification requirements to recognize good and bad news in earnings. Economics losses are likely to be recognized on a timely basis through unrealized accruals, while economic gains are recognized when realized and thus accounted for on a cash basis. Hence, to test

the asymmetry in accruals Ball and Shivakumar (2005) proposed the following model:

$$\mathrm{Accr}_{it} = \beta_0 + \beta_1 \mathrm{DCFO}_{it} + \beta_2 \mathrm{CFO}_{it} + \beta_3 \mathrm{CFO}_{it} \mathrm{DCFO}_{it} + \varepsilon_{it} \quad (8)$$

where Accr_{it} denotes annual total accruals, defined as income before extraordinary items minus cash flow from operations, CFO_{it} is cash flow from operations and DCFO_{it} is a dummy variable equal to 1 in the case of negative CFO and 0 otherwise. Accr_{it} and CFO_{it} are both scaled by average total assets. β_2 is expected to be significantly negative showing the expected negative correlation between accruals and cash flows, and β_3 is expected to be significantly positive in the presence of conditional conservatism, showing a positive contemporaneous association between cash flows and accruals in bad news periods, that is, that accrued losses are more likely in periods of negative cash flows.

Based on Basu (1997) model, to estimate the timeliness with which accounting reflects both news and conservatism at the firm-year level, Khan and Watts (2007) specified that both the timeliness of good news (G-Score) each year and the incremental timeliness of bad news (C-Score) each year are linear functions of firm-specific characteristics each year. The C-Score is computed as:

$$\mathrm{G-Score} = \beta_1 = \mu_0 + \mu_1 \mathrm{Size}_{it} + \mu_2 \mathrm{M/B}_{it} + \mu_3 \mathrm{Lev}_{it} \quad (9)$$

$$\mathrm{C-Score} = \beta_3 = \lambda_0 + \lambda_1 \mathrm{Size}_{it} + \lambda_2 \mathrm{M/B}_{it} + \lambda_3 \mathrm{Lev}_{it} \quad (10)$$

where Size_{it} is the natural log of market value of equity, $\mathrm{M/B}_{it}$ is the ratio of market value of equity to book value of equity at the end of the year and Lev_{it} is leverage, defined as long debt plus short term debt deflated by market value of equity.

Equations (9) and (10) are not regression models. Instead, Khan and Watts (2007) substitute them into regression equation (3), to obtain equation (11) below. C-Score is the firm-year measure of conservatism or incremental bad news timeliness. The total bad news timeliness is the sum of G-Score and C-Score.

The annual cross –sectional regression model used to estimate C-Score and G-Score is:

$$E_{it}/P_{it-1} = \beta_0 + \beta_1 R_{it}\left(\mu_0 + \mu_1 Size_{it} + \mu_2 \frac{M}{B_{it}} + \mu_3 Lev_{it}\right) + \beta_2 D_{it} + \beta_3 RD_{it}\left(\lambda_0 + \lambda_1 Size_{it} + \lambda_2 \frac{M}{B_{it}} + \lambda_3 Lev_{it}\right) + \left(\delta_0 Size_{it} + \delta_1 \frac{M}{B_{it}} + \delta_3 Lev_{it} + \delta_4 D_{it} Size_{it} + \delta_5 D_{it} \frac{M}{B_{it}} + \delta_6 D_{it} Lev_{it}\right) + \varepsilon_{it} \quad (11)$$

Callen et al (2010) constructed a conservatism ratio defined as the ratio of the current earnings shock to earnings news. The ratio measured how much of the total earnings shock is incorporated into current period unexpected earnings. Thus, for a given negative shock, the greater the conservatism ratio the more conservative is the firm because more of the total negative shock to current and future cash flows is recognized in the current financial statements. Thus, they measured conservatism ratio as:

$$Conservatism\ ratio_t = \eta_{2,t}/Ne_t \quad (12)$$

where $\eta_{2,t}$ is the earnings surprise from the vector autoregressive system and Ne_t is earnings news.

Callen and Segal (2013) derived a model-based measure of the degree of conservatism at the firm-year level which is a function of the determinants of conditional conservatism. They developed the following nonlinear equation for the extreme conservatism firm:

$$Ne_t^C = c_0 + c_1[r_t - E_{t-1}(r_t)] + c_2 D * [r_t - E_{t-1}(r_t)] + Nr_t \quad (13)$$

where Ne_t^C is earnings news, E_{t-1} is the expectations operator for year t-1, Nr_t is the shock to discount rates (expected future returns) over the lifetime of the firm, D equals to 1 when $[r_t - E_{t-1}(r_t)] \leq 0$ and 0 otherwise, $c_1 = \rho\beta_1/(1 - \rho\beta_2)$ and $c_2 = (1 - \rho\beta_1 - \rho\beta_2)/(1 - \rho\beta_2)$, r_t is the log of (one plus) cum dividend equity return assuming that returns are based on a conservative accounting system.

There are plenty of papers that examined different aspects of earnings conservatism (Antle and Nalebuff, 1991; Krishnan, 1994; Basu, 1999; Poper and Walker, 1999; Bauman, 1999; Ahmed et al, 2000; Ball et al, 2000; Lubberink and Huijgen, 2001; Kwon et al, 2001; Penman and Zhang, 2002; Givoly and Hayn, 2002; Ahmed et al, 2002; Watts, 2003a; Watts, 2003b; Chung et al, 2003; Francis et al, 2004; Beekes et al, 2004; Huijgen and Lubberink, 2005; Basu et al, 2005; Pae et al, 2005; Ball and Shivakumar, 2005; Basu, 2005; Kwon, 2005; Gassen et al, 2006; Ding and Stolowy, 2006; Grambovas et al, 2006; Narayanamoorthy, 2006; Lobo and Zhou, 2006; Ruddock et al, 2006; O'connell, 2006; Balkrishna et al, 2007; Dietrich et al, 2007; Pae, 2007; Givoly et al; 2007; Qiang, 2007; Smith, 2007; Chen et al, 2007a; Ahmed and Duellman, 2007; Krishnan, 2007; Kung et al, 2008; LaFond and Watts, 2008; LaFond and Roychowdhury, 2008; Dimitropoulos and Asteriou, 2008; Francis and Wang, 2008; Ball et al, 2008; Lai and Taylor, 2008; Zhang and Emanuel, 2008; Krishnan and Parsons, 2008; Beatty et al, 2008; Chung and Wynn, 2008; Krishnan and Visvanathan, 2008; Herrmann et al, 2008; Lu and Sapra, 2009; Lara et al, 2009; Katz, 2009; Okoye and Akenbor, 2009; Gigler et al, 2009; Nichols et al, 2009; Pinnuck and Potter, 2009; Chan et al, 2009; Lara et al, 2009a; Jenkins et al, 2009; Chen et al, 2010; Heltzer, 2010; Wahab et al, 2010; Vichitsarawong et al, 2010; Shuto

and Takada, 2010; Nikolaev, 2010; Balsari et al, 2010; Warganegara and Vionita, 2010; Hamberg and Novak, 2010; Bandyopadhayay et al, 2010; Pae and Thornton, 2010; Kim and Pevzner, 2010; Cano-Rodriguez, 2010; Ahmed and Duellman, 2011; Goh and Li, 2011; Patatoukas and Thomas, 2011; Mak et al, 2011; Kung et al, 2011; Ismail and Elbolok, 2011; Chandra, 2011; Sun and Liu, 2011; Tapia et al, 2011; Lim, 2011; Bona-Sanchez, 2011; Zhu and Xia, 2011; Hsu et al, 2012; Ramalingegowda and Yu, 2012; Beatty et al, 2012; Xu et al, 2012; Iatridis, 2012; Hamdan et al, 2012; Hui et al, 2012; Ettredge et al, 2012; Fan and Zhang, 2012; Yunos et al, 2012; Xie et al, 2012; Ahmed and Henry, 2012; Sohn, 2012; Louis et al, 2012; Alam and Petruska, 2012; Lawrence et al, 2013; Francis et al, 2013; Giner et al, 2013; Acar et al, 2013; Ball et al, 2013; Kim et al, 2013; Tan, 2013; Francis and Wu, 2013; Francis et al, 2013a; Gao, 2013; Li, 2013; Ahmed and Duellman, 2013; Bertin and Moya, 2013; Leventis et al, 2013; Kootanaee and Nedaei, 2013; Liao et al, 2013; Wang, 2013; Ashton and Wang, 2013; Ball et al, 2013a; Artiach and Clarkson, 2013; Chen et al, 2014; Haw et al, 2014; Kravet, 2014; Wakil, 2014; McNichols et al, 2014; Lara et al, 2014; Kanagaretnam et al, 2014; Caskey and Peterson, 2014; Liu and Magnan; 2014; Lin, 2014; Lim et al, 2014; Salama and Putnam, 2015; Crawley, 2015; Crockett and Ali, 2015; Lee et al, 2015; Khalifa and Othman, 2015; Liu and Elayan, 2015; Smith, 2015; Li, 2015; Heflin et al, 2015; Francis et al, 2015; Sultana, 2015; Khurana and Wang, 2015; Cheng et al, 2015; Sultana and Van der Zahn, 2015; Song, 2015; Andre et al, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.2. Value relevance

Value relevance is based on the idea that accounting numbers should explain the information that is impounded in returns. Therefore, value relevance is the ability of one or more accounting numbers to explain variation in stock returns. It means that more relevant earnings explain greater variation in returns and therefore higher earnings quality. The most representative paper that examined the value relevance came from Beisland (2009). He offered a comprehensive study of the empirical value relevance literature. He defined value relevance as the ability of financial statement information to capture and summarize information that determines the firm's value.

Francis and Schipper (1999) offered four other comprehensive interpretations of value relevance. First, financial statement information influences stock prices by capturing intrinsic share values toward which stock prices drift. Second, financial statement is value relevance if it contains the variables used in a valuation model or assists in predicting those variables. Third and fourth interpretations are based on value relevance as indicated by a statistical association between financial information and prices or returns.

Barth et al (2001a) stated that value relevance research examines the association between accounting amounts and equity market values.

Finally, Ewert and Wagenhofer (2015) stated that value relevance captures the notion that earnings are of high quality if they are capable to explain the firm's market price and/or market returns.

There are different approaches of value relevance. Ohlson (1995) estimated the value relevance as the explanatory power ($R^2_{i,t}$) of the following regression model:

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \varepsilon_{it} \qquad (14)$$

where P_{it} is stock price, E_{it} is earnings per share, $E_{it} = \frac{NI_{it} - PD_{it}}{WANoCSO_{it}}$, NI_{it} is net income, PD_{it} is preferred dividends, $WANoCSO_{it}$ is weighted average number of common shares outstanding, BV_{it} is book value per share, $BV_{it} = \frac{TSE_{it} - PSE_{it}}{NoCSO_{it}}$, TSE_{it} is total shareholders' equity, PSE_{it} is preferred stock equity, $NoCSO_{it}$ is number of common shares outstanding, ε_{it} is the error term. **Higher (lower) values of $R^2_{i,t}$ imply lower (higher) value relevant earnings and therefore lower (higher) earnings quality.**

There are plenty of papers that examined different aspects of value relevance (Amir et al, 1993; Amir and Lev, 1996; Barth et al, 1996; Collins et al, 1997; Aboody and Lev, 1998; Ayers, 1998; Francis and Schipper, 1999; Brown et al, 1999; Hope, 1999; Ali and Hwang, 2000; Graham et al, 2000; Graham and King, 2000; Cahan et al, 2000; Charitou et al, 2000; Niskanen et al, 2000; Mingyi, 2000; Hung, 2000; Chen et al, 2001a; Barth et al, 2001a; Holthausen and Watts, 2001; Ho et al, 2001; Hirschey et al, 2001; Tutticci, 2002; Monahan, 2002; Davis, 2002; Frank, 2002; Boone, 2002; Aboody et al, 2002; Ota, 2003; Khurana and Myung-Sun, 2003; Brown and Sivakumar, 2003; Chen and Zhang, 2003; Graham Jr et al, 2003; Bodnar et al, 2003; Cornell and Landsman, 2003; Wiedman and Marquardt, 2004; Dontoh et al, 2004; Christian and Jones, 2004; Francis et al, 2004; Marquardt and Wiedman, 2004; Habib, 2004; Anctil and Chamberlain, 2005; Lajili and Zeghal, 2005; Hassel et al, 2005; Stoltzfus and Epps, 2005; Aksu, 2005; Davis-Friday and Gordon, 2005; Bartov et al, 2005; Hand, 2005; El Shamy and Kayed, 2005; Owusu-Ansah and Yeoh, 2006; Hellstrom, 2006; Gul et al, 2006; Ahmed et al, 2006; Cazavan-Jeny and Jeanjean, 2006; Brown et al, 2006; Gul et al, 2006; Feroz et al, 2006; Lapointe-Antunes et al, 2006; Ragab and Omran, 2006; Davis-Friday et al, 2006; Goodwin and Ahmed, 2006; Choi, 2007; Pinto, 2007; Tan and Lim, 2007; Chee Yeow and Patricia Mui-Siang,

2007; Caylor et al, 2007; Cheng et al, 2007; Brimble and Hodgson, 2007; Boone and Raman, 2007; Gu, 2007; Jermakowicz et al, 2007; Shamki and Rahman, 2013; Bae and Jeong, 2007; Bettman, 2007; Horton, 2007; Negash, 2008; Chalmers et al, 2008; Dimitrov and Jain, 2008; Oswald, 2008; Kumar and Krishnan, 2008; Gjerde et al, 2008; Thinggaard and Damkier, 2008; Hossain, 2008; Habib and Azim, 2008; Banghoj and Plenborg, 2008; Rahman and Mohd-Saleh, 2008; Lynn et al, 2008; Jifri and Citron, 2009; Banker et al, 2009; Gould and Rammal, 2009; Jamaluddin et al, 2009; Aleksanyan, 2009; Kadri et al, 2009; Jenkins et al, 2009; Jiang and Anandarajan, 2009; Devalle et al, 2010; Ota, 2010; Kang and Zhao, 2010; Kadri et al, 2010; Habib, 2010; Dobija and Klimczak, 2010; Song et al, 2010; Fang et al, 2010; Chan et al, 2011; Jing and Park, 2011; Gjerde et al, 2011; Dang et al, 2011; Jones and Smith, 2011; Papadatos and Bellas, 2011; Chalmers et al, 2011; Akbar et al, 2011; Alfaraih and Alanezi, 2011; Vafaei et al, 2011; Werner, 2011; Dainelli and Giunta, 2011; Balachandran and Mohanram, 2011; Choi et al, 2011; De Klerk and De Villiers, 2012; Zhou, 2012; AbuGhazaleh et al, 2012; Duran-Vazquez et al, 2012; Alexander et al, 2012; Srinivasan and Narasimhan, 2012; Tsalavoutas et al, 2012; Ferraro and Veltri, 2012a; Shamsuddin and Xiang, 2012; Ferraro and Veltri, 2012; Morais, 2012; Uyar and Kilic, 2012; Moraes da Costa et al, 2012; Lam et al, 2013; Cheng et al, 2013; Lee and Lee, 2013; Jiang and Stark, 2013; Fiador, 2013; Garanina and Kormiltseva, 2013; Senthilnathan, 2013; Bepari et al, 2013; Papadatos and Makri, 2013; Krishnan et al, 2013; Schiemann and Guenther, 2013; Balasundaram, 2013; Clacher et al, 2013; Iatridis and Dimitras, 2013; Tsalavoutas and Dionysiou, 2014; Perotti and Wagenhofer, 2014; Palea, 2014; Ji and Lu, 2014; Venter et al, 2014; Ciftci et al, 2014; Ahmed, 2015; Chen et al, 2015). Some of them are examined in literature

review (Section 4) Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.3. Accruals quality

Xie (2001) and DeFond and Jiambalvo (1994) mentioned that accruals can be divided into normal and abnormal accruals. Normal accruals are the adjusted due to the firm's fundamental performance and abnormal accruals are due to earnings management in an imperfect accounting system, which is not related to the actual economic performance of firms. Abnormal accruals are divided into two groups: discretionary and non discretionary accruals. Discretionary accruals is less persistent than other parts like cash flow operating and non discretionary accruals is less persistent because it is easy to write off. Furthermore, discretionary accruals are divided into signed and unsigned.

There are different models that formulate accruals quality. The most representative models come from Healy (1985), DeAngelo (1986), Jones (1991), Dechow et al (1995), Sloan (1996), Peasnell et al (2000), DeFond and Park (2001), Dechow and Dichev (2002), McNichols (2002) and Kothari et al (2005).

The Healy model

Healy (1985) was the first researcher that examined signed discretionary accruals. He assumed that discretionary accruals occur every period so that non discretionary accruals are the mean of total accruals scaled by lagged total assets from the estimated period. He used three groups as a sample: earnings with predicted upward earnings management (1^{st} group) and earnings with predicted downward earnings management (2^{nd} and 3^{nd} groups). Then he compared the mean of total

accruals in the upward group with the mean of total accruals from separated downward group. The mean total accruals in the estimation period from represent non discretionary accruals:

$$\mathrm{NDA_{it}} = \frac{\Sigma \mathrm{TA_{it}}}{\mathrm{T}} \qquad (15)$$

where $\mathrm{NDA_{it}}$ is non discretionary accruals, $\mathrm{TA_{it}}$ is scaled total accruals divided by previous year total assets and T is the number of year in the estimation period.

The DeAngelo model

The DeAngelo (1986) model assumed that last period total accruals (scaled by lagged total assets) are without earnings management so that non discretionary accruals for the current period is equal to the last period total accruals (scaled by lagged total assets), which is shown as follows:

$$\mathrm{NDA_{it}} = \mathrm{TA_{it-1}} \qquad (16)$$

where $\mathrm{NDA_{it}}$ is non discretionary accruals and $\mathrm{TA_{it-1}}$ is scaled total accruals divided by previous year total assets.

The Jones model

Jones (1991) defined discretionary accruals as actual total reported accruals less expected normal accruals. Specifically, discretionary accruals are estimated as the residuals of the following regression equation:

$$\mathrm{TA_{it}} = \beta_0 + \beta_1 \left(\frac{1}{\mathrm{A_{it-1}}}\right) + \beta_2 \Delta \mathrm{REV_{it}} + \beta_3 \mathrm{GPPE_{it}} + \varepsilon_t \qquad (17)$$

where TA_{it} is total accruals scaled by lagged total assets in year t-1 (where accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation), A_{it-1} is total assets in year t-1 (or lagged total assets), ΔREV_{it} is the change in revenues scaled

by lagged total assets, $GPPE_{it}$ is gross property, plant and equipment scaled by lagged total assets and ε_{it} is the error term.

The Dechow et al model

Dechow et al (1995) model is applied to remove the drawbacks from Jones (1991) model which based on the assumption that managers can manipulate revenue through accounts receivables which is easier than over the recognition of cash sales. Dechow et al (1995) estimated earnings quality by using the residuals of the following regression equation:

$$TA_{it} = \beta_0 + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2(\Delta REV_{it} - \Delta REC_{it}) + \beta_3 GPPE_{it} + \varepsilon_t \qquad (18)$$

Where TA_{it} is total accruals scaled by lagged total assets in year t-1 (where accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation), A_{it-1} is total assets in year t-1 (or lagged total assets), ΔREV_{it} is the change in revenues scaled by lagged total assets, ΔREC_{it} is account receivables scaled by lagged total assets, $GPPE_{it}$ is gross property, plant and equipment scaled by lagged total assets and ε_{it} is the error term.

The Sloan model

Sloan (1996) measured accruals as follows:

$$\frac{\text{Accruals}_{it}}{\text{Average Total Assets}_{it}} = \frac{\Delta CA_{it}}{\text{Average Total Assets}_{it}} - \frac{\Delta CL_{it}}{\text{Average Total Assets}_{it}} - \frac{DEP_{it}}{\text{Average Total Assets}_{it}} \qquad (19)$$

$$\frac{\Delta \mathrm{CA_{it}}}{\mathrm{Average\ Total\ Assets_{it}}} = \frac{\Delta \mathrm{AR_{it}}}{\mathrm{Average\ Total\ Assets_{it}}} + \frac{\Delta \mathrm{INV_{it}}}{\mathrm{Average\ Total\ Assets_{it}}} + \frac{\Delta \mathrm{OCA_{it}}}{\mathrm{Average\ Total\ Assets_{it}}}$$

$$\frac{\Delta CL_{it}}{Average\ Total\ Assets_{it}} = \frac{\Delta AP_{it}}{Average\ Total\ Assets_{it}} + \frac{\Delta OCL_{it}}{Average\ Total\ Assets_{it}}$$

where $\Delta \mathrm{CA_{it}}$ is the change in non-cash current assets, given by the change in current assets less the change in cash, ΔCL_{it} is the change in current liabilities excluding short-term debt and taxes payable, given by the change in current liabilities minus the change in debt included in current liabilities and minus the change in income taxes payable, DEP_{it} is depreciation and amortization, ΔAR_{it} is the change in inventories, ΔOCA_{it} is the change in other current assets, ΔAP_{it} is the change in accounts payable, ΔOCL_{it} is the change in other current liabilities and $Average\ Total\ Assets_{it}$ is the average of total assets.

The Peasnell et al model

Peasnell et al (2000) developed and tested a new specification of abnormal accruals, labeled the "margin model". The margin model appears to generate relatively better specified estimates of abnormal accruals when cash flow performance is extreme. The following equation is intended to capture the accrual recognition process before contamination by earnings management.

$$\mathrm{WCA_{it}} = (\Delta \mathrm{STOCK_{it}} + \Delta \mathrm{DEBT_{it}}) - \Delta \mathrm{CREDIT_{it}} + \mathrm{OTHER_{it}} = (\mathrm{REVC_{it}} - \mathrm{COGS_{it}} - \mathrm{BDE_{it}}) + (\mathrm{CPS_{it}} - \mathrm{CRC_{it}}) + \mathrm{OTHER_{it}} = \mathrm{sm} * \mathrm{REV_{it}} - \mathrm{cm} * \mathrm{CRC_{it}} + \mathrm{OTHER_{it}} \quad (20)$$

where WCA_{it} is working capital accruals, $\Delta STOCK_{it}$ is change in stocks, $\Delta DEBT_{it}$ is change in debtors net of bad debt allowance, $\Delta CREDIT_{it}$ is change in creditors, $OTHER_{it}$ includes all non-cash current assets other than stocks and trade debtors and all current liabilities other than creditors, $REVC_{it}$ is revenue from credit sales, $COGS_{it}$ is cost of finished goods sold, BDE_{it} is the bad debt expense, CPS_{it} is cash paid to suppliers, CRC_{it} is cash received from costumers, sm equals the gross margin on recorded sales and cm equals the gross cash contribution on cash collections from costumers. Thus, working capital is expressed as the sum of two contribution margins: the gross margin on sales and its cash flow analogue, the 8 margin on cash received (the "cash margin").

Equation (20) is implemented empirically using the following OLS regression:

$$WCA_{it} = \lambda_0 + \lambda_1 REV_{it} + \lambda_2 CR_{it} + \eta_{it} \quad (21)$$

where REV_{it} is total sales, CR_{it} is total sales minus the change in trade debtors, λ_0, λ_1, λ_2 are regression coefficients and η_{it} is the regression residual. The λ_1 coefficient represents an estimate of the sales margin and is predicted to be positive, while the λ_2 coefficient represents an estimate of the cash margin and is predicted to be negative.

The DeFond and Park model

DeFond and Park (2001) measured signed abnormal accruals quality by using a linear expectation model, which uses a firm's own year accruals in calculating the expectation benchmark. Expected accruals are based on a firm's prior year ratio of current accruals to sales, and the prior year's ratio of depreciation expense to gross property plant and equipment.

Signed abnormal accruals are measured as the firm's actual total accruals minus predicted total accruals.

$$\text{Abnormal Accruals}_{it} = \text{Total Accruals}_{it} - \text{Predicted Accruals}_{it} \quad (22)$$

$$\text{Total Accruals}_{it} = \text{Earnings Before Extraordinary Items}_{it} - \text{Operating Cash Flows}_{it} / \text{Total Assets}_{it-1}$$

$$Predicted\ accruals_{it} = \frac{\left\{\left[Sales_{it} * Current\ Accruals_{it-1} / Sales_{it-1}\right] + \left[PPE_{it} * Depreciation_{it-1} / Gross\ PPE_{it-1}\right]\right\}}{Total\ Assets_{it-1}}$$

$$Earnings\ Before\ Extraordinary\ Items_{it} = Net\ Income_{it} - Extraordinary\ Items_{it}$$

$$\begin{aligned} Operating\ Cash\ Flows_{it} &= Earnings\ Before\ Extraordinary\ Items_{it} \\ &+ Depreciation\ and\ Amortization_{it} \\ &+ Change\ of\ Deferred\ Income\ Tax_{it} \\ &+ Change\ of\ Untaxed\ Reserve_{it} + Change\ in\ other\ Liabilites_{it} \\ &+ Minority\ Interest_{it} - Current\ Accruals_{it} \end{aligned}$$

$$\begin{aligned} Current\ Accruals_{it} &= Change\ in\ non-Cash\ Working\ Capital_{it} = \\ &\Delta\{Total\ Current\ Assets_{it} - Cash\ and\ Short\ Term\ Investments_{it} - \\ &Treasury\ Stock\ (shown\ as\ Current\ Assets)_{it}\} - \\ &\Delta\{Total\ Current\ Liabilities_{it} - \\ &Total\ Amount\ of\ Debt\ in\ Current\ Liabilities_{it} - Proposed\ Dividends_{it}\} \end{aligned}$$

where $Sales_{it}$ is sales, $Sales_{it-1}$ is sales in year t-1, PPE_{it} is property plant and equipment, $Depreciation_{it-1}$ is depreciation, $Gross\ PPE_{it-1}$ is gross property plant and equipment in year t-1, $Net\ Income_{it}$ is net income, $Extraordinary\ Items_{it}$ is extraordinary items, $Depreciation\ and\ Amortization_{it}$ is depreciation and amortization, $Change\ of\ Deferred\ Income\ Tax_{it}$ is change of deferred income, $Change\ of\ Untaxed\ Reserve_{it}$ is change of untaxed reserve, $Change\ in\ other\ Liabilites_{it}$ is change in other liabilities, $Minority\ Interest_{it}$ is minority interest, $Total\ Current\ Assets_{it}$ is total current assets, $Cash\ and\ Short\ Term\ Investments_{it}$ is cash and short term investments, $Treasury\ Stock_{it}$ is current assets, $Total\ Current\ Liabilities_{it}$ is total current liabilities, $Total\ Amount\ of\ Debt\ in\ Current\ Liabilities_{it}$ is total amount of debt in current liabilities and $Proposed\ Dividends_{it}$ is proposed dividends.

The Dechow and Dichev model

Dechow and Dichev (2002) developed a measure of unsigned discretionary accruals quality and argue that the quality of accruals and earnings is decreasing in the magnitude of estimation error in accruals. This model used firm-specific regressions of changes in working capital on last year, present, and one-year ahead cash flows from operations, as follows:

$$\mathrm{WCA_{it}} = \beta_0 + \beta_1 \mathrm{CFO_{it-1}} + \beta_2 \mathrm{CFO_{it}} + \beta_3 \mathrm{CFO_{it+1}} + \varepsilon_{it} \qquad (23)$$

$$WCA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta Debt_{it}$$

$$CFO_{it} = NIBE_{it} - (\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta Debt_{it} - Dep_{it})$$

where WCA_{it} is working capital accruals scaled by total assets at the beginning of the year, CFO_{it} is cash flow from operations scaled by total assets at the beginning of the

year, ΔCA_{it} is the change in current assets, ΔCL_{it} is the change in current liabilities, $\Delta Cash_{it}$ is the change in cash, $\Delta Debt_{it}$ is the change in debt in current liabilities, $NIBE_{it}$ is net income before extraordinary items, Dep_{it} is depreciation and amortization expense and ε_{it} is error term.

After computing the Equation (23), to estimate accruals quality measure for each firm, Dechow and Dichev (2002) take the standard deviation of residuals as follows:

$$AQ_{it} = \sigma(\varepsilon_{it}) \qquad (24)$$

The McNichols model

McNichols (2002) proposed a modified Dechow and Dichev (2002) model, arguing that the changes in sales revenue and property, plant, and equipment are important in forming expectations about current accruals, over and above the effects of operating cash flows. She showed that applying variables form the Jones' (1991) model and Dechow's et al (1995) model into the cross-sectional Dechow and Dichev (2002) model significantly increases its explanatory power and thus reduces measurement error. Hence, the accrual estimation errors using a residual ε_{it} is measured by McNichols (2002) as follows:

$$\frac{TCA_{it}}{TotalAsset_{it-1}} = \beta_0 + \beta_1 \frac{CFO_{it-1}}{TotalAsset_{it-1}} + \beta_2 \frac{CFO_{it}}{TotalAsset_{it-1}} + \beta_3 \frac{CFO_{it+1}}{TotalAsset_{it-1}} + \beta_4 \frac{\Delta REV_{it}}{TotalAsset_{it-1}} + \beta_5 \frac{PPE_{it}}{TotalAsset_{it-1}} + \varepsilon_{it} \qquad (25)$$

where TCA_{it} is total current accruals ($\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STDEBT_{it} + \Delta TP_{it}$), $TotalAsset_{it-1}$ is total assets in year t-1, CFO_{it} is cash flow from operations, ΔREV_{it} is the change in total revenue between year t-1 and t, PPE_{it} is property, plant, and equipment, TA_{it} is total accruals ($\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} +$

$\Delta STDEBT_{it} + \Delta TP_{it} - Dep_{it})$, CA_{it} is current assets, CL_{it} is current liabilities, $Cash_{it}$ is cash, $STDEBT_{it}$ is debt in current liabilities, TP_{it} is taxes payable, Dep_{it} is depreciation and amortization expenses and ε_{it} is error term.

The Richardson model

Richardson (2003) used an accrual quality measure which incorporates both operating and investing accruals. It is formulated as follows:

$$Accrual\ Quality_{it} = {Earnings_{it} - CFO_{it}}/{AverageAssets_{it}} \qquad (26)$$

where $Earnings_{it}$ is the earnings before extraordinary items, CFO_{it} is the cash flow from operations and $AverageAssets_{it}$ is the average of the book value of total assets during the year.

The Ashbaugh et al model

Ashbaugh et al (2003) used an extended version of the modified Jones model by including lagged return on assets as an additional explanatory variable to estimate discretionary accruals.

$$\frac{TACC_{i,t-1}}{TA_{i,t-1}} = \beta_0 \left[\frac{1}{TA_{i,t-1}}\right] + \beta_1 \left[\frac{(\Delta REV - \Delta REC)_{i,t-1}}{TA_{i,t-1}}\right] + \beta_2 \left[\frac{PPE_{i,t-1}}{TA_{i,t-1}}\right] + \beta_3 ROA_{i,t-1} + \varepsilon_{i,t} \qquad (27)$$

where $TACC$ is total accruals compute as the difference between earnings before extraordinary items and discontinued operations and operating cash flows (Hribar and Collins, 2002), $TA_{i,t-1}$ is lagged total assets, ΔREV is change in revenues, ΔREC is change in receivables, PPE is property, plant and equipment, $ROA_{i,t-1}$ is lagged return on assets calculated as net income before extraordinary items of prior period divided by lagged total assets and $\varepsilon_{i,t}$ is residuals.

The Kothari et al model

Kothari et al (2005) estimated the performance-matched Jones-model discretionary accrual as the difference between the Jones model discretionary accruals and the corresponding discretionary accrual for a performance-matched firm. Thus, they modified the Jones (1991) and Dechow et al (1995) accrual models including lagged ROA as follows:

$$\mathrm{TA_{it}} = \beta_0 + \beta_1\left(\frac{1}{\mathrm{A_{it-1}}}\right) + \beta_2(\Delta\mathrm{REV_{it}} - \Delta\mathrm{REC_{it}}) + \beta_3\mathrm{GPPE_{it}} + \beta_3\mathrm{ROA_{it-1}} + \varepsilon_{it} \qquad (28)$$

where TA_{it} is total accruals scaled by lagged total assets in year t-1 (where accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation), A_{it-1} is total assets in year t-1 (or lagged total assets), ΔREV_{it} is change in revenues scaled by lagged total assets, ΔREC_{it} is account receivables scaled by lagged total assets, $GPPE_{it}$ is gross property, plant and equipment scaled by lagged total assets, ROA_{it-1} is return on assets in year t-1 and ε_{it} is error term.

The Francis et al model

Francis et al (2005) measured earnings quality using long-term quality of accruals. Long-term quality of accruals is measured by the standard deviation of abnormal accruals over a multi-year period. A high (low) standard deviation implies a low (high) long-term accruals quality. Thus, they developed the following model:

$$\mathrm{TCA_{i,t}} = \beta_{0,\mathrm{i}} + \beta_{1,\mathrm{i}}\mathrm{CFO_{i,t-1}} + \beta_{2,\mathrm{i}}\mathrm{CFO_{i,t}} + \beta_{3,\mathrm{i}}\mathrm{CFO_{i,t+1}} + \beta_{4,\mathrm{i}}\Delta\mathrm{REV_{i,t}} + \beta_{5,\mathrm{i}}\mathrm{PPE_{i,t}} + \mathrm{v_{i,t}} \qquad (29)$$

where

$TCA_{i,t} = \left(\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta STDEBT_{i,t}\right) = total\ current\ accruals$,

$CFO_{i,t} = NIBE_{i,t} - TA_{i,t} = cash\ flow\ from\ operations$, $NIBE_{i,t}$ is net income before extraordinary items, $TA_{i,t} = \left(\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta STDEBT_{i,t} -\right.$

$DEPN_{i,t}) = total\ accruals$, $\Delta CA_{i,t}$ is change in current assets between year t-1 and year t, $\Delta CL_{i,t}$ is change in current liabilities between year t-1 and year t, $\Delta Cash_{i,t}$ is change in cash between year t-1 and year t, $\Delta STDEBT_{i,t}$ is change in debt in current liabilities between year t-1 and year t, $DEPN_{i,t}$ is depreciation and amortization expense between year t-1 and year t, $\Delta REV_{i,t}$ is change in revenues between year t-1 and year t and $PPE_{i,t}$ is gross value of PPE.

Larger (lower) values of accruals quality proxies indicate lower (higher) accruals quality because less of the variation in current accruals is explained by operating cash flows realizations. Lower (higher) accruals quality implies a higher (lower) level of earnings quality.

There are plenty of papers that examined different aspects of accruals quality (DeFond and Jiambalvo, 1994; Perry and Williams, 1994; Kang and Shivaramakrishnan, 1995; Healy, 1996; Teoh et al, 1998; Han and Wang, 1998; Becker et al, 1998; DeFond and Subramanyam, 1998; Kasznik, 1999; Francis and Krishnan, 1999; Healy and Whalen, 1999; Young, 1999; Francis et al, 1999; Hung, 2000; McNichols, 2000; DeFond and Park, 2001; Chan et al, 2001; Fairfield and Whisenant, 2001; Heninger, 2001; Frankel et al, 2002; Pincus and Rajgopal, 2002; Beneish and Vargus, 2002; Hribar and Collins, 2002; Krishnan, 2003; Myers et al, 2003; Chen et al, 2003; Balsam et al, 2003; Phillips et al, 2003; Chung and Kallapur, 2003; Lee et al, 2003; Leuz et al, 2003; Myers et al, 2003; Johnson et al, 2002; Klein, 2002; Xie et al, 2003; Francis et al, 2003; Bauwhede et al, 2003; Zhou and Elder, 2004; Butler et al, 2004; Francis et al, 2004; Larcker and Richardson, 2004; Wysocki, 2004; Menon and Williams, 2004; Aboody et al, 2005; Ball and Shivakumar, 2005;

Webster and Thornton, 2005; Yang and Krishnan, 2005; Chen et al, 2005; Burgstahler et al, 2006; Boonlert-U-Thai et al, 2006; Maijoor and Vanstraelen, 2006; Antle et al, 2006; Wang, 2006; Platikanova, 2006; Ball and Shivakumar, 2006; Niu, 2006; Bradbury et al, 2006; Wang, 2006; Geiger and North, 2006; Morsfield and Tan, 2006; Bergstresser and Phillipon, 2006; Matoussi and Kolsi, 2006; Srinidhi and Gul, 2007; Blouin et al, 2007; Figelman, 2007; Larcker et al, 2007; Ndubizu, 2007; Doyle et al, 2007; Hribar and Nichols, 2007; Reed et al, 2007; Johl et al, 2007; Chia et al, 2007; Van Tendeloo and Vanstraelen, 2008; Ahmed et al, 2008; Levi, 2008; Ashbaugh-Skaife et al, 2008; Gong et al, 2008; Raman and Shahrur, 2008; Trombley et al, 2008; Huang et al, 2008; Cohen et al, 2008; Barragato and Markelevich, 2008; Francis et al, 2008; Krishnan and Parsons, 2008; Guo et al, 2008; Barth et al, 2008; Francis et al, 2008a; Jiang et al, 2008; Francis and Wang, 2008; Chen et al, 2008; Core et al, 2008; Prawitt et al, 2009; Gray et al, 2009; Gong et al, 2009; Jiang and Anandarajan, 2009; Siagian and Mitra et al, 2009; Francis and Yu, 2009; Drake et al, 2009; Cheng and Reitenga, 2009; Demirkan and Platt, 2009; Lin et al, 2009; Baxter and Cotter, 2009; Chang et al, 2009; Han et al, 2010; Guan and Pourjalali, 2010; Rodriguez-Perez and Van Hemmen, 2010; Garcia-Teruel et al, 2010; Rusmin, 2010; Labelle et al, 2010; Stubben, 2010; Wang, 2010; Kent and Routledge, 2010; Dhaliwal et al, 2010; Kim and Qi, 2010; Alali, 2011; Ebaid, 2011; Tresnaningsih, 2011; Louis and Sun, 2011; Mashruwala and Mashruwala, 2011; Chen et al, 2011; Carver et al 2011; Hong and Andersen, 2011; Latiff, 2011; Choi and Pae, 2011; Baber et al, 2011; Mashruwala and Mashruwala, 2011; McInnis and Collins, 2011; Kabir et al, 2011; Valipour and Moradbeygi, 2011; Choi et al, 2011; Gerayli et al, 2011; Jungeun et al, 2012; Filip and Raffournier, 2012; Gorgan et al, 2012; Burnett et al, 2012; Bhattacharya et al, 2012; Gerakos, 2012; Houqe et al, 2012; Li et al, 2012; Duran-Vazquez et al, 2012;

Ogneva, 2012; Demirkan et al, 2012; Cheng et al, 2012; Chichernea et al, 2012; Lobo et al, 2012; Mouselli et al, 2012; Aldamen and Duncan, 2013; Linck et al, 2013; Cheng et al, 2013a; Nelson and Devi, 2013; Ismail et al, 2013; Ahmed, 2013; Demerjian et al, 2013; Linck et al, 2013; Bhattacharya et al, 2013; Ittonen et al, 2013; Wiedman, 2013; Yung et al, 2013; Christensen et al, 2013; Habib et al, 2013; Yasar, 2013; Alves, 2013; Chandrasegaram et al, 2013; Salleh and Haat, 2014; Soliman and Ragab, 2014; Gajevszky, 2014; Sun et al, 2014; Perotti and Wagenhofer, 2014; Ames et al, 2014; Sirait and Siregar, 2014; Gonzalez and Garcia-Meca, 2014; Mouselli et al, 2014; Mey and de Klerk, 2015; Dey and Lim, 2015; Ittonen et al, 2015; Nakashima and Ziebart, 2015; Ismail et al, 2015; Ayemere and Elijah, 2015; Al-Dhamari and Ismail, 2015; Ji et al, 2015; Hashim and Devi, 2015; Muttakin et al, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.4. Earnings persistence

Persistence is the extent to which current period earnings are reflective of future periods as well as the current period. Thus, Ewert and Wagenhofer (2015) stated that earnings persistence measures the extent that current earnings persist, or recur, in the future. High persistence is regarded a desirable earnings attributes by investors, and therefore a proxy for high earnings quality, since it suggests stable sustainable and low-risk earnings process.

The majority of the earnings persistence studies have employed a time-series model (Lev, 1983; Ali and Zarowin, 1992; Kormedi and Lipe, 1987; Lipe, 1990) such

as Auto-regressive, Integrated, Moving Average model to estimate a measure of earnings persistence.

Kormedi and Lipe (1987) used firm-level regressions of current earnings on last year's earnings to estimate the slope coefficient estimates of earnings persistence as follows:

$$\frac{Earn_{it}}{TotalAssets_{it}} = \beta_0 + \beta_1 \frac{Earn_{i(t-1)}}{TotalAsset_{i(t-1)}} + \varepsilon_{it} \qquad (30)$$

where Earn_{it} is net income before extraordinary items, $\text{Earn}_{\text{i}(t-1)}$ is net income before extraordinary items in year t-1 and ε_{it} is the error term.

Kormedi and Lipe's (1987) measure of earnings persistence is based on the slope coefficient estimate (β_1). Values of (β_1) close to one (or greater than one) indicate highly persistent earnings while values close to zero imply highly transitory earnings. Persistent earnings are viewed as higher quality, while transitory earnings are viewed as lower quality.

Furthermore, it is trustworthy to mention that the basic components of equation 30 are earnings, operating cash flows and accruals. Earnings are calculated as earnings before extraordinary items and discontinued operations and accruals are measures as the difference between earnings and operating cash flows. All these variables are deflated by total assets at the beginning of the period. Thus, $Earn_{it}$ is measured as follows:

$$Earn_{it} = CFO_{it} + Accruals_{it} \qquad (31)$$

where Earn_{it} is net income before extraordinary, CFO_{it} is cash flow from operations and $\text{Accruals}_{\text{it}}$ is total accruals.

Higher (lower) values of persistence indicate lower (higher) level of earnings persistence and more transitory earnings. Higher (lower) earnings persistence implies a higher (lower) level of earnings quality.

There are plenty of papers that examined different aspects of earnings persistence (Subramanyam and Wild, 1996; Baber et al, 1998; Baginski et al, 1999; Riahi-Belkaoui and Alnajjar, 2002; Donnelly, 2002; Fairfield et al, 2003; Koch and Sun, 2004; Ashley and Yang, 2004; Francis et al, 2004; Anctil and Chamberlain, 2005; Hanlon, 2005; Richardson et al, 2005; Asthana and Zhang, 2006; Boonlert-U-Thai et al, 2006; Dechow and Ge, 2006; Wang, 2006; Choi et al, 2007; Hendricks, 2007; Kean and Wells, 2007; Houqe et al, 2012; Oei et al, 2008; Li, 2008; Krishnan and Parsons, 2008; Cahan et al, 2009; Doukakis, 2010; Atwood et al, 2010; Kang et al, 2012; Tang et al, 2012; Beaver et al, 2012; Blaylock et al, 2012; Filho and Machado, 2013; Dawar, 2014; Healy et al, 2014; Perotti and Wagenhofer, 2014; Chen et al, 2014a; Govendir and Wells, 2014; Ames et al, 2014; Dey and Lim, 2015; Hogan and Evans, 2015; Scutella et al, 2015; Hsu and Hu, 2015; Vichitsarawong and Pornupatham, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.5. Earnings predictability

Based on Ewert and Wagenhofer (2015), earnings predictability is generally viewed as a desirable attribute of earnings since it reduces the variability of forecasts of earnings.

Francis et al (2004) measure earnings predictability by using the square root of the estimated error variance from the earnings persistence. Hence, earnings predictability is measured using the square root of the error variance from Kormedi and Lipe's (1987) model of earnings persistence as follows:

$$Pred_{it} = \sqrt{\sigma^2(\hat{\varepsilon}_{it})} \qquad (32)$$

where Pred_{it} is earnings predictability captured by the square root of the error variance from Kormedi and Lipe's (1987) model of earnings persistence, $\sigma^2(\hat{\varepsilon}_{it})$ is the estimated error variance calculated from Kormedi and Lipe's (1987) model of earnings persistence.

Higher (lower) values of Pred_{it} indicate a lower (higher) level of earnings predictability. More (lesser) predictable earnings are viewed as lower (higher) quality of earnings.

There are plenty of papers that examined different aspects of earnings predictability (Barefield and Comiskey, 1975; Kochanek, 1975; Collins et al, 1984; Hughes and Ricks, 1987; Elliott and Philbrick, 1990; Das et al, 1998; Herzberg and Brown, 1999; Ashbaugh and Pincus, 2001; Affleck-Graves et al, 2002; Eames and Glover, 2003; Behn et al, 2008; Hussainey, 2009; Mintchik, 2009; Dichev and Tang, 2009; Hassan et al, 2012; Schiemann and Gunther, 2013; Al-Dhamari and Ismail, 2014; Perotti and Wagenhofer, 2014; Aobdia et al, 2014; Yosra and Fawsi, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.6. Loss avoidance analysis

According to Dechow et al (2010), another earnings quality metric is the avoidance of small losses and earnings decreases, which is used extensively in the research under many different terms, like small loss avoidance by Leuz et al (2003), loss avoidance by Bhattacharya et al (2003), frequency of small positive earnings Lang et al (2003) and managing towards positive earnings by Barth et al (2008).

Burgsthaler and Dichev (1997), Leuz et al (2003), Lang et al (2003), Bhattacharya et al (2003), Burgstahler et al (2006) and Barth et al (2008) estimated the loss avoidance analysis as the frequency of small profits compared to small losses, as follows:

$$\frac{SPNI_{it}}{SNNI_{it}} \qquad (33)$$

where $SPNI_{it}$ is small positive income defined as $\frac{NI_{it}}{A_{it-1}}$ between 0 and 1% and $SNNI_{it}$ is small negative income defined as $\frac{NI_{it}}{A_{it-1}}$ between 0 and -1%.

Higher (lower) value of frequency of small profits compared to small losses the greater (lesser) is loss avoidance which in turn implies lower (higher) level of earnings quality.

There are some papers that examined different aspects of loss avoidance analysis (Fielitz and Muller, 1983; Leuz et al, 2003; Burgstahler et al, 2006; Krishnan and Parsons, 2008; Chih et al, 2008; Van Tendeloo and Vanstraelen, 2008; Varan and Balsari, 2013). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.3.7. Earnings smoothness

Earnings smoothness may be viewed as a desirable attribute of earnings quality if we believe that managers use the discretion available to them to smooth out the nonrecurring fluctuations rather than to misrepresent current and future performance and expectations (Trueman and Titman, 1988). Firms with smoother earnings should be easier to predict and should have a greater proportion of permanent rather than transitory components.

Goel and Thakor (2003) stated that earnings smoothing can be either "artificial" or "real". Real smoothing involves decisions that affect cash flows and dissipate firm value. In contrast, artificial smoothing does not affect cash flows. Further, real smoothing has costs that are obvious, whereas artificial smoothing has costs that are subtler, such as those related to loss of credibility or consumption of the manager's time in such activities.

Leuz et al (2003), Burgstahler et al (2006) and Bowen et al (2008) defined earnings smoothness as a country's median ratio of firm-level standard deviation of operating earnings divided by the firm-level standard deviation of cash flow from operations (both scaled by lagged total assets). Thus, earnings smoothness is measured as follows:

$$Smooth_{it} = \frac{\sigma(CFO_{it}/TotalAssets_{\ it-1})}{\sigma(Earn_{\ it}/TotalAssets_{\ it-1})} \qquad (34)$$

where, $\text{Smooth}_{\text{it}}$ is earning smoothness, σ is standard deviation, CFO_{it} is operating cash flows and $Earn_{it}$ is net income before extraordinary items.

Higher (lower) values of $Smooth_{it}$ indicate lower (higher) earnings smoothness. Thus, lower (higher) earnings smoothness implies lower (higher) earnings quality.

There are plenty of papers that examined different aspects of earnings smoothness (Shrieves and Dahl, 2003; Bhattacharya et al, 2003; Francis et al, 2004; Koh, 2005; Burgstahler et al, 2006; Boonlert-U-Thai et al, 2006; Tucker and Zarowin, 2006; Nabar and Boonlert-U-Thai, 2007; Cahan et al, 2008; Van Tendeloo and Vanstraelen, 2008; Jayaraman, 2008; Chih et al, 2008; Krishnan and Parsons, 2008; Barth et al, 2008; McInnis, 2010; Kanagaretnam et al, 2011; Habib et al, 2011; Ngo and Varela, 2012; Habib and Jiang, 2012; Rusmin et al, 2012; Yang et al, 2012; Hamdan et al, 2012; Filip and Raffournier, 2012; Vladu, 2013; Jung et al, 2013; Welc, 2014; Perotti and Wagenhofer, 2014; Ames et al, 2014; Brown et al, 2014; Khalil and Simon, 2014; Ewert and Wagenhofer, 2015; Shubita, 2015; Di and Marciukaityte, 2015). Some of them are examined in literature review (Section 4) which are summarized in Appendix A.

2.4. Audit quality

Sutton (1993), Abdel Ghany (2012) and Hussein and MohdHanefah (2013) claimed that there is no agreement among researchers about a specific definition of audit quality. The most representative definition of audit quality came from DeAngelo (1981). She noted that the audit quality is generally defined as the joint probability of detecting and reporting financial statement errors. Based on this definition, auditor quality is perceived as a function of the auditor's competence (ability to discover

material misstatements and accounting system breeches) and independence (ability to report material misstatements and accounting system breeches).

Regarding the measurement of audit quality, there is no consensus among researchers. This view is supported by Reisch (2000), Iskandar et al (2010) and Abdel Ghany (2012) who argued that consensus has not been reached on how audit quality should be measured. Kilgore (2007) stated that there are two approaches to measure audit quality: (a) direct approach based on assumption on that reporting of contract breaches and the probability of discovery will be reflected in features of the audit such as abuses and errors made by auditors; and (b) an indirect approach by looking at correlates of audit quality. Therefore, according to Abdel Ghany (2012), majorities of previous studies that have attempted to measure audit quality have used indirect approach to measure audit quality, and more specifically, have used surrogates of audit quality since audit market participants are generally unable to observe audit quality directly.

The most representative measures of audit quality are as follows:

Auditor fees

Audit fees are defined as the amounts of fees charged by the auditor for an audit process performed for the accounts of a firm. It is based on the contract between auditor and auditee in accordance with time spent on the audit process, the service required and the number of staff needed for the audit process (El-Gammal, 2012).

According to El-Gammal (2012) and Hassan and Naser (2013), audit fees is calculated as the amount of audit fees that each firm is paid.

Modified audit report opinion

Audit report opinion is a formal opinion issued by either an internal auditor or an independent external auditor as a result of an internal or external audit or evaluation performed on a legal firm. There are four common types of auditor's reports, each one presenting a different situation encountered during the auditor's evaluation: unqualified opinion, qualified opinion, adverse opinion and disclaimer of opinion.

Thus, following Elder et al (2009), audit report opinion is a dummy variable that equals to 0 for a standard unqualified opinion and 1 for any of the other three types of audit report opinions.

Auditor swith

Auditor switch involves corporate management decision to change or retain the auditor and the choice of quality differentiated audit firms associated with changes in firm characteristics over time (Joher et al, 2000).

Consistent with previous literature (Chow and Rice, 1982; Williams, 1988; Joher et al, 2000; Knechel et al, 2008; Lin and Liu, 2010; Chadegani et al, 2011), auditor switch is defined as a dummy variable that equals to 1 if firms switch auditor and 0 otherwise.

Auditor status firm

Audit status firm is usually measured based on the firm's assets, market share and the number of employees.

Following previous research (Palmrose, 1988; Heninger, 2001), audit status firm is expressed as a dummy variable equals to 0 if the audit firm is among from Big

Four auditors (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise.

Audit committee characteristics

Audit committee is the most important board sub-committee due to its specific role of protecting the interest of shareholders in relation to financial oversight and control (Mallin, 2007).

Based on Aldamen et al (2012), there are three basic audit committee characteristics: the existence, the independence and the expertise of audit committee.

The existence of audit committee is expressed as a dummy variable equals to 1 if the firm have an audit committee and 0 otherwise.

The audit committee independence is calculated as the percentage of independent board on the audit committee as stipulated by the firm.

The expertise of audit committee is proxied as the percentage of audit committee members with managerial experience.

Demand for auditing

Francis et al (2003) used the term of demand of auditing as an enforcement mechanism to enhance investor protection. They measured the demand for auditing in two ways. First, demand is measured using an estimate of country-level spending on auditing services. A second measure of the demand for auditing is based on the market share in a country held by the elite international Big audit firms. Specifically, the demand for auditing is calculated as the sum of square root of total assets of each Big Four and non-Big Four audit client, divided by the sum of square root of total

assets of all firms. A higher Big Four or non-Big Four market share indicates greater demand for high quality auditing within a country.

2.5. Investor protection

The most representative papers of investor protection came from La Porta et al (1997; 1998; 1999; 2000; 2002; 2006). They used different approaches of investor protection: disclosure requirements index, liability standard index, supervision characteristics index, rule-making power index, investigative powers index, orders index, criminal index, public enforcement index, external cap/GDP, Domestic firms/pop, IPOs, block premia, access to equity, ownership concentration, liquidity, antidirector rights, efficiency of the judiciary, log GDP per capital, legal origin and investor protection index, one share – one vote, proxy by mail allowed, shares not blocked before meeting, cumulative voting or proportional representation, oppressed minorities mechanism, preemptive rights, percentage of share capital to call an extraordinary shareholders' meeting, mandatory dividend, restrictions for going into reorganization, no automatic stay on secured assets, secured creditors first, management does not stay, creditors rights, legal reserve, efficiency of judiciary system, rule of law, corruption, risk of expropriation, repudiation of contracts by government, accounting standards, ownership, GNP and GNP per Gini coefficient, efficiency of judiciary and Tobin's q index.

However, considering investor protection by La Porta et al (1997; 1998; 1999; 2000; 2002; 2006), Spamann (2010) found significant differences between common law and code law countries with respect of the "The antidirector right index". For this

reason, Houque et al (2012) used updated investor protection measures form World Economic Forum database. Some of them are as follows:

- **Property rights:** how strong is the protection rights, including financial assets.
- **Judicial independence:** to what extent is the judiciary independent from influences of members of government, citizens, or firms.
- **Transparency of government policymaking:** to what extent firms are clearly informed by the government of changes in policies and regulations.
- **Strength of auditing and reporting standards:** how strong is financial auditing and reporting standards regarding financial performance.
- **Efficacy of corporate boards:** who strong is the supervision of investors and boards on management decisions.
- **Protection of minority shareholders' interests:** how strong is the protection of interests of minority shareholders.
- **Strength of investor protection:** how strong is the investor protection.
- **Legal rights index**: how strong is the legal rights of investors.

2.6. Cost of equity capital

There are three major methods to measure cost of equity capital. The industry method came from Gebhardt et al (2001), the PEG ratio method suggested by Easton (2004), Ohlson and Juettner-Nauroth's model (2005) and constant growth model introduced by Palea (2007).

Gebhardt et al (2001) imposed that a firms' return on asset reverts to the industry level return on asset beyond the forecast horizon. From the side of Easton (2004), the PEG ratio method imposes the assumption of zero growth in abnormal

earnings beyond the forecast horizon. The limitation of the first measurement of cost of equity is that it is consistently and predictably related to various risk measures (Botosan and Plumlee, 2005).

According to Gebhardt et al (2001), cost of equity (r_{GLS}) is measured as follows:

$$P_t = B_t + \sum_{i=1}^{\infty} E_t(ROE_{t+i} - r_{GLS})B_{t+i-1} \Big/ (1 + r_{GLS})^i \quad \textbf{(35)}$$

where P_t is stock price per share, B_t is book value of equity per share, r_{GLS} is estimated ex ante cost of equity capital, ROE_{t+i} is return on book equity for period t+1. Although the above equation requires an infinite series of earnings forecasts, it can be operationalized by conversion into the following finite-horizon form with a "terminal value":

$$P_t = B_t + \sum_{i=1}^{9} \frac{FROE_{t+i} - r_{GLS}}{(1+r_{GLS})^i} B_{t+i-1} + \frac{FROE_{t+10} - r_{GLS}}{r_{GLS}(1+r_{GLS})^{10}} B_{t+9} \quad \textbf{(36)}$$

where FROE is forecasted return on asset.

According to Easton (2004), PEG ratio approach is estimated as the square root of the inverse of the price-earnings-growth ratio as follows:

$$r_{PEG} = \sqrt{\frac{eps_{t+2} - eps_{t+1}}{P_t}} \quad \textbf{(37)}$$

where r_{PEG} is the estimated cost of equity under the PEG ratio approach, eps_{t+1} is the one-year ahead realized earnings per share, eps_{t+2} is the two-year ahead realized earnings per share, P_t is the fiscal year-end price per share.

The use of PEG ratio has some implications. First, it is the most robust measure of cost of equity capital in many countries, although Botosan and Plumlee (2005) concluded that it does so in the U.S. setting. Second, the PEG ratio requires that $eps_{t+2} > eps_{t+1} > 0$. It results in retaining only firms for which earnings are consistently growing. Thus it sacrifices the power of the tests and may results in an unrepresentative sample.

The third estimate of cost of equity model is come from Ohlson and Juettner-Nauroth (2005). They implied that cost of equity capital is a function of the dividend yield, the earnings yield and a long-term earnings growth rate. Thus, the formula for the implied cost of equity capital-based on the Ohlson and Juettner-Nauroth's model (2005) are as follows:

$$r_e = A + \sqrt{A^2 + \frac{eps_1}{P_0}[g_2 - (\gamma - 1)]} \quad \textbf{(38)}$$

where r_e is cost of equity capital, $A = \frac{1}{2}\left[\gamma - 1 + (\frac{dps_1}{P_0})\right]$, γ is long term earnings growth rate, dps_1 is dividend per share in year 1, P_0 is current share price, eps_1 is expected earnings per share in year 1, $g_{2=\Delta\frac{eps_2}{eps_1}}$.

Palea (2007) introduced the constant growth Gordon model as a proxy of the cost of equity capital which is formulated as follows:

$$Costofequity_{it} = \frac{E(EPS_{t+1})}{P_t} \quad \textbf{(39)}$$

where $E(EPS_{t+1})$ is the median of the expected earnings per share given by financial analysts for period t+1, P_t is the share price in period t and is computed as an average of prices reported 15 days before and one month after the end of the period.

2.7. Cost of debt

Cost of debt is defined as the effective rate that a firm pays on its current debt. Like cost of equity capital, there is no consensus about how cost of debt is formulated. Jiang (2008) used two proxies for a firm's cost of debt: credit ratings and initial bond yield spread. Credit ratings represent the rating agencies' assessment of a firm's credit worthiness and can affect a firm's access to bank loans, bonds, and commercial paper markets. Asquith et al (2005) reported that debt ratings are the second most frequently used measure in bank loan contracts that have performance pricing measures. Initial bond yield spread (i.e., the corporate bond yields at the issuance date minus the Treasury bond yields with comparable maturity) represents the risk premium that firms must pay to borrow money in the bond market and is a direct measure of a firm's incremental cost of debt (Sengupta, 1998; Shi, 2003). Consequently, based on Jiang (2008), these two proxies of cost of debt are formulated as follows:

$\Delta Rating_{it+1} = Rating_{it+1} - Rating_{it}$, where $Rating_{it}$ is firm i's Standard & Poor's senior debt rating in year t. Standard & Poor's rates a firm's debt from AAA (indicating a strong capacity to pay interest and repay principal) to D (indicating actual default). Jiang (2008) translated ratings letters into ratings numbers with a smaller number indicating a better rating. Thus a negative $\Delta Rating_{it+1}$ corresponds to a rating upgrade and a positive $\Delta Rating_{it+1}$ corresponds to a rating downgrade.

$Spread_{it+1}$ is the yield to maturity at the issuance date for the largest bond that firm i issued in year t+1, minus the Treasury bond yield with similar maturity.

To formulate the cost of debt, Francis et al (2005) used the ratio of interest expense in year t+1 to average interest bearing debt outstanding during years t and t+1.

2.8. Summary

Under this investigation of earnings quality, audit quality, cost of capital and investor protection, we can conclude the following:

- In general, according to Ecker et al (2006), the choice of the best earnings quality measure will be a function of, among other things, the nature of the research question addressed, the assumptions necessary to support the chosen research design, and available data. However, based upon the evidence that there are plenty of metrics of each of earnings quality attributes, and to assess the robustness of the results of this study, the above earnings quality attributes will be used.
- Earnings quality is defined as an important aspect of evaluating a firm's financial health, as the ability of reported earnings to reflect and predict the firm's true and future earnings, and as the stability, persistence, and lack of variability in reported earnings (Gissel et al, 2005).
- There are seven main attributes of earnings quality: conservatism, value relevance, accruals quality, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness.
- Conservatism is the accountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses (Basu, 1997).

- Value relevance is defined as the ability of financial statement information to capture and summarize information that determines the firm's value (Beisland, 2009).
- Accruals quality, which refers the extent to which accruals shift or adjust the recognition of cash flows over time. Xie (2001) and DeFond and Jiambalvo (1994) mentioned that accruals can be divided into normal and abnormal accruals. Further, abnormal accruals are divided into two groups: discretionary and non discretionary accruals.
- Earnings persistence is the extent to which an innovation in the earnings series causes investors to revise their future earnings expectations.
- Earnings predictability is the ability of earnings to predict itself. According to Ewert and Wagenhofer (2015), earnings predictability is generally viewed as a desirable attribute of earnings since it reduces the variability of forecasts of earnings.
- Burgsthaler and Dichev (1997) defined loss avoidance analysis as the frequency of small profits compared to small losses.
- Earnings smoothness is referred to the use of accruals to smooth earnings. Goel and Thakor (2003) stated that earnings smoothing can be either "artificial" or "real".
- DeAngelo (1981) noted that the audit quality is generally defined as the joint probability of detecting and reporting financial statement errors.
- Kilgore (2007) stated that there are two approaches to measure audit quality: (a) direct approach based on assumption on that reporting of contract breaches and the probability of discovery will be reflected in features of the audit such as abuses and errors made by auditors; and (b) an indirect approach by looking at correlates of audit quality.

- The most representative measures of audit quality by using the indirect approach are: auditor fees, modified audit report opinion, auditor switch, auditor status firm, audit committee characteristics and demand for auditing.

- The main exponent of the concept of investor protection is La Porta et al (1997; 1998; 1999; 2000; 2002; 2006). They used different approaches of investor protection, like disclosure requirements index, liability standard index, antidirector rights, efficiency of the judiciary, legal origin and investor protection index, efficiency of judiciary system, rule of law, corruption, risk of expropriation, efficiency of judiciary and Tobin's q index. However, the investor protection indices by La Porta et al (1997; 1998; 1999; 2000; 2002; 2006) have been challenged by Spamann (2010). For this reason, Houque et al (2012) used updated investor protection measures form World Economic Forum database, like property rights, judicial independence, transparency of government policymaking, strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, strength of investor protection and legal rights index.

- Cost of capital is divided into cost of equity capital and cost of debt. Cost of equity capital is defined as the return a firm theoretically pays to its equity investors to compensate for the risk they undertake by investing their capital. Cost of debt is defined as the effective rate that a firm pays on its current debt.

3. The financial crisis of 2008

3.1. Introduction

This chapter will give an overview of financial crisis of 2008. First the roots and then the consequences of financial crisis of 2008 are analyzed. Thus, after this chapter sub-question can be answered:

5. ***What is financial crisis?***
6. ***Which are the roots of the financial crisis of 2008?***
7. ***Which are the consequences of the financial crisis of 2008?***

3.2. Definition of financial crisis

It is worldwide known that financial crisis is a situation in which the value of financial institutions or assets drops rapidly. A financial crisis is often associated with a panic or a run on the banks, in which investors sell off assets or withdraw money from savings accounts with the expectation that the value of those assets will drop if they remain at a financial institution. Further a financial crisis can come as a result of institutions or assets being overvalued, and can be exacerbated by investor behavior. A rapid string of sell offs can further result in lower asset prices or more savings withdrawals. If left unchecked, the crisis can cause the economy to go into a recession or depression.

3.3. The causes of financial crisis of 2008

All researchers and economists admit that the financial crisis of 2008 was the most severe since the great depression of the 1930s. According to Reinhart and

Rogoff (2009), the financial crisis of 2008 affected major financial centers across the entire world and generated a collapse of international trade more severe than any since 1930s, and a broader economic recession that involved all regions of the globe. As all crises, the financial crisis of 2008 has some causes and consequences.

Considering the analyze of the roots of the financial crisis of 2008, the most representative papers came from Schwartz (2009), Foster and Magdoff (2009), Acharya et al (2009) and Claessens et al (2010).

Schwartz (2009) concludes that there were at least three factors exercised significant influences on the emergence of the financial crisis of 2008. **The first factor** is relative with the expansive monetary policy. She claims that the cornerstone of financial crisis of 2008 was the asset price bubble of the housing price boom. It has become a cliché to refer to an asset boom as a mania. Every ordinary folk became an avid buyer of whatever object has become the target of desire. This asset boom was subvened by expansive monetary policy that lowers interest rates and induces borrowing beyond prudent bounds to acquire the asset. **The second factor** is relative with the adoption of financial innovations, such as securitization, derivatives, and auction-rate securities before markets became aware of the flaws in the design of these instruments. The basic problem in each of them was the difficulty of determining their "true" price. The derivatives industry made mortgage lending problems worse; shifting risk that is the basic property of derivatives in directions that became so complex that neither the designer nor the buyer of these instruments apparently understood the risks they imposed and implicated derivative owners in risky contingencies they did not realize they assume. This lead to recycling purchase of these financial instruments by creating the known toxic derivatives. **The third factor** of financial crisis of 2008 is the collapse of the market for some financial

instruments, such as the auction rate security, a long-term instrument for which the interest rate is reset periodically at auctions. Normally, these auctions are secured. However, in 2007 outstanding auction rate securities amounted to $330 billion. The banks experienced credit losses and mortgage writedowns as a result of the subprime mortgage market collapse, and became less willing to commit their own money to keep auctions from failing. Next year these fears became reality. Led investors withdraw their funds from the auction securities market by leading the rate of borrowing costs to rise sharply after failed auctions. The auction security markets became chaotic with different rates resulting for identical auction rate securities.

Foster and Magdoff (2009) mentioned four causes of financial crisis of 2008: a) the household bubble, b) the explosion of debt and speculation, c) monopoly-finance capital, and d) the financilization of capitalism.

Examining the causes and remedies of financial crisis of 2008, Acharya et al (2009) found that the fundamental cause of the financial crisis of 2008 was the combination of a credit boom and housing bubble. However, they claimed that the combination of leverage of the fact that financial firms close not to transfer the credit risk is the root cause of the financial crisis of 2008. In their research, Acharya et al (2009) quoted 11 systematic risk causes of financial crisis of 2008:

1. **Loan origination.** Subprime loans were unwittingly structured as hybrid Adjusted-Rate Mortgage was such a way that they would systemically default or refinance around the reset dates.
2. **Securitization of loans.** Growth in market for and quality of subprime loans depended on securitization, leading to lenders having no skin in the game and

financial institutions ignored a securitization business model of credit risk transfer and held on to large amounts of Asset-Backed Securities.

3. **Leverage game.** Banks created off-balance-sheet conduits to increase their leverage ratios; deregulation allowed broker-dealers to do the same.

4. **Rating agencies.** No built-in accountability, making it possible to inappropriately sanction AAA ratings of Asset-Backed Securities's way down the chain of securitization.

5. **Governance.** Similar governance across investment and commercial banks allowed Asset-Backed Securities desks to essentially write a huge volume of out-of-the-money puts on systematic events.

6. **Fair-value accounting.** In illiquid and disorderly markets, fair-value accounting might cause feedback effects that increase overall risk of the system.

7. **OTC derivatives.** Bilaterally et collateral and margin requirements in Over-The-Counter trading did not take account of the counterparty risk externality that each trade imposes on the rest of the system, allowing systematically important exposures to be built up without sufficient capital to mitigate associated risks.

8. **Short selling.**

9. **Explicit guarantees.** Because some institutions have government guarantees, they were subject to moral hazard.

10. **Implicit guarantees.** The Too-Big-To-Fail Large Complex Financial Institutions leaded to a similar moral hazard problem.

11. **Unregulated managed funds.** These funds act as financial intermediaries but were subject to bank like runs, causing instability in the system.

Further, Claessens et al (2010) quoted 8 roots of the financial crisis of 2008: 1) asset price bubbles, 2) credit booms, 3) marginal loans and systematic risk, 4)

regulation and supervision, 5) increased opaqueness, 6) financial integration and interconnectedness, 7) the role of leverage, and 8) the central role of households.

3.4. The consequences of financial crisis of 2008

After identifying the roots of financial crisis of 2008, the consequences of financial crisis of 2008 should be examined. Researchers argued that the financial crisis of 2008 became truly global through two main mechanisms: a) the sudden risk in risk aversion since all markets are highly integrated at the global level, and b) the sudden drop of demand through the global supply chain (Claessens et al, 2010; Longstaff, 2010; Gros and Alcidi, 2010).

Foster and Magdoff (2009), Poole (2010), Claessens et al (2010), Campello et al (2010), McKibbin and Stoeckel (2010), Helleiner (2011) and Furcen and Mourougane (2012) claimed that the financial crisis of 2008 impact on growth (expressed by real GDP). Figure 1 represents the impact of the financial crisis of 2008 on the growth of world developed economies. Specifically, we identify that the global advanced real economies have been negatively affected due to financial crisis of 2008. The real GDP is decreased from 4.29% in 2007 to 1.26 in 2008. However, the decrease of annual GDP growth was more intense during 2009 (-2.75%). Similarly, Figure 2 presents a decline of annual GDP growth of seventeen examining countries in 2008. France (-0.10%), Italy (-1.20%), Greece (-0.20%), Ireland (-3.00%), UK (-1.00%), Sweden (-0.60%), and Denmark (-0.80%) presents negative GDP growth rate in 2008 and all countries except from Australia (1.40%) present negative GDP growth rate in 2009.

However, the fall in real GDP is not the only measure for a cross-country comparison of the real world impact of the crisis. As it is well known, real GDP refers to the amount of goods and services produced in a given economy and have a little meaning for the wider public whose lives are affected much more by the amount of money that can be spent on consumption and by job stability. Thus fluctuations in consumption, unemployment and debt indicators represent a better measure of the impact of the financial crisis of 2008 than changes in real GDP.

(Insert Figures 1 and 2 here)

Figures 3 and 4 represent the impact of financial crisis of 2008 on total consumption which is the sum of private consumption and general government consumption. The total consumption is decreased for every advanced economy in the world after the financial crisis of 2008 except from Luxemburg, Japan, Hong Kong, Switzerland, and Singapore. Specifically, according to Figure 3, the total consumption of world developed economies has been declined from $33091622 to $32124959 millions. Further, Figure 3 presents a rate of up to 10% reduction of total consumption in UK, South Korea, Australia, Sweden and Iceland from 2008 to 2009. Similarly, the decline of total consumption is more evident in Figure 4 which appears the examining countries. Specifically, the total consumption of all examining countries, except from Switzerland, is declined during the period 2008-2009.

(Insert Figures 3 and 4 here)

Figures 5 and 6 indicate the increase of unemployment rate by almost 2 percentage points in developed countries during the period 2008-2009. Further, they show that USA, Spain, Ireland, Estonia and Iceland faced the most severe increase of the unemployment rate by 3.50%, 6.70%, 5.80%, 8.30%, and 4.20% respectively.

(Insert Figures 5 and 6 here)

From Figures 7 and 8, we can point out that the central government debt in advanced economies during the financial crisis of 2008 was increased significantly (from 52.18% in 2008 to 61.78% in 2009). USA, France, Italy, Spain, Greece, Portugal, Ireland, Japan, UK, South Korea, Switzerland, Singapore, and Ireland presented up to 10 percent increase in their debts during the financial crisis of 2008.

(Insert Figures 7 and 8 here)

Chowdhry and Goyal (2000) claimed that the two most visible defining characteristics of a country that experiences a financial crisis are a large drop in the value of its currency and a large drop in its traded equity prices. In fact, based on Figures 9 to 10, all examining developed countries appeared a currency devaluation and a decline in stock market exchange indexes. Particularly, Danish krone was devaluated by 7.73%, Euro by 7.73%, Australian dollar by 15.43%, British pound by 12.13%, Norwegian krone by 13.08%, Swedish krona by 11.84%, and Swiss franc by 5.67% during the financial crisis of 2008. Furthermore, the stock markets in all examining countries plunged as the global financial crisis was transmitted from U.S in all over the world. Consequently, stock exchanges in Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom was decreased by 20.72%, 36.14%, 33.35%, 24.90%, 30.38%, 20.61%, 18.22%, 37.05%, 44.93%, 26.79%, 29.77%, 30.06%, 29.98%, 21.89%, 22.14%, 13.25%, and 17.55% respectively.

(Insert Figures 9 and 10 here)

3.5. Summary

Under this investigation of financial crisis of 2008, we can conclude the following:

- The financial crisis of 2008 was caused by a combination of asset price bubbles and a credit bubble that led to excessive leverage.
- Claessens et al (2010), Longstaff (2010) and Gros and Alcidi (2010) argued that the financial crisis of 2008 became truly global through two main mechanisms: a) the sudden risk in risk aversion since all markets are highly integrated at the global level, and b) the sudden drop of demand through the global supply chain.
- The main consequences of financial crisis of 2008 were a) a decline of annual GDP growth, annual total consumption, stock exchange indexes and foreign currencies, and b) an increase of unemployment rate and central government debt in examining developed countries.

4. Literature review

4.1. Introduction

This chapter will give an overview on research that has been done in the past. Prior research can contribute to building hypotheses for this research. This chapter is divided into different paragraphs. First, earnings quality attributes under financial crisis of 2008 are analyzed. Second, investor protection and audit quality are described as earnings quality determinants. After that, earnings quality consequences (cost of equity capital and cost of debt) are explained. Thus, after this chapter sub-question can be answered: ***What can be learned from prior research on this thesis?*** For brevity, a whole list of the most important prior literature examining earnings quality is summarized in Appendix A.

4.2. Earnings quality under financial crisis of 2008

The Global Financial Crisis is quite new and therefore there are not many researches to examine the effects and the consequences of earnings quality before, during and after for this period. However, there are some papers and articles that investigate other crises as exogenous shocks, such as Persian Gulf crisis of 1990, Mexican currency crisis of 1994, Asia crisis of 1997.

Kellogg (1984) concluded that in securities litigation, buyers' lawsuits against auditors and firms outnumber sellers' lawsuits by a ratio of 13 to 1. From this perspective, managers have a very good reason to apply conservatism during the financial crisis since the expected litigation costs of overstatement are higher than those of understatement.

Han and Wang (1998) investigated whether firms that expect increases in earnings resulting from sudden product price increases use accounting accruals to reduce earnings and, thus, political sensitivity. Using 76 firms under the 1990 Persian Gulf crisis, they found that oil firms that expected to profit from the crisis used accruals to reduce their reported quarterly earnings during the Gulf crisis.

Graham et al (2000) addressed whether the financial turmoil surrounding the devaluation of the baht affected the value relevance of Thai accounting information. The results indicated a decline in the value relevance of Thai book values and earnings following the devaluation.

In the same notion, like Graham et al (2000), Graham and King (2000) investigated the relation between stock prices and accounting earnings and book values in six Asian countries: Indonesia, South Korea, Malaysia, the Philippines, Taiwan and Thailand. They found that, in Thailand, in 1997, the devaluation of the Thai Baht led to a decline in the value of relevance of earnings and an increase in the value of relevance of the book value. The initial recognition of exchange rate losses and the subsequent recognition of exchange rate variation gains, when rates dropped and then recovered, can explain changes in the value relevance of accounting information after the devaluation.

In parallel way, Ho et al (2001) studied the value relevance of accounting earnings, book value of equity, and cash flows from operations for Korean firms during the 1995-1998 period. They concluded that value relevance of accounting earnings for Korean firms significantly declines from the pre-crisis (1995-1996) to the in-crisis (1997-1998) period. Moreover, they found that the declining importance of earnings is not replaced by the increasing value relevance of book value of equity

during the same period and cash flows from operations become more value relevant in the 1997-1998 period.

Shrieves and Dahl (2003) investigated utilization of discretionary accounting practices in the context of international bank regulation under the Asia financial distress. Using a sample of 607 pooled time series and cross-sectional observations, they found that Japanese banks' lending was capital constrained, and that banks set gains on securities sales and loan-loss provisions in such a way as to smooth reported income and replenish regulatory capital.

Saleh and Ahmed (2005) examined discretionary accruals in distressed firms that have undertaken debt contract renegotiations during Malaysian financial crisis. Using Jones' model (1991) and Dechow et al model (1995), they observed that the magnitude of discretionary accruals is statistically significantly negative during the year of renegotiations with lenders.

Eng et al (2005) supported evidence about the predictive value of earnings, operating cash flows and accruals in Hong Kong, Malaysia, Singapore and Thailand for the period 1994-1996 (pre-crisis period), 1997 – 1998 (crisis period) and 1999-2001 (post-crisis period), and the impact of the Asian financial crisis of 1997 on the predictive power of the accounting performance measures. They found that the accounting measures have explanatory power for 1-year ahead cash flows which indicated that investors may have undervalued the accounting measures in the pre- and post-crisis periods, and overvalued the measures during the crisis period.

Davis-Friday and Gordon (2005) used a sample of Mexican firms traded on the Mexican Stock Exchange during the period 1992-1997 to investigate whether the relation between the firms' stock prices and their book values, earnings, and cash flows changes during the 1994 Mexican currency crisis. The results showed that the

value relevance of book value did not significantly change during the crisis period, while its incremental explanatory power increased. On contrary, the value relevance of earnings and explanatory power significantly decreased during the crisis.

Similarly with Graham et al (2000), Graham and King (2000) and Ho et al (2001), Davis-Friday et al (2006) investigated the value relevance of earnings in four Asian countries, Indonesia, South Korea, Malaysia and Thailand in the period surrounding the Asian financial crisis. Their results indicated that the value relevance of earnings in Indonesia and Thailand was significantly reduced during the Asian financial crisis while the value relevance of book value increased. In Malaysia, the value relevance of both earnings and book value decreased during the crisis. In Korea, neither book value nor earnings was significantly impacted by the crisis. Finally, they found that accounting systems affect the extent of changes in the value relevance of book value resulting from the crisis.

Chia et al (2007) tested the effect of the choice of the auditors in constraining earnings management within a rule-based reporting framework during the Asian Financial crisis. Using the iterative seemingly unrelated regression methodology to bypass in decomposing of the total accruals into two parts (non discretionary accruals and discretionary accruals) because of the anticipated severe cross-equation correlation, 383 firm-observations of service-oriented listed companies in Singapore are analyzed. The results show that service-oriented companies engage in income decreasing earnings management during the crisis period and only the Big-6 firms are able to significantly constrain the earnings management of managers of such companies.

Using, again, the Asian financial crisis, Ahmed et al (2008) examined how a stock market prices earnings components around economic downturns. Using 139

firms from 5 industries in 1998 and 1999, they resulted that negative discretionary accruals for debt renegotiating firms are associated with higher market values of equity and are not related to the firms' future earnings.

Herrmann et al (2008) analyzed the differences in conservatism between firms audited by Big 4 and non-Big 4 auditors during the financial crisis and post-crisis periods in Thailand. The findings indicated a significant increase in conservatism following the Asian financial crisis. Moreover, they found that there is no significant difference in conservatism between Big 4 and non-Big 4 auditors in the post-crisis period while both Big 4 and non-Big 4 audit clients reported more conservative earnings.

Vichitatsarawong et al (2010) also provided empirical evidence on earnings quality under Asian financial crisis. As Hermann et al (2008), Vichitatsarawong et al (2010) used 1500 firms as a sample from the same countries. They investigated the period from 1995 until 2004 by using Basu model. They concluded that all the measures that were taken probably worked since conservatism in the pre-crisis period was higher than during the crisis and after the crisis. However, they found that conservatism was lower during the financial crisis than after the crisis and lower than before the crisis.

Another paper that examined the earnings quality under financial crisis came from Warganegara and Vionita (2010). They investigated the extent of conservatism in publicly listed Indonesian companies prior to and following the Asian financial crisis by using a modified Basu's (1997) reverse regression equation. Using 250 firm-year observations from IDX database as a sample, they found that the level of conservatism was not improved after the Asian financial crisis. Before the financial crisis, accounting earnings did not exhibit conservatism, share returns did not lead

earnings, and there was alignment in the timing of revenue and expense recognition under the matching rule. On contrary, during the financial crisis, share returns led earnings, and accounting processes were able to capture the economic reality faced by the sample firms.

Choi et al (2011) empirically analyzed whether and how the information values of reported earnings and their components changed around the Asian financial crisis of 1997-1998. Using 10.406 firm-years from nine Asian countries from 1995 to 2000, they revealed the following: a) the crisis led to significant decline in the value relevance of discretionary accruals but had no significant impact on the value relevance of non-discretionary earnings components such as operating cash flows and non-discretionary accruals, b) the decrease in the value relevance of discretionary accruals during the crisis was more severe fro firms in countries with weak institutions than for those in countries with strong institutions, and c) the value relevance of discretionary accruals declined to a greater extent for firms with high information asymmetries than for firms with low information asymmetries.

Ahmad-Zaluki et al (2011) examined earnings management during Malaysian IPOs during Asian crisis. Consistent with other IPO studies, the Dechow et al (1995) model is used to proxy earnings management. Using 254 IPO companies during the period 1990 to 2000, their outcome supported that income increasing earnings management during IPOs occurs primarily during the Asian crisis.

Jungeun et al (2012) provided insight into the changes in chaebol (Korean business group) firms' earnings management methods triggered by Asian financial crisis in 1997. Using two models to estimate accrual based earnings management (Dechow et al model, 1995; Kothari et al model, 2005) and 5.963 firm-year observations from 1992 to 2009, their results showed that chaebol firms have

significantly decreased accrual-based earnings management after the financial crisis of Asian compared to non-chaebol firms.

Filip and Raffournier (2012) examined the impact of the 2008-2009 financial crisis on the earnings management of EU listed firms. Using 8.266 firm-year observations for the four-year period 2006-2009, they found that there is a significant decrease of income smoothing and an improvement of accruals quality in the crisis period. This trend was confirmed in most of the 16 countries under review.

Lu (2012) tested the relationship of earnings quality, risk-taking and firm value. They hypothesized that a firm with lower earnings quality, which represents lower financial reporting quality, has higher degree of risk-taking. Using 5.655 firm-year observations from 2001 to 2010, their results verified their hypothesis and this phenomenon is especially significant after the 2008 financial crisis.

Moraes da Costa et al (2012) provided evidence about the impact of financial crises occurred in Brazil on the value relevance of book value and earnings. Using 3.849 firm-year observations from Brazilian listed companies from 1997 till 2010, they found that financial crises affected the value relevance of book value positively and the value relevance of earnings negatively, similarly to other countries like Thailand and Mexico.

Gorgan et al (2012) aimed to analyze the extent to which financial reporting is involved in financial crisis and, on the other hand to outline the changes produced by the crisis in the quality of financial information reported by companies (measured by discretionary accruals). Using 90 firm-year observations from 2007 to 2009, they found that earnings management by discretionary accruals for big European companies declined during the economic crisis of 2008.

Vladu (2013) examined whether the listed companies in Spain behave differently in bad economic times versus good economic times. Using 1.044 firm-year observations for period from 2005 to 2012, she found that earnings smoothness is decreased during the financial crisis of 2008.

Bepari et al (2013) studied the incremental value relevance of cash flow from operations given book value and earnings between the 2008-2009 global financial crisis and the pre-crisis period. Using 4.885 firm-year observations from 2004 to 2009, they found that cash flow from operations has value relevance incremental to book value and earnings. Their findings also suggested that earnings has greater relative and incremental information content than cash flow from operations in the Australian market. The value relevance of earnings has increased and that of cash flow from operations has decreased during the global financial crisis compared to pre-crisis period.

Iatridis and Dimitras (2013) investigated how the economic crisis affects the scope for earnings manipulation and the value relevance of reported financial numbers for Portuguese, Irish, Italian, Greek and Spanish listed companies that are audited by a big 4 auditor. Using 66 Portuguese, 48 Irish, 273 Italian, 245 Greek and 157 Spanish non-financial firms from 2005 to 2011, they found that Portugal, Italy, and Greece tend to engage more in earnings management in their effort to improve their lower profitability and liquidity during the financial crisis of 2008, while Ireland exhibits less evidence of earnings manipulation and the finding for Spain are to some extent conflicting.

Similarly, using the financial crisis of 2008, Francis et al (2013) provided empirical evidence on whether and to what extent conservative accounting affects shareholder value. Using 6.326 firm-year observations from 2007 to 2009, they found

that there is significantly positive and economically meaningful relation between conservatism and firm stock performance during the financial crisis. Moreover, they stated that firms with a higher degree of conservative accounting prior to the crisis experienced significantly less losses in the stock market compared to firms with a lower degree of conservatism accounting. Finally, the findings indicated that the identified relation between conservatism and stock returns is conditional on the degree of information asymmetry of firms.

Kousenidis et al (2013) examined whether and to what extent the financial crisis of 2008 in European Union had an impact on the quality of the reported earnings of listed firms in countries with weak fiscal sustainability. The results showed that on average earnings quality has improved during the financial crisis.

Another paper come from Habib et al (2013) who investigated the managerial earnings management practices of financial distressed firms and whether these practices changed during the financial crisis of 2008. By using discretionary accruals and 767 firm-year observations from 1999 to 2001, they found that managers of distressed firms engage more in income-decreasing earnings management practices compared to their healthy firm counterparts.

4.3. Earnings quality, audit quality and investor protection

4.3.1. Earnings quality and investor protection

Investor protection can be seen as an important element of earnings management (Leuz et al, 2003). Leuz et al (2003) examined the pervasiveness of earnings management across 31 countries between 1990 and 1999. Using 70.955 firm-year observations, they found a link between corporate governance and the

quality of reported earnings, and complemented prior finance research that treats the quality of corporate reporting as exogenous.

Guether and Young (2000) investigated how cross-country differences in financial accounting standards affect the relation between financial accounting earnings and real economic value-relevant events that underlie those earnings. Based on previous research and economic theory, because of differences in legal protection for external shareholders, and differences in the degree of tax conformity in their sample countries, they found that accounting earnings in the UK and the US will be more closely related to underlying economic activity than will accounting earnings in France and Germany.

Likewise Guenther and Young (2000), Morck et al (2000) tested the value relevance among countries. Using 3.572 firm-year observations among 7 countries over the period 1991-1995, they found that stock process impound less firm-specific information in countries with lower investor protection. In those countries, stock prices may not fully impound information about future benefits of the firm. It means that the association of stock prices with earnings would be positively related to the earnings quality since high quality of earnings reflects the firm's future benefits. In overall, the association between the returns-earnings association and earnings quality would be less positive when countries have low investor protection.

Ball et al (2000) studied the effect of international institutional factors on properties of accounting earnings. Using 40.359 firm-year observations from seven countries over the period 1985-1995, they documented that there is difference between common and code law counties in relation to the manner of resolving information asymmetry between managers and potential users of accounting income, including debt and equity investors, employees, suppliers and customers. They, also,

claimed that code law directly links accounting income to current payouts to employees, managers, shareholders and government. Finally, they showed that common-law accounting income accounting does indeed exhibit significantly greater timeliness than code-law accounting income, but that this is due to greater sensitivity to economic losses (income conservatism).

Hung (2000) examined the association between accounting standards and value relevance of financial statements. Using 17743 firm-year observations of industrial companies in 21 countries from 1991 to 1997, she found that the use of accrual accounting (versus cash accounting) negatively affects the value relevance of financial statements in countries with weak shareholder protection, which does not exist in countries with strong shareholder protection. Further, she indicated that shareholder protection improves the effectiveness of accrual accounting.

Fan and Wong (2002) hypothesized that the threat of expropriation by controlling owners in East Asian corporations lowers the credibility of accounting earnings and hence the stock price informativeness of those earnings. Using 1.350 firms from seven East Asia countries for the period 1991-1995, they showed that the value relevance of earnings is negatively associated with ownership concentration. They provided two explanations for their findings. First, the entrenchment effect of ownership concentration reduces the credibility of reported earnings and consequently reduces their information content. Second high ownership concentration hinders information flows to the public resulting in low earnings informativeness.

Haw et al (2004) provided evidence of the role of both legal and extra-legal institutions in limiting the income management induced by the detachment of control rights from the cash flow rights of ultimate owners. Using 25.210 firm-year observations from 9 East Asian and 13 Western European countries, they showed that

(a) income management that is induced by the wedge between control rights and cash flow rights is significantly limited in countries with high statutory protection of minority rights (proxied by legal tradition, minority rights protection, the efficiency of the judicial system, or disclosure standards) and effective extra-legal institutions (proxied by the effectiveness of competition laws, diffusion of the press, and tax compliance), and (b) a common law tradition and an efficient judicial system subsume the effects of the other legal institutions, and that a high rate of tax compliance subsumes the effects of the other extra-legal institutions in curbing insider income management.

Extended the research of Haw et al (2004), Wysocki's (2004) paper focused on the empirical validity of their earnings management proxy (as captured by absolute total discretionary accruals scaled by total assets) and on their claims of casual link between tax compliance and earnings management. Using data from 28 countries, he found that their earnings management proxy exhibits no meaningful association with previously validated country-level measures of earnings management and accounting quality. Moreover, he suggested a reverse-casual link between earnings management and tax compliance where better investor protection laws and accounting standards can mitigate earnings management and potentially increase tax compliance.

Shen and Chih (2005) tested the association between investor protection and earnings management in bank industry. Using 70.955 firm-year observations for the fiscal years 1993-1999 across 48 countries, they found that stronger protection of investors and greater transparency in accounting disclosure can reduce banks' incentives to manage earnings. Thus, greater and stronger investor protection leads to higher earnings quality in banking sector.

Burgstahler et al (2006) studied how capital market pressures and institutional structures shape firms' incentives to report earnings that properly reflect their economic performance. Using 378.122 firm-year observations over the fiscal years 1997 to 2003 across 13 European countries, they concluded that private firs exhibit higher levels of earnings management and those strong legal systems are associated with less earnings management in private and public firms.

Boonlert-U-Thai et al (2006) explored the relationship between cross-country differences in the quality of reported earnings (accruals quality, earnings persistence, earnings predictability and earnings smoothness) and investor protection (antidirector rights, efficiency of the judicial system, rule of law, corruption index, ratio of the stock market capitalization held by minorities to gross domestic product, ratio of the number of domestic firms to the population, ratio of the number of initial public offerings to equity to the population and ownership concentration). Using 57.610 firm-year observations drawn from 31 countries for the fiscal years 1994 to 2003, they found that a) less earnings smoothness appears to be found in countries whose institutional characteristics are strong, b) high accruals quality and high predictive ability of earnings appear to be found in countries whose institutional characteristics are weak and c) earnings persistence is no correlated with institutional characteristics except that countries with low ownership concentration appear to have high earnings persistence.

DeFond et al (2007) examined the information content of more than 50.000 annual earnings announcements in 26 countries over the period of 1995-2002, where information content is measured as the abnormal return variance around an annual earnings announcement. They found that strong investor protection institutions engendering financial reporting environments that have high-quality earnings, equal

access to earnings information by all investors, and more frequent reporting, the net effect of which is to increase the information content of annual earnings announcements.

Nabar and Boonlert-U-Thai (2007) investigated the impact of investor protection and national culture on earnings management of a sample of 30 countries. They argued that earnings management is relatively high in countries with high uncertainty avoidance scores which are associated with earnings discretion but not with earnings smoothing.

Using firm-level data from 44 countries for 1993 to 2002, Cahan et al (2008) studied whether the underlying motive for earnings management differs between high and low investor protection countries. Their results showed that earnings management informativeness is more positively associated with income smoothing in countries with strong investor protection than it is in countries with weak investor protection. It means that managers in weak investor protection countries are more likely to use income smoothing for opportunistic reasons while managers in strong protection countries are more likely to use income smoothing to convey their private information about future earnings.

Using three measures of earnings management (earnings smoothing, earnings aggressiveness, and earnings losses and decreases avoidance), Chih et al (2008) explored whether the corporate social responsibility related features of 1.653 corporations in 46 countries had a positive or negative effect on the quality of earnings during the 1993-2002 period. They found that a firm with corporate social responsibility in mind tends not to smooth earnings, and displays less interest in avoiding earnings losses and decreases, which in turn prone to engage in more earnings aggressiveness in a country with strong legal enforcement.

Lara et al (2009) predicted that firms with stronger corporate governance (measured by external governance, CEO involvement, board composition, board effectiveness) exhibit a higher degree of accounting conservatism. Using 9.152 firm-year observations for the period 1992 through 2003, they found that strong governance firms show significantly higher levels of conditional accounting conservatism.

Jiang and Anandarajan (2009) tested the effect of shareholder rights on the quality of reported earnings (measured by discretionary accruals). Using 5.658 firm-year observations over the period 1998-2002, they found that stronger shareholder rights are associated with higher earnings quality.

Cahan et al (2009) examined whether the association between the returns-earnings association and earnings quality is related to investor rights protection and the information environment in an international setting. Using 4.238 firms from 13 countries over the period 1993 to 2003, they showed that the returns-earnings association is more positively associated with earnings persistence and the earnings-future cash flows relation when a country has high investor rights protection, measured by anti-director rights and legal enforcement.

Han et al (2010) hypothesized and tested whether the degrees to which managers exercise earnings discretion relates to their value system, like culture, as well the institutional features, like legal environment, of their country. Using 96.409 firm-year observations for the period from 1992 to 2003 in 32 countries, they found that individualism (uncertainty avoidance) is positively (negatively) related to the magnitude of earnings discretion. Further, they concluded that the positive association between individualism and discretionary accruals is particularly pronounced in strong investor protection regimes, while the average negative association between

uncertainty avoidance and discretionary accruals becomes positive in strong investor protection regimes.

Guan and Pourjalali (2010) investigated the effect of cultural values and disclosure and earnings management scores on earnings management in 27 countries. Using 66.847 firm-year observations for the 15-year period 1987-2001, they found that debt-to-equity ratio (total assets) affects the earnings management upwards (downwards). Further, they indicated that uncertainty avoidance affects the direction of earnings management downwards. Finally, their findings showed that the higher the values of individualism, power distance, and masculinity, the higher the magnitude of earnings management.

Using 104.348 firm-year observations from 46 countries for the years 2000-2007, Houqe et al (2012) studied the effects of mandatory IFRS adoption and investor protection on the earnings quality. Their findings showed that earnings quality increases for mandatory IFRS adoption when a country's investor protection regime provides stronger protection. These findings are consistent with the argument that cross-country differences in accounting quality are likely to remain after mandatory IFRS adoption where there is poor investor protection (e.g. Soderstrom and Sun, 2007).

4.3.2. Earnings quality and audit quality

There are extensive literature that examine the impact of different aspects of auditing on earnings management. However, most of them converge in a common assumption that audit quality constrains the earnings management. For the purpose of this research, six measures of audit quality will be examined in relation with earnings

quality (audit fees, audit report opinion, auditor switch, audit firm size, audit committee existence and demand for auditing).

4.3.2.1. Earnings quality and audit firm size

Many studies used audit firm size as a proxy of audit quality to examine the impact of auditor size on earnings management. While Big X auditors are generally considered to provide higher audit quality than non-Big X auditors, it is questioned whether this audit quality influence earnings management. Hence, based on Teoh and Wong (1993), Becker et al (1998), Francis et al (1999), Bauwhede et al (2003), Krishnan (2003), Chung et al (2003), Zhou and Elder (2004), Chen et al (2005), Lee et al (2006), Chia et al (2007), Johl et al (2007), Van Tendeloo and Vanstraelen (2008), Hussainey (2009), Jordan et al (2010), Kabir et al (2011), Gerayli et al (2011), Hajizadeh and Rahimi (2012), Iatridis (2012), Hamdan et al (2012), Iatridis and Dimitras (2013), Lee and Lee, (2013) and Soliman and Ragab (2014), auditor size is significantly associated with earnings management.

Specifically, Teoh and Wong (1993) examined whether the earnings response coefficient differs between Big Eight and non-Big Eight audited firms. Using 15.480 firm-year observations during the period 1981-1988, they provided evidence that the earnings response coefficients of Big 8 clients are statistically significantly higher than for non-Big 8 clients.

Becker et al (1998) investigated the relation between audit quality and earnings management captured by discretionary accruals that are estimated using a cross-sectional version of the Jones (1991) model. Using 10.937 firm-year observations from 1989 to 1992, they resulted that the discretionary accruals of firms

with non-Big 6 auditors are higher than the discretionary accruals of firms with Big 6 auditors.

Francis et al (1999) studied if the likelihood of hiring a Big 6 auditor is increasing in the firm's endogenous propensity to generate accruals. Using a sample of NASDAQ firms over the period 1975-1994 they showed that high accrual firms are more likely to hire a Big 6 auditor, but report lower amounts of estimated discretionary accruals.

Bauwhede et al (2003) explored the impact of audit quality, measured by audit firm size, on earnings management, measured by discretionary accruals. Using 136 firm-year observations in period 1991-1997, they found that audit quality act as constraints on income-decreasing earnings management. Specifically, they observed that having a Big 6 auditor constraints a firm's attempt to increase as well as decrease earnings.

Chung et al (2003) hypothesized that Big Six audit clients use more conservative accounting than non-Big Six audit clients when the clients are performing poorly (as reflected in stock prices). By regressing excess earnings to price ratios on excess stock returns and other variables, they claimed that Big Six auditors influence their clients to adopt more conservative accounting procedures than non-Big Six auditors only when the clients' financial performance is worse than expected.

Krishnan (2003) examined whether there is a linkage between audit quality and pricing of discretionary accruals. Using 18.568 firm-year observations representing 4.098 firms from 1989 to 1998, they indicated that clients of Big 6 auditors report lower amount of discretionary accrual than clients of non-Big 6 auditors and the association between stock returns and discretionary accruals is

greater for firms audited by Big 6 auditors than for firms audited by non-Big 6 auditors.

Zhou and Elder (2004) tested the relationship between audit quality as measured by audit firm size and earnings management as measured by discretionary current accruals for companies making seasoned equity offerings. Using 2.453 firm-year observations of seasoned equity offerings between 1991 and 1999, they concluded that Big 5 auditors are associated with lower earnings management in the years before, during, and subsequent to the seasoned equity offerings.

Chen et al (2005) analyzed the relationship between audit quality as measured by auditor size and earnings management as measured by unexpected accruals for Taiwan IPO firms. Using 367 new issues between 1999 and 2002 from the Taiwan Economic Journal database, they found that Big 5 auditors are related to less earnings management in the IPO year in Taiwan.

Lee et al (2006) studied the relation between the accuracy and bias of earnings forecasts provided in Australian initial public offerings prospectuses and auditor size. Using 220 firms between 1991 and 1998, they indicated that forecasts associated with Big 6 auditors are more accurate than those for which a Non-Big 6 auditor is used. They also found significantly less optimistic bias for forecasts with Big 6 auditors.

Chia et al (2007) tested the effect of the choice of auditors in constraining earnings management within a rule-based reporting framework during the Asian financial crisis. Using 383 firm-year observations for the fiscal years of 1995-1998, their results implied that high quality auditing by Big-6 auditing firms acts as effective deterrent to earnings management of their clients, which in turn will enhance the quality of their reported earnings.

Van Tendeloo and Vanstraelen (2008) investigated audit quality in private firms across different European countries. Using 64.831 firm-year observations from 1998 to 2002, they concluded that privately held firms engage less in earnings management when they have a Big 4 auditor compared to a non-Big 4 auditor.

In similar vein, Hussainey (2009) addressed the impact of audit quality, measured by financial statements audited by the Big Four accounting firms, on the investors' ability to predict future earnings for profitable and unprofitable firms. Using 4.417 firm-year observations (3.736 profitable firms and 681 unprofitable firms) for the period 1996-2002, they found that there is positive relation between earnings predictability and audit quality.

Jordan et al (2010) investigated whether audit quality, as proxied by auditor size, in the U.S. constrains earnings management to effect user reference points in EPS. Using 1.251 firm-year observations with 631 and 620 of these audited by Big Four and non-Big Four audit firms respectively, they suggested that audit quality significantly restricts management's attempts at rounding up earnings per share as clients of Big 4 firms show no major signs of this manipulative behavior while non-Big 4 auditees appear to round up the first digital position right of the decimal point in earnings per share across zero to increase the digit immediately left of the decimal point by one.

Kabir et al (2011) studied the association between Big 4 affiliated auditors and accruals quality in Bangladesh. Using 382 firm-year observations from 2000 to 2003, they found that the association between Big 4 affiliates and accruals quality in Bangladesh depends on measures of accruals quality and accruals models used. However, in general, they stated that Big 4 affiliates do not have a positive impact on accruals quality of their clients in Bangladesh.

Gerayli et al (2011) provided empirical evidence on the impact of audit quality on discretionary accruals, as a measure of earnings management, in Iranian listed firms. Based on a sample of 90 non-financial Iranian listed firms from 2004 to 2009, their results revealed that discretionary accruals are negatively related to auditor size.

Hajizadeh and Rahimi (2012) investigated the relationship between audit firm size and information content of earnings. Using data of listed firms in Tehran Stock Exchange from 2005 to 2009, they showed that there is positively significant relationship between audit firm size and information content of earnings so that audit quality increases the level of information content of earnings.

The study of Iatridis (2012) focused on firms that audited by a Big auditor and examined the differentiation in the earnings management potential and the level of conservatism. Using firms from emerging common-law South Africa and code-law Brazil, he implied that firms audited by a big auditor are likely to exhibit lower discretionary accruals and higher conservatism.

Hamdan et al (2012) tested the impact of audit firm size on the enhancement of the level of accounting conservatism. Using 39 firms of the industrial sector listed on Amman Stock Exchange for the period 2001-2006, they indicated that the size of the auditing firm has an impact on improving the accounting conservatism.

Iatridis and Dimitras (2013) investigated how the economic crisis affects the scope for earnings manipulation and the value relevance of reported financial numbers for companies that are audited by a Big Four auditor. Using Portuguese, Irish, Italian, Greek and Spanish listed firms, they implied that, under a severe economic crisis, firms may resort to earnings management in order to protect their financial position, performance and prospects and to mitigate the adverse effects of financial distress, even when audited by a Big 4 auditor.

Lee and Lee (2013) studied the association between audit quality (measured by audit firm size) and value relevance of representative accounting measures, such as earnings and book value of equity. Using 5.589 firm-year observations from 1996 to 200, they found that, in the Taiwan capital market, in general, the earnings and book value of equity audited by Big 4 auditors explain more variations in stock return than those audited by non-Big 4 auditors. Specifically, they observed that both earnings and book value audited by Big 4 audit firms are generally more relevant than those audited by non-Big 4 audit firms.

Soliman and Ragab (2014) examined the association between audit quality (measured by audit firm size) and earnings management (measured by discretionary accruals). Using the top 50 most active-traded companies listed in the Egyptian Stock Exchange over the period 2007-2010, they concluded that audit quality have significant negative association with discretionary accruals.

On contrary, Maijoor and Vanstraelen (2006), Piot and Janin (2007) and Yasar (2013) found no relationship between audit size and earnings quality. Particularly, Maijoor and Vanstraelen (2006) studied the effects of audit firm size on earnings management within Europe. Using 17.394 firm-year observations from France, Germany and the UK for the period 1992-2000, they claimed that a stricter audit environment reduces the magnitude of earnings management, irrespective of the type of auditor and there is no affect of international Big 4 auditor on earnings management.

Examining the effect of audit firm size on earnings management in France, Piot and Janin (2007) concluded that the presence of a Big 5 auditor makes no difference regarding earnings management activities.

Finally, Yasar (2013) tested the effect of audit quality, measured by audit firm size, on earnings management, measured by discretionary accruals, by focusing on Turkish case. Using 290 firm-year observations from manufacturing industry listed on the Istanbul Stock Exchange for the years 2003-2007 of which 130 firm-year observations are audited by Big Four auditors and 160 audited by non-Big Four auditors, they showed that audit firm size does not have an impact on discretionary accruals. In particular, there is no difference in audit quality between Big 4 and non-Big 4 auditors for restriction of earnings management in Turkey.

4.3.2.2. Earnings quality and audit report opinion

Francis and Krishnan (1999), Chen et al (2001), Butler et al (2004), Johl et al (2007), Chen et al (2011), Gajevszky (2014) and Vichitsarawong and Pornupatham (2015) analyzed the relation between modified audit opinion and earnings management.

Francis and Krishnan (1999) tested if high-accrual firms in the United States are more likely to receive modified audit reports for asset realization uncertainties and going concern problems. Using 2.792 firm-year observations from US Stock Exchange, they found that auditors of high-accrual firms are more likely to issue modified opinions for asset realization uncertainties and for going concern problems.

Chen et al (2001) addressed the relationship between earnings management induced by profitability regulation and modified audit opinions. Using annual reports published by listed companies from 1995 to 1997, they found that asymmetric profitability requirements exacerbate managers' propensity to engage in earnings management, which in turn is positively associated with receiving modified audit opinions.

Butler et al (2004) examined whether certain modified audit opinions are associated with abnormal accruals, as a proxy for earnings management. Using 147.926 firm-year observations for the period from 1980 to 1999, they indicated that the documented relation between modified opinions and abnormal accruals rests with firms that have going-concern opinions. In addition, they showed no evidence to support inferences in previous research that firms receiving modified audit opinions manage earnings more than those receiving clean opinions.

Johl et al (2007) aimed to examine auditor reporting behavior in the presence of aggressive earnings management in the context of the Asian Economic Crisis as it affected Malaysia. They showed that Big Five auditors in Malaysia appear to qualify more frequently than their non-Big Five counterparts when high levels of abnormal accruals are present.

Chen et al (2011) examined the effects of audit quality, measured by a modified opinion, on earnings management, measured by discretionary accruals, for two groups of Chinese firms: state-owned enterprises and non-state-owned enterprises. Using 3.310 firm-year observations over the years 2001 to 2004, they found that non-state-owned enterprises exhibit greater reduction in earnings management relative to state-owned enterprises when they both employ high quality auditors.

Gajevszky (2014) analyzed the relation between modified audit opinion and discretionary accruals in the case of Romania listed entities. Using 60 firms listed on the Bucharest Stock Exchange in 2012, she indicated that firms of which audit opinions are qualified manage the discretionary accruals more negative and unqualified audit opinions.

Finally, Vichitsarawong and Pornupatham (2015) studied the association between audit opinion and earnings persistence of listed companies in Thailand from 2004 to 2008. Using 1.791 firm-year observations from 2004 to 2008, they found that firms with a qualified opinion or a disclaimer have lower earnings persistence than firms receiving an unqualified opinion with an emphasis of matter. However, they revealed that there is no difference in earnings persistence between firms receiving a qualification and a disclaimer.

4.3.2.3. Earnings quality and audit fees

Audit fees is another measure of audit quality that influence earnings management (Frankel et al, 2002; Chung and Kallapur, 2003; Antle et al, 2006; Li and Lin, 2005; Srinidhi and Gul, 2007; Mitra et al, 2009; Alali, 2011; Hamdan et al, 2012; Lee et al, 2015). Especially, Frankel et al (2002) examined whether auditor fees are associated with earnings management and he market reaction to the disclosure of auditor fees. Using 3.074 firms from February 5, 2001 to June 15, 2001, they found a positive association between non-audit fees and the magnitude of absolute discretionary accruals and a negative association between audit fees and the magnitude of absolute discretionary accruals.

Based on the economic theory of auditor independence of DeAngelo (1981), Chung and Kallapur (2003) tested the association of client fees and of nonaudit fees divided by the audit firm's U.S. revenues as measure of client importance and Jones' model (1991) abnormal accruals. Using 1.778 firm-year observations between February 5 and June 30, 2001, they resulted no significant relationship between discretionary accruals and audit fees or nonaudit fees.

Antle et al (2006) investigated the relations among audit fees, non-audit fees and abnormal accruals through estimating a simultaneous set of equations. Using 2.294 and 1.570 firm-year observations from UK and US respectively for a period 1994-2000, they documented that there is a significant positive and robust effect of audit fees on abnormal accruals in both US and UK.

Li and Lin (2005) addressed the relationship between audit quality, measured by audit and non-audit fees, and earnings management, measured by earnings restatements. Using 351 publicly-held corporations that restated their reported earnings for the fiscal year 2000, they concluded that total fees and audit fees are positively associated with earnings restatements and there is no statistically significant relationship between earnings restatements and non-audit fees.

Srinidhi and Gul (2007) examined linkages between the audit and non-audit fess and accrual quality, measured by the Francis et al (2005) modification of Dechow and Dichev (2002) measure. Using 4.282 firm-year observations (1.709 in 2000 and 2.573 in 2001), they showed that accruals quality has a significant negative association with the magnitude of non-audit fees but a significant positive association with audit fees. It means that higher audit fees reflect higher audit effort and better judgments about the propriety of accruals.

Mitra et al (2009) provided empirical evidence about the association between expected and unexpected audit fees and reported earnings quality for a sample of 1.142 firms (6.852 firm-year observations) over a period from 2000 to 2005. They indicated that both expected and unexpected audit fees are positively associated with an increase in earnings quality, as indicated by the reduction of both absolute and signed discretionary accrual adjustments.

Alali (2011) investigated the relationship between discretionary accruals and audit fees and whether this relationship is affected by the chief financial officer's compensation structure. Using 36.218 firm-year observations covering the period 2000-2006, they found that there is positive association between discretionary accruals and audit fees.

Hamdan et al (2012) tested the impact of auditing fees on the enhancement of the level of accounting conservatism. Using 39 firms of the industrial sector listed on Amman Stock Exchange for the period 2001-2006, they showed that the amount of auditing fees have no role in improving accounting conservatism in financial statements since the relationship between the fees and the book-to-market ratio and abnormal accruals is positive and not statistically significant.

Lee et al (2015) studied the impact of conditional conservatism on audit fees. Using a sample of firm-year observations over the period of 2004-2009, they provided evidence consistent with conditional conservatism and firms' commitment to such conservatism reducing their audit fees.

4.3.2.4. Earnings quality and audit rotation

Krishnan (1994) examined the auditor's opinion formulation process for switching and non-switching clients in the year prior to the switch. Specifically, he examined the possibility that auditor switches are triggered not by the receipt of qualified opinions, but by auditors use of conservative judgments for some clients. Using 2.989 firm-year observations for 1986 and 1987, he supported the hypothesis that threshold values for switches are significantly lower (more conservative) than those for non-switches.

DeFond and Subramanyam (1998) analyzed the association between auditor changes and discretionary accruals. In a sample of auditor change firms, they found that discretionary accruals are income decreasing in the last year of auditor's service whereas the discretionary accruals are found to be insignificant in the first year of the new auditor's service.

Johnson et al (2002) tested the relationship between auditor tenure and earnings management (measured by discretionary accruals). They found that relative to medium audit-firm tenures of four to eight years, short audit –firm tenures of two to three are associated with lower-quality financial reports. On contrary, they found no evidence of reduced financial-reporting quality for longer audit-firm tenures of nine or more years.

Myers et al (2003) documented evidence on the relation between auditor tenure and earnings quality using the dispersion and sign of both absolute Jones model abnormal accruals and absolute current accruals as proxies of earnings quality. Using 42.302 firm-year observations from 1988 to 2000, their results suggested that longer auditor tenure, on average, resulted in auditors placing greater constraints on extreme management decisions in the reporting of financial performance.

Carcello and Nagy (2004) examined the relation between audit firm tenure and fraudulent financial reporting. Comparing 265 firms cited for fraudulent reporting from 1990 through 2001 with both a matched set of non-fraud firms and with the available population of non-fraud firms, they found that fraudulent financial reporting is more likely to occur in the first three years of the auditor-client relationship. With other words, they claimed that mandatory audit firm rotation could have adverse effects on audit quality.

Examining if long auditor tenure impairs earnings quality by using 3.103 firm-year observations during 1990-2001, Chen et al (2008) suggested that there is a significantly negative relation between audit partner tenure and absolute discretionary accruals.

Davidson III et al (2006) reexamined prior research in earnings management that surround auditor changes and extend prior work by examining earnings management and auditor changes while controlling for prior audit opinion. Using 1.330 auditor changes over the period 1993-1997, they found that, on average, earnings management does not increase following auditor changes.

Lin et al (2009) addressed how investors respond to audit quality and auditor switch in the Chinese context. Using 1.284 firm-year observations during 2001-2004, they indicated that the quality of an audit and switching to a larger auditor have a positive (negative) impact on earnings response coefficients for firms with positive (negative) abnormal earnings. On contrary, they showed that switching to a smaller auditor has a negative (positive) impact on earnings response coefficients for firms with positive (negative) abnormal earnings.

Finally, Kramer et al (2011) investigated the relationship between audit firm tenure and audit firm rotation, and conservatism as an attribute of earnings quality. Using 11.643 firm-year observations from the North America Industrial Annual database for the period 1980-2006, their findings indicated that conservatism in reported earnings increases after the rotation of the audit firm and conservatism in reported earnings decreases as the tenure of the audit firm lengthens.

4.3.2.5. Earnings quality and audit committee existence

Few papers considered that there is a significant relationship between the existence of audit committee and earnings management (Wild, 1996; Klein, 2002; Xie et al, 2003; Mitchell et al, 2004; Van der Zahn and Tower, 2004; Yang and Krishnan, 2005; Vafeas, 2005; Lin et al, 2006; Jaggi and Leung, 2007; Baxter and Cotter, 2009; Alves, 2013; Hamdan et al, 2013; Chandrasegaram et al, 2013; Badolato et al, 2014; Salleh and Haat, 2014; Ayemere and Elijah, 2015). Wild (1996) provided empirical evidence on the association between audit committee formation and the quality of accounting earnings. Their results showed a significant increase in the market's reaction to earnings reports subsequent to the formulation of the audit committee.

Klein (2002) tested whether audit committee are related with earnings management by the firm. Using 687 firm-year observations for the cross-sectional accrual model tests and 683 firm-year observations for the time-series accrual model tests, she found that there is a negative association between audit committee independence and earnings manipulation.

Xie et al (2003) examined the role of the board of directors, the audit committee and the executive committee in preventing earnings management. Using 282 firm-year observations from the S&P 500 index for the years 1992, 1994 and 1996, they concluded that board and audit committee activity and their members' financial sophistication may be important factors in constraining the propensity of managers to engage in earnings management.

Mitchell et al (2003) gave insights about the link between audit committees and earnings management. Using 485 firm-year observations from Singapore's publicly traded firms during the 2000-2001 calendar period, they found that firms

with a higher proportion of independent audit committee members are more effective at constraining earnings management.

Choi et al (2004) addressed the relationship between the characteristics of audit committees – independence, competency and activity – and earnings management. Using data from the Korean Stock Exchange during the period 2000-2001, they found that the independence and competency of the audit committee are associated with the earnings management of a firm. Specifically, the committee members' shareholders are positively associated with earnings management, while the presence of professors or the employees of financial institutions on the committee is negatively associated with earnings management. On contrary, they stated that the activity measure of the committee is not significantly related to earnings management.

Van der Zahn and Tower (2004) investigated the link between audit committees and earnings management providing a more comprehensive simultaneous analysis of the influence of audit committee features using a sample of 485 firm-year observations from Singapore's publicly traded firms during the 2000-2001 calendar period. They indicated that firms with a higher proportion of independent audit committee members are more effective at constraining earnings management. In addition, firms with audit committees that are more diligent and/or lack the presence of independent directors serving simultaneously on a substantial number of board and committees are more effective at constraining earnings management.

Yang and Krishnan (2005) examined whether audit committees with certain characteristics curb managers' ability to engage in quarterly earnings management. Using 896 firm-year observations for the years 1996-2000, they found that a) the number of outside directorships held by audit committee directors is negatively

associated with earnings management behavior, b) stock ownership by independent audit committee directors is positively associated with earnings management, and c) the average tenure of audit committee directors is negatively associated with quarterly earnings management suggesting a possible effect of experience with the firm and its accounting.

Using data on 252 U.S. firms between 1994 and 2000 to study the relationship between audit committees and boards of directors with financial reporting quality, Vafeas (2005) concluded that measures of audit committee and board structure are related to earnings quality in a manner that is generally consistent with the predictions of agency theory.

Lin et al (2006) examined the association between the characteristics of audit committees (size, independence, financial expertise, activity, and stock ownership) and earnings restatement. Using 212 firms for the fiscal year 2000, the results indicated a negative association between the size of audit committees and the occurrence of earnings restatement. The remaining four audit committee characteristics were not found to have a significant impact on the quality of reported earnings.

Jaggi and Leung (2007) tested whether the establishment of audit committees by Hong Kong firms would constrain earnings management, especially in firms with family-dominated corporate boards. Using 523 firm-year observations for the period of 1999-2000, they showed that overall audit committees play a significant role in constraining earnings management even in the business environment of higher ownership concentration.

Baxter and Cotter (2009) studied whether audit committees are associated with improved earnings quality for a sample of Australian listed companies prior to the introduction of mandatory audit committee requirements in 2003. Using two measures of earnings quality, Jones' (1991) and Dechow and Dichev's (2002) models, their results indicated that formation of an audit committee reduces intentional earnings management but not accrual estimation errors.

Alves (2013) aimed to examine the combined effect of audit committee existence and external audit on earnings management. Using 33 non-financial listed Portuguese firms-year from 2003 to 2009, they showed that there is a positive relationship between both audit committee existence and external audit and discretionary accruals.

Hamdan et al (2013) tested the relationship between audit committee characteristics and earnings management. Using 50 industrial companies listed on the Amman Stock Exchange ASE from 2004-2009, they found that there was an influence of some standard characteristics of audit committee on earnings quality.

Chandrasegaram et al (2013) addressed the impact of audit committee characteristics (measured by audit committee meetings, size of audit committee and independence of the audit committee) on earnings management (measured by discretionary accruals) in Malaysian public listed companies. Using 153 public listed companies on Bursa Malaysia, extracted from both year 2011 annual reports, they revealed that audit committee characteristics are not negatively related to the magnitude of earnings management.

Badolato et al (2014) investigated the joint effects of audit committee financial expertise and status on earnings management. Using 29.074 firm-year observations

from 2001 through 2008, they suggested that the presence of both relative audit committee status and financial expertise deters management from committing irregularities.

Salleh and Haat (2014) examined the effectiveness of audit committee (measured by size, independence, expertise, frequency of meetings and activity disclosure) in constraining earnings management (measured by discretionary accruals) after the revised MCCG among listed firms on Bursa Malaysia. Using 280 companies listed on Bursa Malaysia in 2009, they found that audit committees play an important and effective role in reducing earnings management after the revision of MCCG.

Finally, Ayemere and Elijah (2015) postulated that audit committee attributes can impact significantly, constraining accrual-based distortion of financial reporting credibility and thus improve the quality of financial reporting. Using 453 firm-year observations for the year ended 2006 to 2013, they found that audit committee characteristic have a constraining effect on earnings management. Specifically, audit committee financial expertise, audit committee size, audit committee independence and diligence showed an inverse and significant relationship with earnings management.

4.3.2.6. Earnings quality and demand for auditing

The association between disclosure of accounting information and demand for auditing is examined from Francis et al (2003). Using data from 31 countries, they documented that national accounting standards are more timely (accrual-based) and transparent in common law countries, which is consistent with a greater role played by the public disclosure of accrual-based accounting information in corporate governance in these countries.

4.3.3. Audit quality and investor protection

Papers that examined the fluctuation of audit quality in different investor protection regimes is quietly limited. First, Newman et al (2005) extended investor protection models to focus explicitly on the detection of insider expropriation by self-interested auditors operating in a competitive audit market. They showed that markets with relatively greater auditor penalties for audit failures and greater insider penalties for detected resource diversion have larger total investment levels, a higher proportion of the firm held by outsiders, higher audit effort, higher audit fees, and higher expected payoffs for both auditors and insiders.

In a similar vein, Jaggi and Low (2011) examined the joint effect of investor protection an securities regulation by splitting the sample of firms from 17 countries worldwide intro groups of high and low investor protection. Their results confirmed their expectations that high investor protection is associated with higher audit fees, irrespective of the strictness of securities regulations.

4.3.4. Earnings quality, audit quality and investor protection

The joint effect of investor protection and audit quality on earnings management is studied by Francis et al (2003), Maijoor and Vanstraelen (2006), Francis and Wang (2008) and Van Tendeloo and Vanstraelen (2008). Francis et al (2003) examined if variations in legal systems affect accounting and auditing. Using data from 31 countries, they found that civil law countries have weak investor protection laws and therefore have less timely (accrual-based) and transparent accounting and less demand for auditing as an enforcement mechanism than common law countries (which have stronger investor protection).

Maijoor and Vanstraelen (2006) investigated the effects of national audit environment differences on earnings management. Using data for the period 1992-

2000 from listed firms in three EU countries with clearly distinct audit environment (France, Germany and the UK), their results provided evidence that the magnitude of earnings management is not uniform and that a stricter audit environment can reduce the magnitude of earnings management, irrespective of the type of auditor. In particular, their results suggested that firms in countries with flexible audit quality regimes report significantly higher absolute values of discretionary accruals compared to firms in countries with strict audit quality regimes.

Furthermore, Francis and Wang (2008) tested the association of a country's investor protection with the earnings quality (the magnitude of abnormal accruals, the likelihood of reporting losses, and earnings conservatism) for a large sample of firms from 42 countries from 1994 to 2004 (57.966 firm-year observations). At issue, they issued if earnings quality is jointly affected by the investor protection regime where a firm is located and the firm's choice of a Big 4 versus non-Big 4 auditor. Their results suggested that stricter investor protection per se does not lead to increased earnings quality. Minutely, the effect of investor protection is mediated through the incentives of auditors, and that stricter investment protection regimes lead to higher quality earnings only for firms with Big 4 auditors.

Finally, analyzing audit quality in private firms across different European countries from 1998 to 2002 (64.831 firm-year observations), Van Tendeloo and Vanstraelen (2008) found that private firms domiciled in countries with a stronger investor protection engage less in earnings management. In addition, their results suggested that audit quality and investor protection are substitutes in constraining earnings management in private firms, in the sense that the Big 4 audit quality effect attenuates when investor protection is stronger.

4.4. Earnings quality, cost of capital and audit quality

4.4.1. Cost of capital and earnings quality

Conversely, there are papers that examined whether the earnings quality is associated with cost of capital, there are also some literature that examined the effect of financial crisis or economic turmoil or economic recession on earnings quality and cost of capital separately. However, there is a lack of consistent evidence in the accounting literature on the effect of an exogenous shock, like financial crisis of 2008, on the relationship between earnings quality and cost of capital.

DeFond and Jiambalvo (1994) and DeAngelo et al (1994) addressed whether the debt covenant violation influence earnings management. The results indicated that in the years of debt covenant violation, managers use earnings management to convinced creditors to show a good financial picture of firm.

Affleck-Graves et al (2002) explored the relation between earnings predictability and bid-ask spread, measure of cost of equity. The findings suggested that firms with relatively less predictable earnings have a higher cost of equity capital than comparable firms with more predictable earnings streams, ceteris paribus.

Aboody et al (2005) examined the association between earnings quality (measured by abnormal accruals) and cost of capital. Using 989.530 firm-year observations from 1985 to 2003, they found evidence consistent with pricing of the earnings quality factor and insiders trading more profitably in firms with higher exposure to that factor.

Bhattacharya et al (2003) related three country level dimensions of reported accounting earnings (earnings aggressiveness, loss avoidance and earnings

smoothing) to country level cost of capital measures. The results indicated that an increase in overall earnings opacity in a country is linked to an economically significant increase in the cost of equity.

Francis et al (2004) examined the relation between the cost of equity capital and seven attributes of earnings: accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism. Using cross sectional regression test, cost of equity is significantly associated with each of earnings attributes. However, using conditional tests, ex ante cost of equity is no longer associated with smoothness, timeliness and conservatism; predictability is inversely associated with the cost of equity; and accruals quality, persistence and value relevance continue to be strongly positively associated with the cost of equity. Moreover, from the side of realized returns, they concluded that earnings quality has the largest cost of capital effect of all of the earnings attributes, and persistence has statistically positive but smaller effects.

Francis et al (2005) investigated the relationship between accruals quality and the costs of debt and equity capital. Using a large sample for 32-year period (1970-2001), they found that firms with poorer accruals quality have higher ratios of interest expense to interest-bearing debt and lower debt ratings than firm with better accruals quality. Similarly, in terms of the cost of equity, they showed that firms with lower accruals quality have significantly larger earnings-price ratios relative to their industry peers.

Similarly with Affleck-Graves et al (2002), Jayaraman (2008) provided empirical evidence on the association between cost of equity capital, measured by bid-ask spreads, with earnings quality, measured by earnings smoothness. The results

indicated that bid-ask spreads and the probability of informed trading are higher both when earnings are smoother than cash flows and also when earnings are more volatile than cash flows.

Chan et al (2009) supported evidence about the linkage between different dimensions of accounting conservatism (ex ante and ex post conservatism) and the cost of equity capital. Using UK non-financial firms during the period 1987-1999, they found that ex ante conservatism is associated with higher quality of accounting information and lower costs of equity, whereas ex post conservatism is associated with lower quality of accounting information and higher costs of equity capital.

Chang et al (2009) studied the impact of the Sarbanes-Oxley Act (SOX) on market-based measures of earnings quality and cost of capital. Using 8.480 firm-year observations from 1999 to 2005, they found that in the post-SOX period, the market's perception of earnings quality has improved, while the firms' cost of equity capital has decreased.

McInnis (2010) examined the link between cost of capital and earnings smoothness. Whilst the projected target prices of Value Line analysts (Brav et al, 2005; Francis et al, 2005) indicated there is a negative relation between imputed cost of capital and earnings smoothness, he found no such pattern. He resulted that there is no relation between earnings smoothness and average stock returns over the period from 01/01/1975 to 31/12/2006. He offered evidence that the inverse relation between earnings smoothness and implied cost of capital results primarily from optimistic bias in analysts' long-term earnings projections.

Kim and Qi (2010) explored whether and earnings quality, measured as accrual quality, affects the cost of equity. For period of time from 1970 to 2006, they

suggested that accrual quality contributes to the cost of equity capital and that is pricing effect is associated with fundamental risk.

Using discretionary accruals, Rodriguez-Perez and Van Hemmen (2010) investigated the relationship between debt and earnings management. Consistent with the transparency hypothesis, they found that for less-diversified firms, debt reduces positive discretionary accruals, whereas in relatively more-diversified firms the impact of debt becomes positive. Moreover, the results indicated that marginal increases in debt provide incentives for managers to manipulate earnings, and diversification provides the needed context for this accounting practice to be possible.

Ghosh and Moon (2010) established linkages between debt financing and the quality of earnings (measured by accruals quality). Using 8.240 firm-year observations from 1992 to 2004, they documented a non-monotonic relation between debt and earnings quality. They suggested that firms that rely heavily on debt financing might be willing to bear higher costs of borrowing from lower earnings quality because the benefits from avoiding potential debt covenant violations exceed the higher borrowing costs.

Liu et al (2010) examined whether firms manage earnings before issuing bonds to achieve a lower cost of borrowing. Using 2.839 firm-year observations from 1970 to 2004, they found significant income-increasing earnings management prior to bond offerings. They also found that manage earnings upward issue debt at a lower cost.

Valipour and Moradbeygi (2011) studied the relationship between corporate debt financing and earnings quality and the dominance of positive influence of debt or negative influence of debt on earnings quality. Testing 81 firms listed in Tehran Stock

Exchange during the years 2005-2009, they found that there is negative and meaningful relationship between debt and earnings quality.

Artiach and Clarkson (2014) sought insights into the economic consequences of accounting conservatism by examining the relation between conservatism and cost of equity capital. Using 3.138 firm-year observations from the period 1985-2000, they found an inverse relation between conservatism and the cost of equity capital, but further, that this relation is diminished for firms with low information asymmetry environments.

Khalifa and Othman (2015) tested the economic consequences of accounting conservatism by examining the relationship between conservatism and cost of equity capital. Using 1.287 firm-year observations over the four year period 2004-2007, they found that a negative association between conditional conservatism and the cost of equity capital.

Finally, Li (2015) examined the contracting benefits of accounting conservatism on international debt and equity markets. Using 140.774 firm-year observations covering 31 countries and 16 years from 1991 to 2006, he showed that firms domiciled in countries with more conservative financial reporting systems have significantly lower cost of debt and equity capital.

4.4.2. Cost of capital and audit quality

It is widely accepted that auditing plays a key role in the presence of moral hazard and information asymmetry by asserting investors that the financial statements prepared by managers are credible and genuinely (Jensen and Meckling, 1976; Titman

and Trueman, 1986; Slovin et al, 1990; Datar et al, 1991). Specifically, without auditing, investors will be skeptical of the financial information that are published which, in turn, lead them to refuse to invest or to demand a high rate of return to balance the risk of potential expropriation of their capital by managers. Consequently, the higher the audit quality, the lower the cost of equity (Khurana and Raman, 2004; Mansi et al, 2004; Pittman and Fortin, 2004).

Previous literature, generally examined the association between audit quality and cost of capital. Researchers found that Big 4 audits are of higher quality than non-Big 4 audits. For instance, Teoh and Wong (1993) concluded that clients of Big 4 auditors have higher ERCs than clients of non-Big 4 auditors, whereas Becker et al (1998) and Francis et al (1999) claimed that use of Big 4 auditor is associated with smaller discretionary accruals. Based on and expanding these research, Khurana and Raman (2004), Mansi et al (2004), and Pittman and Fortin (2004) documented that the use of Big 4 auditor (high audit quality) have a lower cost of capital than other firms.

Specifically, utilizing an estimable proxy for financial reporting credibility – the ex ante cost of equity capital – to examine whether Big 4 auditors are perceived as providing higher quality audits (relative to non-Big 4 auditors) in the U.S. and in the less litigious (but economically similar) environments in other Anglo-American countries during the 1990-99 period, Khurana and Raman (2004) found that a Big 4 audit is associated with a lower ex ante cost of equity capital for auditees in the U.S. but not in Australia, Canada, or the U.K. They suggested that it is litigation exposure rather than brand name reputation protection that drives perceived audit quality.

Mansi et al (2004) examined the relation between auditor quality and the cost of debt financing for firms with a fiscal year ending between January 1974 and March

1998. They concluded that a) auditor quality and tenure are negatively and significantly related to the cost of debt financing, b) the relation between auditor characteristics and the cost of debt is most pronounced in firms with debt that is noninvestment grade, and c) both the insurance and information role of audits are economically significant to the cost of debt.

Consistent with Mansi et al (2004), Pittman and Fortin (2004) investigated the impact of auditor choice on debt pricing in firms' early public years when they particularly rely on obtaining external financing despite experiencing serious information problems. Using SEC-registered initial public offerings from 1977 to 1988, they found that choosing a Big Six auditor decreasingly affects firms' interest rates over time and the economic value of auditor reputation declines with age as borrowers gradually shift toward depending on their own reputations to moderate costly information asymmetry. Overall, they suggested that firms that use a Big 4 auditor have a lower cost of debt.

Causholli and Knechel (2012) extended previous research by Pittman and Fortin (2004) by considering how auditor quality relates to the capital cycle and industry of the firm. Using a sample of U.S. initial public offerings (IPOs) from 1986 to 1998, they observed that firms that are young at the time of an IPO pay higher interest rates and auditor quality plays a significant role in lowering the cost of debt financing.

Using a sample of 560 new debt issues from 2001 to 2003, Dhaliwal et al (2008) examined the relation between audit, nonaudit, and total auditor fees and firms' cost of debt. They found evidence that nonaudit fees are directly related to the

cost of debt for investment-grade issuers. On contrary, they found no evidence that auditors fees directly affect the cost of debt for non-investment-grade firms.

Fernado et al (2010) investigated the impact of certain audit quality attributes, namely auditor size, auditor industry specialization and auditor tenure on client firm's cost of equity capital. Using data from 1990 to 2004, they claimed that whilst auditor size, auditor industry specialization and auditor tenure are negatively associated with the client firm's cost of equity capital, this effect is limited only to small client firms.

Chen et al (2011) explored the effect of audit quality on cost of equity capital for two groups of Chinese firms: state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs). They indicated that this effect is not uniform across SOEs and NSOEs. Particularly, cost of equity capital is significantly lower for NOSEs audited by Top 8 auditors than for NSOEs audited by non-Top 8 auditors, but not for SOEs audited by Top 8 and non-Top 8 auditors.

Karjalainen (2011) investigated the value relevance of the perceived audit quality in terms of who audits in the pricing of debt capital for privately-held firms by examining a large sample of privately-held Finnish firms from 1999 to 2006. The results showed that privately-held firms audited by Big 4 auditors and those audited by more than one responsible auditor have a lower cost of debt capital than other firms.

4.5. Earnings quality in Greece

There are various papers that examined the earnings quality in Greece. Leuz et al (2003) examined the relation between outside investor protection and earnings

management in 31 countries between 1990 and 1999 (Greece is one of them). They found that firms in low investor protection countries, such as Greece, a) exhibit greater negative correlation between changes in accruals and cash flows, b) earnings are smoother, c) exhibit some degree of loss avoidance, and d) the relative magnitude of accruals to the magnitude of operating cash flows is large.

Koumanakos et al (2005) investigated whether acquiring firms listed in the Athens Stock Exchange, that completed mergers and acquisitions during the period 2001-2003, tend to manipulate accounting earnings upward prior to the initiation and completion of the transaction. Using 407 firm year observations from 42 acquiring firms, their results provides weak evidence of biased accruals reported by managers in the year preceding the announcement and the completion of the deal.

Shen and Chih (2005) raised three issues related to the earnings management of banks across 48 countries (Greece is one of them), a) does earnings management of banks exist in all 48 countries?, b) what is the incentive of banks to manage earnings?, and c) why does earnings management vary across countries? Their results indicated that, for the first question, Greek banks are found to have managed their earnings. With respect for the second question, they show that the relationship between return and risk is negative for low earnings banks, such as Greek banks. Finally, as to the last question, countries, like Greece, with low investor protection do not manage to reduce banks' incentives to manage earnings.

Boonlert-U-Thai et al (2006) attempted to explore the relationship between cross country differences in the quality of reported earnings and investor protection. Using 57.610 firm year observations from 31 countries (Greece is one of them) over the period 1996-2002, they found that Greece has the seventh highest average earnings persistence score, the fourth highest average earnings predictability and the

lowest average earnings smoothness. Further, they found a significant positive relationship between investor protection and earnings quality.

Carramanis and Lennox (2008) tested the effect of audit effort on earnings management. Using a unique database of hours worked by auditors on 9.738 audits in Greece between 1994 and 2002, they found that when audit hours are lower, a) abnormal accruals are more often positive than negative, b) positive abnormal accruals are larger, and c) companies are more likely to manage earnings upwards in order to meet or beat the zero earnings benchmark.

Chih et al (2008) studied whether corporate social responsibility related features of 1.653 firms in 46 countries (Greece is one of them) on the earnings quality during the 1993-2002 period. They found that with a greater commitment to corporate social responsibility Greece is the second country with a higher extent of earnings smoothing and earnings aggressiveness.

Karampinis and Hevas (2009) examined the effect of the mandatory the mandatory adoption of IFRS upon the value relevance of earnings and book values using data from the Athens Stock Exchange that covered a period of two years before and two years after the mandatory adoption of IFRS. Thus, using 85 firms from 2003 to 2006, they reported that the adoption of IFRS positively affected the value relevance of consolidated net income and book value although it had no effect on their unconsolidated counterparts and that consolidated accounting numbers are by far more value relevant than unconsolidated ones in both periods and, unexpectedly, this superiority is more pronounced after IFRS adoption.

Chalevas and Tzovas (2010) tested the effect of the mandatory adoption of corporate governance mechanisms on earnings manipulation, management effectiveness and firm's financing. Using 176 firm year observations from Athens

Stock Exchange for the period 2000-2003, they found that the mandatory corporate governance mechanisms decrease firms' weighted average cost of capital, increase firms' financing and have no impact on firms' effectiveness and earnings manipulation.

Iatridis and Rouvolis (2010) investigated the effect of the transition from Greek GAAP to IFRS on the financial results of Greek listed firms. Specifically, they examined the degree of earnings management under IFRS and the value relevance of FRS based accounting numbers. Using 254 firms that are listed on the Athens Stock Exchange from 2004 to 2006, they found that in the official period of implementation of IFRS, there is some evidence of earnings management which is reduced in the subsequent period. Specifically, their results suggest that a) the reported profitability figures are less smooth under IFRS than under Greek GAAP, b) the correlation between accruals and cash flows in 2004 to 2006 is negative, suggesting that under Greek GAAP there was greater earnings management, c) under IFRS, firms tend to report small profits less frequently and recognize large losses when they occur, and d) the IFRS based accounting numbers exhibit higher value relevance than these determined under Greek GAAP.

Doukakis (2010) examined the persistence of earnings and earnings components after the adoption of IFRS. Using 956 firm year observations from Athens Stock Exchange for the period 2002-2007, they found that IFRS measurement and reporting guidelines do not seem to improve the persistence of earnings and earnings components.

Memis and Cetenak (2012) tested the relationship between earnings management-audit quality and earnings management-legal system quality by using 1.507 firms' observations from listed firms in private companies across different 8

emerging countries (Greece is one of them). According to their results, there is no significant relationship between the discretionary accruals and audit quality for firms in Greece.

Tsalavoutas et al (2012) explored the combined value relevance of book value of equity and net income before and after the mandatory transition to IFRS in Greece. Using 1.861 firm year observations from 2001 to 2008, they found no significant change in the explanatory power of value relevance regressions over the period. The coefficients on book value of equity and net income are positive and significant in both the pre-IFRS and post-IFRS periods.

Papadatos and Makri (2013) studied the value relevance of earnings and cash flows, after the mandatory adoption of IFRS in Greece. Using a large sample for the period 2005 to 2010, their findings revealed that cash flows under IFRS do not contain incremental information as compared to the earnings under IFRS.

Iatridis and Dimitras (2013) investigated how economic crisis of 2008 affects the earnings management for companies from five European countries (Greece is one of them) that are audited by a Big 4 auditor. Using 245 Greek listed firms from 2005 to 2011, they concluded that Greece tend to engage more in earnings management in their effort to improve their lower profitability and liquidity, and accommodate their higher debt and growth. Additionally, the reported financial numbers of Greek companies that are audited by a Big 4 auditor were found to be of higher quality before the crisis.

Kousenidis et al (2013) examined whether and to what extent the recent crisis in the EU has an impact on the earnings quality of listed firms in 5 countries (Greece is one of them) with weak fiscal sustainability. They found that during the crisis, the change in most determinants of earnings quality favors higher earnings quality.

However, their results also suggest that in the case of firms that exhibit the biggest discretionary accruals over a single period, most of the earnings quality attributes signal a decrease in earnings quality. In overall, they showed that, on average, earnings quality has improved in the crisis period; however, in the presence of incentives for earnings management, earnings quality deteriorates.

Tsipouridou and Spathis (2014) tested the relationship between audit opinions and earnings management for listed firms on the Athens Stock Exchange. Using 1.479 firm year observations from 2005 to 2011, they found that audit opinions are not related to earnings management.

4.6. Summary

Under this investigation of earnings quality under financial crisis and its determinants (audit quality and investor protection) and consequences (cost of capital), we can conclude the following:

- Earnings quality was significantly lower in years of financial crisis of 2008.
- There was a meaningful positive association between earnings quality and audit quality.
- There was a meaningful positive association between earnings quality and investor protection.
- There was a meaningful negative association between cost of equity capital and earnings quality.
- There was a meaningful negative association between cost of debt and earnings quality.

5. Research methodology

5.1. Introduction

In this chapter the research methodology that will be employed to examine earnings quality and its aspects during the recent financial crisis will be discussed. First, the research hypotheses will be developed based on insights gathered from previous literature. Specifically, it will be examined the following areas: **a)** the impact of financial crisis of 2008 on earnings quality, **b)** the impact of financial crisis of 2008 on audit quality, **c)** the relationship between investor protection and audit quality under financial crisis of 2008, **d)** the joint effect of financial crisis of 2008 and investor protection on audit quality, **e)** the relationship between audit quality and earnings quality under financial crisis of 2008, **f)** the relationship between investor protection and earnings quality under financial crisis of 2008, **g)** the joint effect of audit quality and investor protection on earnings quality under financial crisis of 2008, **h)** the impact of financial crisis of 2008 on cost of capital, **i)** the relationship between cost of capital and audit quality under financial crisis of 2008, **j)** the relationship between cost of capital and investor protection under financial crisis of 2008 and **k)** the relationship between earnings quality and cost of capital. Second, the statistical methods and regression equations to be employed will be discussed. The focus is on quantitative statistical procedures since they are suitable for analysis of large data samples perform relatively well, and the estimation procedure is clear and can be observed (Goncharov, 2006). Finally, the selection procedure of the sample and the research period shall be quoted. Thus, this chapter answers the following sub-question:

What is a proper design for this research?

5.2. Research hypotheses

5.2.1. Earnings quality under financial crisis of 2008

5.2.1.1. Earnings conservatism under financial crisis of 2008

Financial crisis is one factor that influences the extent of conservatism practiced by managers. According to Warganegara and Vionita (2010), in financial crisis or financial downturn[3] investor pessimism is dominated and any good news was overlaid from bad news. Most of investors react to bad news by further reducing the firms' access to capital. In an attempt to cope with these negative reactions, managers have an incentive to recognize more positive news than they normally would (Francis et al, 2013). In such a case, the manager will in fact choose more aggressive conservatism during the financial crisis.

In parallel way, using conditional conservatism, Kousenidis et al (2013) studied effects of the European debt crisis on earnings quality. They found that lower level of earnings management in recession periods which is resulted from a higher demand for conservative earnings.

Thus, based on Warganegara and Vionita (2010) and Kousenidis et al (2013), this study hypothesizes that the degree of conservatism during the financial crisis of 2008 or financial downturn is significantly higher than the degree of conservatism in the years before the financial crisis of 2008 or downturn:

H_1: The degree of conservatism during the financial crisis of 2008 is significantly higher.

[3] Financial downturn is defined as the period when the dissolutions of business increase dramatically (Warganegara and Vionita, 2010).

5.2.1.2. Value relevance under financial crisis of 2008

Evidence by Graham et al (2000), Graham and King (2000), Ho et al (2001), Davis-Friday et al (2006) and Davis-Friday and Gordon (2005) indicated that the value relevance of earnings and book value was affected during the crisis. The relevance of book value increased, as it is a proxy of the firms' settlement value and the relevance of earnings became less relevant, as instability could affect their use to project future results.

Kousenidis et al (2013) found that earnings management, measured by value relevance, decreases during the financial crisis.

Iatridis and Dimitras (2013) reported that there is controversial impact of economic crisis on earnings manipulation and the value relevance of reported financial numbers for firms that are audited by a big 4 auditor. They found that Irish, Italian and Spanish firms report more value relevant financial numbers during the crisis while the findings for Portuguese and Greek firms are to some extent conflicting.

Hence, based on previous literature, this study hypothesizes that the value relevance of earnings is decreased during the financial crisis of 2008:

H_2: The degree of value relevance during the financial crisis of 2008 is significantly lower.

5.2.1.3. Accruals quality under financial crisis of 2008

Evidences in previous research on earnings management suggested that it is used either on the good economic condition or in bad economic condition. The choice of manipulating the earnings management is based on investors' perspectives. According to Iatridis (2010), there are a number of situations in which earnings

management is used: a) transferring earnings from “good” years to “bad” years, b) postponing income recognition to reduce the tax burden, c) the eagerness of companies to reveal positive results correlated with the trend of postponing negative results and d) options of managers entitled to stock options or bonus schemes to use discretionary accounting policies in order to increase their current or future compensation.

Investigating the earnings manipulation by the financially distressed firms in New Zealand from 2008 to 2011, Habib et al (2013) found that financially distressed firms engage income-decreasing earnings management during the crisis.

Moreover, Filip and Raffournier (2012) suggested an improvement of accruals quality during the 2008-2009 financial crisis. They argued that a) managers have less incentive to manipulate earnings in crisis periods due to a higher market tolerance for poor performance, b) litigation risk increases during crisis, which should dissuade insiders to engage in earnings management, and d) the change in the behavior of companies may also respond to higher demand for more timely earnings in troubled periods.

Lu (2012) found that a firm with lower earnings quality (higher accruals quality) has higher degree of risk-taking which is more significant after the 2008 financial crisis.

Using a sample in Malaysia during 1997 Asian Financial Crisis, Ahmed et al (2008) found that firms with potential debt renegotiations apply income decreasing management and the investors’ tolerance to poor financial performance is higher in the bad economic environment, so that firms book more accruals to depress earnings so as to improve performance after depression.

Choi et al (2011) analyzed the way the information value of reported revenues changed during the Asian financial crisis of 1997-1998. By using the modified Jones' (1991) model by Dechow et al (1995), they found a significant decline in the information value of discretionary earnings component during crisis, and no effect on the nondiscretionary components of earnings. The information value of discretionary components was more severe in countries with weaker institutions and for firms with higher information asymmetries.

Based on previous papers, which investigate the evolution of accruals quality around some events with significant impact on subject firms (like financial crisis, financial scandals, etc.), this study hypothesizes that there is an impact of financial crisis of 2008 on accruals quality:

H_3: The degree of accruals quality during the financial crisis of 2008 is significantly low.

5.2.1.4. Earnings persistence under financial crisis of 2008

According to Kormedi and Lipe (1987), the basic components of earnings persistence are accruals and cash flow from operations. Many papers analyzed them for the purpose of predicting future earnings and the results of Sloan (1996) indicated that earnings performance attributable to the accrual component of earnings exhibits lower persistence than earnings performance attributable to the cash flow component of earnings. So, the lower persistence of accruals compared to cash flows have consequences for the persistence of current earnings (Sloan, 1996; Chan et al, 2001).

Thus, despite the fact of no existence of evidence how economic turbulences, like financial crisis, influence the earnings persistence, it is excepted high level of

persistence which in turn is translated as low level of earnings persistence during the financial crisis of 2008:

H_4: The degree of value earnings persistence during the financial crisis of 2008 is significantly low.

5.2.1.5. Earnings predictability under financial crisis of 2008

There is evidence that common stock returns are predictable and that they vary over the business cycle. Specifically, according to Bikker and Haaf (2002) and Albertazzi and Gamabacorta (2009) claimed that business cycles have significant impact on bank earnings. In recession period, profitability decreases and during booms it increases. Similarly, during financial crises profitability reduces and firms face higher earnings volatility. Hence, because of the existence of negative relationship between earnings volatility and earnings predictability (Dichev and Tang, 2009), I expect a reduction of earnings predictability during the financial crisis of 2008.

Thus according to Lipe (1990), the earnings predictability will be lower during the financial crisis of 2008:

H_5: The degree of earnings predictability during the financial crisis of 2008 is significantly low.

5.2.1.6. Loss avoidance analysis under financial crisis of 2008

The analysis that small positive earnings indicate earnings management is somewhat controversial and several researchers have questioned whether earnings management actually explains the kink of earnings. As I mentioned above, Strobl (2013) suggested that earnings management is prevalent in the good economic

condition than in the bad economic condition. Investors are more sensitive to bad financial performance in economic booms than in economic downturns (Conrad et al, 2002). Thus, the capital market incentives weaken in bad economic conditions which push investors to expect quite a lot of firms would manage earnings which results in low quality of published reports and decreases the emphasis on these reports. Therefore, firms may have fewer motives to manage earnings in recession.

However, as mentioned previously, according to Ahmed et al (2008), Chia et al (2007), Habib et al (2013), Jacob and Jorgensen (2007), the results were opposite during financial crisis. They found that during bad economic conditions, like financial crisis, those small losses firms who employ income-increasing management before may abandon reporting zero or small positive earnings because the poor stock market performance decreases the incentives from capital market, and they turn to employ income-decreasing management to save profits or try to give up earnings management.

Therefore, based on previous literature, this research assumes that upwards earnings management would be replaced by downwards earnings management in those ex-ante small losses firms so that the discontinuity around zero should be no longer existed in the earnings distribution during the financial crisis of 2008. Thus, this study hypothesizes:

H_6: The frequency of small profits compared to small losses is significantly lower during the financial crisis of 2008.

5.2.1.7. Earnings smoothness under financial crisis of 2008

According to Goel and Thakor (2003), earnings smoothness is a special case of earnings manipulation involving intertemporal smoothing of reported earnings

relative to economic earnings; it attempts to make earnings look less variable over time. There are two conflicting views on smooth earnings. One view reflects the idea that managers artificially smooth out relevant fluctuations. Based on this view, earnings smoothness indicates poor quality earnings which supports the hypothesis that management responds to a negative (positive) cash flow stream by increasing (decreasing) accruals (Barth et al, 2008).

On the other side, managers follow real smoothing which involves decisions that affect cash flows and dissipate firm value. According to this point of view, management can achieve more useful earnings number. Real smoothing, in contract with artificial smoothing, indicates high quality of earnings (Francis et al, 2006).

In general, Beidlerman (1973), Bannister and Newman (1996), Subramanyam (1996) and Goel and Thakor (2003) indicated that earnings smoothness is a technique in accounting to improve business economic performance during the period. Besides, managers smooth earnings for two main reasons: first, they are assumed to have higher precision and second, consistently positive earnings may raise the expectations of cash flows to investors, thereby increasing share prices (Francis et al, 2004). Based on this technique of earnings manipulation, managers are tricky enough to restate their accounting earnings through moving income from good year to bad year or moving expense from bad year to good year. Moreover, McInnis (2010) claimed that income smoothing is a technique to reallocate the net income in the short period, but in the long period, the performance of a firm is not improved and there is no extract return obtained by owners under this method.

Assessing the impact of financial crisis on earnings smoothness, Vladu (2013) and Filip and Raffournier (2012) conducted in the literature documented an inverse relationship.

Filip and Raffournier (2012) stated that there is a significant decrease in income smoothing during the 2008-2009 financial crisis. Similarly, Vladu (2013) documented that the smoothing behavior of Spanish listed firms changes in bad financial periods. Particularly, the income smoothing decreases in times of bad financial periods.

Hence, based on previous literature, it is excepted that smoothing of reported earnings is lower during the financial crisis of 2008:

H_7: The degree of earnings smoothness during the financial crisis of 2008 is significantly low.

The research hypotheses 1 to 7 **(H_1-H_7)** that are presented above are examined using the regression equation (40). Table 1 Panel A gives a full description of all the variables.

(Insert Table 1 Panel A here)

$$EQ_{k,it} = \beta_0 + \beta_1 LEVER_{it} + \beta_2 TOBINQ_{it} + \beta_3 CORPSIZE_{it} + \beta_4 SV_{it} + \beta_5 CFOV_{it} + \beta_6 LOC_{it} + \beta_7 CORPROFIT_{it} + \beta_8 CORPERFOR_{it} + \beta_9 LAGLOSS_{it} + \beta_{10} MASH_{it} + \beta_{11} CAPINT_{it} + \beta_{12} CORPEFFIC_{it} + \beta_{11} MCTR_{it} + \beta_{12} MULTIN_{it} + \beta_{13} DIVIDYIELD_{it} + \beta_{14} DEBT_{it} + \beta_{15} R_{it} + \beta_{16} DR_{it} + \beta_{17} R_{it} DR_{it} + \beta_{18} BETA_{it} + + \beta_{19} \Delta NI_{it} + \beta_{20} SICODE_{it} + \beta_{21} GDP_{jt} + \beta_{22} MCAP_{jt} + \beta_{23} HERF_{jt} + \beta_{24} CRISIS + \varepsilon_{it} \quad (40)$$

Wherein:

$EQ_{k,it}$ is a dimension of earnings quality attributes (k= 1, 2, 3, 4, 5, 6, 7, 8, 9, 10).

$EQ_{1,it}$ is ex post conservatism estimated based on Basu (1997) which is further explained in section 2.3.1. (Equation 3),

$EQ_{2,it}$ is ex ante conservatism estimated based on Beaver and Ryan (2000) which is further explained in section 2.3.1. (Equation 5),

$EQ_{3,it}$ is value relevance estimated based on Ohlson (1995) which is further explained in section 2.3.2. (Equation 14),

$EQ_{4,it}$ is accruals quality estimated based on Dechow et al (1995) which is further explained in section 2.3.3. (Equation 18),

$EQ_{5,it}$ is accruals quality estimated based on McNichols (2002) which is further explained in section 2.3.3. (Equation 25),

$EQ_{6,it}$ is accruals quality estimated based on Kothari et al (2005) which is further explained in section 2.3.3. (Equation 28),

$EQ_{7,it}$ is earnings persistence estimated based on Kormedi and Lipe (1987) which is further explained in section 2.3.4. (Equation 30),

$EQ_{8,it}$ is earnings predictability estimated based on Francis et al (2004) which is further explained in section 2.3.5. (Equation 32),

$EQ_{9,it}$ is loss avoidance analysis estimated based on Burgstahler et al (2006) which is further explained in section 2.3.6. (Equation 33),

$EQ_{10,it}$ is earnings smoothness estimated based on Leuz et al (2003) which is further explained in section 2.3.7. (Equation 34),

$LEVER_{it}$ is financial leverage estimated as percentage of long term debt divided by percentage of common equity,

$TOBINQ_{it}$ is defined as market capitalization plus total debt scaled by total assets (McConnel and Servaes, 1990),

$CORPSIZE_{it}$ is corporate size estimated as natural logarithm of total assets,

SV_{it} is sales volatility estimated as standard deviation of sales revenues scaled by total assets,

$CFOV_{it}$ is cash flow from operations volatility estimated as standard deviation of cash flow from operations scaled by total assets,

LOC_{it} is length of operating cycle estimated as the sum of days inventory outstanding plus days sales outstanding minus days payable outstanding,

$CORPROFIT_{it}$ is corporate profitability estimated as net income before extraordinary items divided by total assets,

$CORPERFOR_{it}$ is corporate performance estimated as operating cash flow divided by total assets,

$LAGLOSS_{it}$ is financial distress estimated as a dummy variable that takes 1 if firm reports negative income before extraordinary items and 0 otherwise,

$MASH_{it}$ is market share estimated as sales divided by total industry sales,

$CAPINT_{it}$ is capital intensity estimated as depreciation, depletion and amortization expenses divided by sales,

$CORPEFFIC_{it}$ is corporate efficiency estimated as sales divided by total assets,

$MCTR_{it}$ is marginal corporate tax rate estimated as corporate receipts minus deductions for labor costs, materials and depreciation of capital assets (called income taxes). MCTR is multiplied by 0 if the firm has neither current income tax expense nor positive pre-tax income; 0.5 if the firm has either current income tax expense or positive pre-tax income; and 1 if the firm has current income tax expense and positive pre-tax income,

$MULTIN_{it}$ is corporate multinationality estimated as foreign profits divided by total profits,

$DIVIDYIELD_{it}$ is dividend yield obtained from DataStream,

$DEBT_{it}$ is total debt divided by total assets,

R_{it} is the annual stock return,

DR_{it} is a dummy variable that proxies for bad news. It takes 1 for negative returns and 0 otherwise,

$R_{it}DR_{it}$ is the product of annual stock return and the proxy of bad news,

$BETA_{it}$ is the market beta coefficient obtained from DataStream,

ΔNI_{it} is the change in net income before extraordinary items,

$SICODE_{it}$ is a dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise,

GDP_{jt} is economic development estimated as natural logarithm of gross domestic product per capita,

$MCAP_{jt}$ is financial development estimated as stock market capitalization divided by gross domestic product,

$HERF_{jt}$ is market concentration using Herfindahl – Hirschman index (measured by squaring the industry share of each firm competing in a market, and then summing the resulting numbers for each country),

CRISIS is a dummy variable that takes 0 if an observation falls in the pre crisis period (2005-2007) and 1 if it falls in crisis period (2008-2012),

ε_{it} is the error term.

5.2.2. The joint effect of financial crisis of 2008 and investor protection on audit quality

Audit quality is considered to differ across different legal environments. As argued above, regarding of the effect of investor protection on audit quality cannot be a priori determined. Francis et al (2003) predicted that there is less spending on

auditing and less demand for Big 5 audits in civil law countries. Choi et al (2008) have argued that country-specific risk factors also play a significant role in determining audit risk and liability costs across countries, which also influence audit fees. Their findings, which are based on legal origin of each examining country, documented a positive association between audit fees and the legal regime of a country. In a similar vein, extending previous literature, Jaggi and Low (2011) argued that the institutional factors of investor protection and securities regulations have a significant impact on audit fees because they play an important role in determining litigation environment in a country, which, in turn, influence audit risk. On contrary, there is a counter-argument that auditing is negative associated with investor protection. Leuz et al (2003) claimed that auditing is lower in countries with high investor protection.

Thus, based on these arguments and results, it is hypothesized as follows:

H_8: Audit quality is positively associated with investor protection.

Auditors play a controversial role in the global financial crisis of 2008. Knechel and Willekens (2006) pointed out the importance of auditing in the modern capital markets to reduce information asymmetry. With other words, the crisis have been worse were it not for auditors.

Hogan and Wilkins (2008) found that there is a positive relationship between audit fees and audit risk. Bell et al (2001) predicted that hourly audit fees and the number of audit hours are increasing in business risk. Houston et al (1999) and Be'dard and Johnstone (2004) documented that auditors increase their efforts and billing rates when corporate governance is weak and when earnings manipulation risk is relatively high.

Pratt and Stice (1994) claimed that one of causes of audit switch is the increase of litigation risk, which makes auditors more selective in their choice of clients. With other words, they predicted that during economic downturns, where litigation risk increases, the probability of audit switch will be increased. Hence, according to Scwartz and Menon (1985), auditor switching is influenced by financial distress, where there is a higher incidence of auditor switching among failing firms. Moreover, Eichenseher and Shields (1983) hypothesized that firms demand higher quality audits when they have long term debt contracts. Consequently, according to Hudaib and Cooke (2005) and Lin and Liu (2010), higher business risk during global financial crisis of 2008, leads to higher auditor turnover.

Palmrose (1988) found that Big 5 auditors have lower litigation rates than non-Big 5 auditors, which in turn provides high audit quality. Big 5 auditors, generally, have more resources, so they are more able to pay settlements of judgments (Heninger, 2001). Hence, higher business risk during economic downturn, leads to firms to hire more Big auditors than non-Big auditors. Thus, based on these arguments and results, it is hypothesized as follows:

H_9: Audit quality is higher during financial crisis.

As it is explained above, though the relationship between audit quality and investor protection and how audit quality is influenced during economic downturn, have received some attention in the literature, the joint effect of investor protection and global financial crisis of 2008 on audit quality has not been explored. Therefore, it is developed the following hypothesis:

H_{10}: Audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis.

The research hypotheses 8 to 10 (***H₈-H₁₀***) that are presented above are examined using the regression equation (41). This model uses the same variables as Beattie et al (2001), Chaari et al (2002), Geiger and Rama (2003), Ireland (2003), Nikkinen and Sahlstrom (2004), Hay et al (2006), Gonthier-Besacier and Schatt (2007), Srinidhi and Gul (2007), Hassan and Naser (2013) and Kikhia (2015). The regression model (41) run four times for each dimension of $AQ_{k,it}$. Table 1 Panel B gives a full description of all the variables.

(Insert Table 1 Panel B here)

$$AQ_{k,it} = \beta_0 + \beta_1 CRISIS_{it} + \beta_2 INVPR_{k,it} + \beta_3 CRISIS_{it} * INVPR_{k,it} + \beta_4 CORPSIZE_{it} + \beta_5 RISK_{it} + \beta_6 SICODE_{it} + \beta_7 PROFIT_{it} + \beta_8 SOLV_{it} + \beta_9 COMPLEX_{it} + \beta_{10} ACCRUAL_{it} + \beta_{11} FCF_{it} + \beta_{12} IRISK_{it} + \beta_{13} LEVERAGE_{it} + \beta_{14} BM_{it} + \beta_{15} LOSSES_{it} + \varepsilon_i \quad (41)$$

Wherein:

$AQ_{k,it}$ is audit quality measured by four different proxies (k=1, 2, 3, 4, 5, 6):

$AQ_{1,it}$ is audit fees which is measured by the amount of audit fees which is further explained in section 2.4.,

$AQ_{2,it}$ is the modified audit report opinion which is expressed as a dummy variable that takes 1 if the audit opinion is qualified and 0 otherwise which is further explained in section 2.4.,

$AQ_{3,it}$ is auditor switch which is expressed as a dummy variable that equals to 1 if firm switch to non-Big 4 auditors and 0 otherwise which is further explained in section 2.4.,

$AQ_{4,it}$ is the status of audit firm which is expressed as a dummy variable that equals to 1 if the firm is a Big Four (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise which is further explained in section 2.4.,

$AQ_{5,it}$ is the existence of audit committee which is expressed as a dummy variable that takes 1 if the firm has an audit committee and 0 otherwise which is further explained in section 2.4.,

$AQ_{6,it}$ is the demand for auditing which is calculated as the sum of square root of total assets of each Big Four and non-Big Four audit client, divided by the sum of square root of total assets of all firms. A higher Big Four or non-Big Four market share indicates greater demand for high quality auditing within a country (Francis et al, 2003). The demand for auditing is further explained in section 2.4.,

CRISIS_{it} is a dummy variable for pre and crisis period measured as shown in Equation (40),

$\text{Invpr}_{k,it}$ is the investor protection measured by eight different metrics adopted from World Economic Forum (WEF 2005-2012) (k=1, 2, 3, 4, 5, 6, 7, 8):

$INVPR_{1,it}$ is property rights which is further explained in section 2.5.,

$INVPR_{2,it}$ is judicial independence which is further explained in section 2.5.,

$INVPR_{3,it}$ is transparency of government policymaking which is further explained in section 2.5.,

$INVPR_{4,it}$ is strength of auditing and reporting standards which is further explained in section 2.5.,

$INVPR_{5,it}$ is efficacy of corporate boards which is further explained in section 2.5.,

$INVPR_{6,it}$ is protection of minority shareholders' interests which is further explained in section 2.5.,

$INVPR_{7,it}$ is strength of investor protection which is further explained in section 2.5.,

$INVPR_{8,it}$ is legal rights index which is further explained in section 2.5.,

$CRISIS_{it} * INVPR_{k,it}$ is the interaction effect of financial crisis of 2008 and investor protection on audit quality,

$CORPSIZE_{it}$ is corporate size measured as shown in Equation (40),

$RISK_{it}$ is risk measured by total liabilities divided by total assets,

$SICODE_{it}$ is a dummy variable for industrial classification measured as shown in Equation (40),

$PROFIT_{it}$ is profitability measured as net income divided by sales,

$SOLV_{it}$ is solvency measured as equity divided by total liabilities,

$COMPLEX_{it}$ is corporate complexity measured as the sum of inventory and accounts receivable divided by total assets,

$ACCRUAL_{it}$ is accruals measured as the change in non-assets less the change in non-debt liabilities where non-assets is defined as total assets less cash and short time investments and non-debt liabilities is defined as total liabilities less debt,

FCF_{it} is free cash flow measured as income less total accruals divided by total assets,

$IRISK_{it}$ is inherent risk which is associated with an increased risk of error in some parts of the financial statement which will requires more audit effort and measured as receivables divided by total assets,

$LEVERAGE_{it}$ is financial leverage estimated as total debt divided by total assets,

BM_{it} is book-to-market ratio estimated as book value of equity divided by market value of equity,

$LOSSES_{it}$ is a dummy variable that takes the value 1 when net earnings are negative and 0 otherwise,

ε_{it} is the error term.

5.2.3. The joint effect of audit quality and investor protection on earnings quality

Investor protection is another vital determinant of earnings quality (Guenther and Young, 2000; Bushman and Smith, 2001; Leuz et al, 2003; Shen and Chih, 2005; Burgstahler et al, 2006; Nabar and Boonlert-U-Thai, 2007; Cahan et al, 2008; Houque et al, 2012). Guenther and Young (2000) claimed that there is strong association between financial accounting and actual economic events in countries with strong investor protection. Bushman and Smith (2001) revealed that the quality of accounting information rise in countries with strong investor protection. In a similar vein, Leuz et al (2003) found that countries with strong investor protection appeared low earnings management which in turn led to higher accounting quality. Following Leuz et al (2003), Shen and Chih (2005) showed that accounting disclosure (high investor protection) in banking industry reduce the incentive to manage earnings.

Burgstahler et al (2006), also, reported that for both private and public firms, earnings are less transparent in countries with weak legal systems. According to Nabar and Boonlert-U-Thai (2007), earnings management is not only related to investor protection but also to the culture of a country because national culture determines to a corporate governance systems. Cahan et al (2008) suggested that managers in weak investor protection countries are more likely to use income smoothing for opportunistic reasons while managers in strong investor protection countries are more likely to use income smoothing to convey their private information about earnings. Ultimately, Houque et al (2012) extended the above papers and highlighted the positive impact of investor protection on earnings quality. Thus, based on these arguments and results, it is hypothesized as follows:

H_{11}: There is significant positive association between earnings quality and investor protection, irrespective of the financial crisis.

The role of auditing in ensuring the earnings quality has come under considerable scrutiny over the last three decades. Mainly, previous research showed that higher audit quality is associated with higher earnings quality (Becker et al, 1998; Francis et al, 1999; Balsam et al 2003; Caramanis and Lennox, 2008). Jensen and Meckling (1976), Watts and Zimmerman (1983) and Becker et al (1998) claimed that auditing is a valuable form of monitoring used by firms to reduce agency costs which in turn reduces the misreporting of accounting information and increases the quality of earnings. Similarly, Francis and Krishnan (1999) and Maijoor and Vanstraelen (2006) showed that audit quality acts as a constraint on earnings management in general in the U.S.A. but not necessarily outside the U.S.A.

Specifically, Frankel et al (2002) indicated a negative association between audit fees and the magnitude of absolute discretionary accruals. On contrary, Li and Lin (2005), Antle et al (2006), Srinidhi and Gul (2007) and Mitra et al (2009) documented that audit fees are positively associated with earnings management.

Krishnan (2003) claimed that auditors of high-accrual firms are more likely to issue modified opinions. In similar vein, Butler et al (2004) found that audit modified opinion impacts positively earnings management. An counter-argument come from Gajevszky (2014), who indicated that firms of which audit opinions are qualified manage the discretionary accruals more negative.

In a sample of auditor change, DeFond and Subramanyam (1998) found that discretionary accruals are income decreasing during the last year with the predecessor auditor and generally insignificant during the first year with the successor. In a similar vein, Chen et al (2008) indicated that there is no evidence that audit partner rotation improves earnings quality. On contrary, Kramer et al (2011) provided evidence that mandating audit firm rotation might have a positive impact on conservatism and thus on the quality of reported earnings.

There is evidence that earnings quality of firms with Big X auditors are of higher quality (Teoh and Wong, 1993; Francis et al, 1999; Chung et al, 2003; Chia et al, 2007; Van Tendeloo and Vanstraelen, 2008; Hussainey, 2009; Hajizadeh and Rahimi, 2012; Iatridis, 2012; Hamdan et al, 2012; Iatridis and Dimitras, 2013). On contrary, Becker et al (1998), Krishnan (2003), Zhou and Elder (2004) and Chen et al (2005) gave insights that the earnings quality of firms with non-Big Six auditors are higher than the earnings quality of firms with Big Six auditors. An counter-argument come from Maijoor and Vanstraelen (2006), Hussainey (2009) and Yasar (2013), who

indicated that there is no relationship between audit firm size and earnings management.

The role of audit committee existence is an integral part of audit quality in influencing the management behavior to manipulate the earnings. Stewart and Munro (2007) stated that the existence of audit committee leads to the decrease of audit risk of a firm. Consequently, as the audit risk is declining, the earnings disclosure will have better quality, compared to the firms with no audit committee. Wild (1996) showed that the informativeness of a firm's earnings report increases after the formation of an audit committee. McMullen (1996) found that firms committing financial fraud are less likely to have audit committees.

Thus, based on these arguments and results, it is hypothesized as follows:

H_{12}: There is significant positive association between earnings quality and audit quality, irrespective of the financial crisis.

The joint effect of investor protection and audit quality on earnings quality during economic downturn is not yet appointed. However, Maijoor and Vanstraelen (2006) suggested that firms in a country with a strict audit quality regime engage lees in earnings management compared to firms in a country with a more flexible audit regime. Moreover, Francis and Wang (2008) claimed that earnings quality increases for firms with Big 4 auditors when a country's investor protection regime gives stronger protection to investor. In a similar vein, Van Tendeloo and Vanstraelen (2008) found that audit quality and investor protection are substitutes in constraining earnings management in private firms. Finally, Francis et al (2003) documented that the demand for auditing increases in civil law countries that have relatively more

timely and transparent accounting. Thus, based on these arguments and results, it is hypothesized as follows:

H_{13}: The joint effect of investor protection and audit quality is positively associated with earnings quality, irrespective of the financial crisis.

Based on previous literature, the research hypotheses 11 to 13 (H_{11}-H_{13}) that are presented above are examined using the regression equation (42). This model uses the same variables as Becker et al (1998), Krishnan (2003), Balsam et al (2003), Zhou and Elder (2004), Chen et al (2005), Lin et al (2006), Maijoor and Vanstraelen (2006), Chia et al (2007), Caramanis and Lennox (2008), Van Tendeloo and Vanstraelen (2008), Baxter and Cotter (2009), Prawitt et al (2009), Gerayli et al (2011), Chen et al (2011), Iatridis (2012), Hamdan et al (2012), Hamdan et al (2013), Iatridis and Dimitras (2013), Yasar (2013), Soliman and Ragab (2014), Badolato et al (2014), Gajevszky (2014) and Salleh and Haat (2014). The following regression model run two times for each period of time and simultaneously five times for each dimension of $EQ_{k,it}$. Table 1 Panel C gives a full description of all the variables.

(Insert Table 1 Panel C here)

$$EQ_{k,it} = \beta_0 + \beta_1 AQ_{k,it} + \beta_2 INVPR_{k,it} + \beta_3 AQ_{k,it} * INVPR_{k,it} + \beta_4 \Delta RAV_{it} + \beta_5 PPE_{it} + \beta_6 NI_{it} + \beta_7 TA_{it} + \beta_8 CURRENT_{it} + \beta_9 SP_{it} + \beta_{10} LL_{it} + \beta_{11} CORPSIZE_{it} + \beta_{12} CFOV_{it} + \beta_{13} DEBT_{it} + \beta_{14} BETA_{it} + \beta_{15} SICODE_{it} + \beta_{16} LEVER_{it} + \beta_{17} ROA_{it} + \beta_{18} \Delta REV_{it} + \varepsilon_i \quad (42)$$

Wherein:

$EQ_{k,it}$ is a dimension of earnings quality attributes (k= 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

$EQ_{1,it}$ is ex post conservatism estimated based on Basu (1997) as shown in Equation (40),

$EQ_{2,it}$ is ex ante conservatism estimated based on Beaver and Ryan (2000) as shown in Equation (40),

$EQ_{3,it}$ is value relevance estimated based on Ohlson (1995) as shown in Equation (40),

$EQ_{4,it}$ is accruals quality estimated based on Dechow et al (1995) as shown in Equation (40),

$EQ_{5,it}$ is accruals quality estimated based on McNichols (2002) as shown in Equation (40),

$EQ_{6,it}$ is accruals quality estimated based on Kothari et al (2005) as shown in Equation (40),

$EQ_{7,it}$ is earnings persistence estimated based on Kormedi and Lipe (1987) as shown in Equation (40),

$EQ_{8,it}$ is earnings predictability estimated based on Francis et al (2004) as shown in Equation (40),

$EQ_{9,it}$ is loss avoidance analysis estimated based on Burgstahler et al (2006) as shown in Equation (40),

$EQ_{10,it}$ is earnings smoothness estimated based on Leuz et al (2003) as shown in Equation (40),

$AQ_{k,it}$ is audit quality measured by four different proxies (k=1, 2, 3, 4, 5, 6):

$AQ_{1,it}$ is audit fees measured as shown in Equation (41),

$AQ_{2,it}$ is the modified audit report opinion measured as shown in Equation (41),

$AQ_{3,it}$ is auditor switch measured as shown in Equation (41),

$AQ_{4,it}$ is the status of audit firm measured as shown in Equation (41),

$AQ_{5,it}$ is the existence of audit committee measured as shown in Equation (41),

$AQ_{6,it}$ is the demand for auditing measured as shown in Equation (41),

$INVPR_{k,it}$ is the investor protection measured by eight different metrics adopted from World Economic Forum (WEF 2005-2012) (k=1, 2, 3, 4, 5, 6, 7, 8):

$INVPR_{1,it}$ is property rights measured as shown in Equation (41),

$INVPR_{2,it}$ is judicial independence measured as shown in Equation (41),

$INVPR_{3,it}$ is transparency of government policymaking measured as shown in Equation (41),

$INVPR_{4,it}$ is strength of auditing and reporting standards measured as shown in Equation (41),

$INVPR_{5,it}$ is efficacy of corporate boards measured as shown in Equation (41),

$INVPR_{6,it}$ is protection of minority shareholders' interests measured as shown in Equation (41),

$INVPR_{7,it}$ is strength of investor protection measured as shown in Equation (41),

$INVPR_{8,it}$ is legal rights index measured as shown in Equation (41),

$AQ_{k,it} * Invpr_{k,it}$ is the interaction effect of accrual quality and investor protection on earnings quality,

ΔRAV_{it} is the change in receivables scaled by total assets in previous year,

PPE_{it} is gross property, plant, and equipment scaled by total assets in previous year,

NI_{it} is net income,

TA_{it} is total accruals measured by income before extraordinary items minus operating cash flows,

$CURRENT_{it}$ is current assets divided by current liabilities,

SP_{it} proxies for small profits. It takes 1 if net profit scaled by total assets is between 0 and 0.01 and 0 otherwise,

LL_{it} proxies for timely loss recognition. It takes 1 if net profit scaled by total assets is less than -0.20 and 0 otherwise,

$CORPSIZE_{it}$ is corporate size measured as shown in Equation (40),

$CFOV_{it}$ is cash flow from operations volatility measured as shown in Equation (40),

$DEBT_{it}$ is total debt measured as shown in Equation (40),

$BETA_{it}$ is the market beta coefficient measured as shown in Equation (40),

$SICODE_{it}$ is a dummy variable for industrial classification measured as shown in Equation (40),

$LEVER_{it}$ is leverage ratio measured as total liabilities divided by total assets,

ROA_{it} is return on assets measured by net income divided by total assets,

ΔREV_{it} is the change in revenue (sale) scaled by total assets in previous year,

ε_{it} is the error term.

5.2.4. Cost of equity capital and audit quality under financial crisis of 2008

Dimson et al (2003) and Palliam (2005) claimed that the equity risk premium is the incremental return that shareholders require from holding risky equities rather than risk-free-securities. Thus, equity risk premium drives future equity returns and is the key determinant of the cost of equity capital. In the same notion, King (2009) stated that equity risk premium is important for understanding changes in cost of equity capital estimates.

As equity risk premium varies with time, depending on the information available at the moment, financial crisis had a great effect on it. The fall of markets in 2008 led to decreasing of firms' equities therefore their market capitalization which in turn increased equity risk premium caused by instability and as a result the cost of equity capital (Mokhova, 2011).

In parallel, King (2009) found that the onset of financial crisis has rise equity beta which led to the increase of equity risk premium and therefore an increase of cost of equity capital.

Consequently, based on previous literature, it is tested the following hypothesis:

H_{14}: Firms are likely to exhibit higher cost of equity in years of financial crisis of 2008.

Wallace (1980) stated that auditing lessen the extent of investors price-protect their investments resulting in a reduced stock price which implies a higher cost of equity capital by playing three roles - monitoring, information and insurance.

The first role of auditing suggests that auditing ensures better use of resources entrusted to the agent by the principal (Wallace, 1980). Thus, more effective monitoring should reflect a lower cost of equity capital.

The second role of auditing based on information asymmetries. It is commonly accepted that higher audit quality results in better information quality (Teoh and Wong, 1993; Balsam et al, 2003; Dunn and Mayhew, 2004; Fernando et al, 2010) which in turn implies lower cost of equity capital (Botosan et al, 2004; Francis et al, 2004).

Lastly, the effect of audit quality on cost of equity capital also varies with the insurance role played by audit firms (Wallace, 1980). The information risk is reduced because the audit firm provides another source of compensation in the event of failure of the firm (Menon and Williams, 1994).

Based on Easley and O' Hara (2004), Fernando et al (2010) and Chen et al (2011), it is stated the following hypothesis:

H_{15}: There is negative association between cost of equity capital and audit quality.

Based on previous literature, the research hypotheses 14 and 15 (H_{14} and H_{15}) that are presented above are examined using the regression equation (43). This model uses the same variables as Chow and Rice (1982), Krishnan (2003), Easton (2004), Francis et al (2005), Nasser et al (2006), Palea (2007), Johl et al (2007), Fernando et al (2010), McInnis (2010), Chen et al (2011) and Hassan and Naser (2013). The following regression model run two times for each dimension of $COSTOFEQUITY_{\kappa,it}$ representing by constant growth model specified by Palea (2007) and PEG approach specified by Easton (2004) respectively. Table 1 Panel D gives a full description of all the variables.

(Insert Table 1 Panel D here)

$$COSTOFEQUITY_{\kappa,it} = \beta_0 + \beta_1 EG_{it} + \beta_2 DPO_{it} + \beta_3 DEBT_{it} + \beta_4 LNMV_{it} + \beta_5 BM_{it} + \beta_6 VOLUME_{it} + \beta_7 BETA_{it} + \beta_8 CFO_{it} + \beta_9 LNLEV_{it} + \beta_{10} LNBM_{it} + \beta_{11} CORPSIZE_{it} + \beta_{12} FIRM_{it} + \beta_{13} SICODE_{it} + \beta_{14} AQ_{k,it} + \beta_{15} CRISIS_{it} + \varepsilon_{it} \quad (43)$$

Wherein:

$COSTOFEQUITY_{k,it}$ is a dimension of cost of equity (k= 1, 2)

$COSTOFEQUITY_{1,it}$ is measured by using the constant growth Gordon model introduced by Palea (2007) which is further explained in section 2.6. (Equation 39),

$COSTOFEQUITY_{2,it}$ is measured by using the PEG approach introduced by Easton (2004) which is further explained in section 2.6. (Equation 37),

EG_{it} is corporate annual earnings growth per share,

DPO_{it} is corporate dividends announced for the year scaled by earnings for the year available for dividends,

$DEBT_{it}$ is total debt measured as shown in Equation (40),

$LNMV_{it}$ is corporate natural log of market value of equity,

BM_{it} is book-to-market ratio measured as shown in Equation (41),

$VOLUME_{it}$ is trading volume divided by total shares outstanding,

$Beta_{it}$ is the market beta coefficient measured as shown in Equation (40),

CFO_{it} is cash flow from operations divided by total assets,

$LNLEV_{it}$ is natural log of debt to assets ratio,

$LNBM_{it}$ is natural log of book to market ratio,

$CORPSIZE_{it}$ is corporate size measured as shown in Equation (40),

$FIRM_{it}$ is a dummy variable that takes 1 if the firm is classified as small (market value of equity of firm is lower than the median market value of equity) and 0 if the firm is classified as large (market value of equity of firm is larger than the median market value of equity),

$SICODE_{it}$ is a dummy variable for industrial classification measured as shown in Equation (40),

$AQ_{k,it}$ is a dimension of audit quality (k= 1, 2, 3, 4, 5)

$AQ_{1,it}$ is audit fees measured as shown in Equation (41),

$AQ_{2,it}$ is modified audit report measured as shown in Equation (41),

$AQ_{3,it}$ is auditor switch measured as shown in Equation (41),

$AQ_{4,it}$ is the status of audit firm measured as shown in Equation (41),

$AQ_{5,it}$ is the existence of audit committee measured as shown in Equation (41),

$CRISIS_{it}$ is a dummy variable for pre and crisis period measured as shown in Equation (40),

ε_{it} is the error term.

5.2.5. Cost of equity capital and earnings quality under financial crisis of 2008

Francis et al (2004) examined extensively the association between earnings quality attributes and implied cost of equity. They found a statistically reliable association between each earnings quality attribute considered individually and measures of the cost of equity capital. Moreover, they claimed that accounting-based earnings attributes (accruals quality, persistence, predictability and smoothness) have a greater effect on costs of equity capital than do market-based earnings attributes (value relevance, timeliness and conservatism).

In the same notion, Bhattacharya et al (2003) found evidence of an association between country-level earnings quality measures including earnings aggressiveness, loss avoidance, and earnings smoothing, and country-level measures of total cost of equity capital.

Bhattacharya et al's (2003) and Francis et al's (2004) results are supported from Francis et al (2005) and Chan et al (2009).

Specifically, Francis et al (2005) indicated that as the quality of accruals decrease, so too does the amount investors are willing to pay for a dollar of earnings, implying a higher cost of equity capital for firms with lower accruals quality.

Chan et al (2009) claimed that ex ante (ex post) conservatism is associated with higher (lower) earnings quality and lower (higher) costs of equity capital. In other words, a more ex ante conservative firm is likely to provide more reliable information to equity investors for investment decisions which in turn lead to firm having lower cost of equity capital. On contrary, a more ex post conservative firm is likely to provide more susceptible to opportunistic management discretion which in turn lead to firm having higher cost of equity capital.

In contrast to the results of Francis et al (2004), McInnis (2010) documented that there is no negative association between imputed cost of capital and earnings smoothness in U.S. stock market. He offered evidence that the inverse relation between earnings smoothness and implied cost of equity capital results primarily from optimistic bias in analysts' long-term earnings projections.

Consequently, based on the findings of Francis et al (2004), it is developed the following hypothesis:

H_{16}: There is a meaningful negative association between earnings quality and cost of equity.

Based on previous literature, the research hypothesis 16 (H_{16}) that is presented above is examined using the regression equation (44). The variables that are used in this model are the same as Kormedi and Lipe (1987), Ohlson (1995), Dechow et al

(1995), Basu (1997), Wald (1999), McNichols (2002), Leuz et al (2003), Francis et al (2004), Easton (2004), Francis et al (2005), Burgstahler et al (2006), Kothari et al (2005), Palea (2007), Roychowdhury and Watts (2007), Chan et al (2009), Fernando et al (2010), McInnis (2010), Chen et al (2011). Likewise, testing the equation (44), it run two times for each period of time and simultaneously two times for each dimension of $COSTOFEQUITY_{\kappa,it}$ representing by constant growth model specified by Palea (2007) and PEG approach specified by Easton (2004) respectively. Table 1 Panel E gives a full description of all the variables.

(Insert Table 1 Panel E here)

$$COSTOFEQUITY_{\kappa,it} = \beta_0 + \beta_1 BETA_{it} + \beta_2 CORPSIZE_{it} + \beta_3 BM_{it} + \beta_4 LEVERAGE_{it} + \beta_5 CFOV_{it} + \beta_6 SV_{it} + \beta_7 NER_{it} + \beta_8 COLLATERAL_{it} + \beta_9 NON-DEBT_{it} + \beta_{10} GROWTH_{it} + \beta_{11} UNIQUENESS_{it} + \beta_{12} SICODE_{it} + \beta_{13} PROFITABILITY_{it} + \beta_{14} LIQUIDITY_{it} + \beta_{15} EQ_{k,it} + \varepsilon_{it} \quad (44)$$

Wherein:

$COSTOFEQUITY_{k,it}$ is a dimension of cost of equity (k= 1, 2)

$COSTOFEQUITY_{1,it}$ is measured by using the constant growth Gordon model introduced by Palea (2007) as shown in Equation (43),

$COSTOFEQUITY_{2,it}$ is measured by using the PEG approach introduced by Easton (2004) as shown in Equation (43),

$BETA_{it}$ is the market beta coefficient measured as shown in Equation (40),

$CORPSIZE_{it}$ is corporate size measured as shown in Equation (40),

BM_{it} is book-to-market ratio measured as shown in Equation (41),

$LEVERAGE_{it}$ is financial leverage measured as shown in Equation (41),

$CFOV_{it}$ is cash flow from operations volatility measured as shown in Equation (40),

SV_{it} is sales volatility measured as shown in Equation (40),

NER_{it} is negative earnings realization estimated as a dummy variable that takes 1 if firm reports negative income before extraordinary items and 0 otherwise,

$COLLATERAL_{it}$ is collateral value or asset structure of assets estimated as the ratio of intangible assets divided by total assets,

$NON-DEBT_{it}$ is non-debt tax shields estimated as the ratio of depreciation divided by total assets,

$GROWTH_{it}$ is growth estimated as the ratio of capital expenditures divided by total assets,

$UNIQUENESS_{it}$ is uniqueness estimated as the ratio of R&D divided by sales,

$SICODE_{it}$ is a dummy variable for industrial classification measured as shown in Equation (40),

$PROFITABILITY_{it}$ is profitability estimated by using the return on assets,

$LIQUIDITY_{it}$ is liquidity estimated by using the quick ratio,

$EQ_{k,it}$ is a dimension of earnings quality attributes (k= 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

$EQ_{1,it}$ is ex post conservatism estimated based on Basu (1997) as shown in Equation (40),

$EQ_{2,it}$ is ex ante conservatism estimated based on Beaver and Ryan (2000) as shown in Equation (40),

$EQ_{3,it}$ is value relevance estimated based on Ohlson (1995) as shown in Equation (40),

$EQ_{4,it}$ is accruals quality estimated based on Dechow et al (1995) as shown in Equation (40),

$EQ_{5,it}$ is accruals quality estimated based on McNichols (2002) as shown in Equation (40),

$EQ_{6,it}$ is accruals quality estimated based on Kothari et al (2005) as shown in Equation (40),

$EQ_{7,it}$ is earnings persistence estimated based on Kormedi and Lipe (1987) as shown in Equation (40),

$EQ_{8,it}$ is earnings predictability estimated based on Francis et al (2004) as shown in Equation (40),

$EQ_{9,it}$ is loss avoidance analysis estimated based on Burgstahler et al (2006) as shown in Equation (40),

$EQ_{10,it}$ is earnings smoothness estimated based on Leuz et al (2003) as shown in Equation (40),

ε_{it} is the error term.

5.2.6. Cost of debt and audit quality under financial crisis of 2008

Except from the cost of equity, the cost of debt is the second component of the cost of capital (Francis et al, 2004). Likewise, the cost of debt was expected to increase in periods of financial crisis considering the increase in absolute rates on corporate bonds and the spread between Treasury and corporate bonds. Mokhova (2011) claimed that the recent world recession have impact on the availability of credit and as a result on the cost of debt capital.

Consequently, based on previous literature, it is assumed the following hypothesis:

H_{17}: Firms are likely to exhibit higher cost of debt in years of financial crisis of 2008.

There is a debate how audit quality and cost of debt are associated. Fortin and Pittman (2007) were unable to find support for the value relevance of Big Four in the context of pricing of public debt issues of privately-held US firms. However, Pittman and Fortin (2004) stated that choosing a Big Six auditor which can reduce debt-related monitoring costs by enhancing the credibility of financial statements enables young firms to lower their interest rates. Moreover, Blackwell et al (1998) showed that auditing is relevant in decreasing the cost on bank debt of privately-held US firms. Likewise, Kim et al (2011) showed that auditing and Big Four are associated with decreased borrowing costs. Recently, Causholli and Knechel (2012) suggested that firms that are young at the time of an IPO pay higher interest rates and auditor quality plays a significant role in lowering the cost of debt financing. Additionally, Karjalainen (2011) found that the interest rate of debt capital for privately-held companies is inversely associated with perceived audit quality. On contrary, Dhaliwal et al (2008) provided support that non-audit fees are positively related to firms' cost of debt, but only for investment-grade firms.

Therefore, based on previous literature, it is hypothesized as follows:

H_{18}: There is negative association between cost of debt and audit quality.

Based on previous literature, the research hypotheses 17 and 18 (H_{17} and H_{18}) that are presented above are examined using the regression equation (45). This model

uses the same variables as Chow and Rice (1982), Krishnan (2003), Fortin and Pittman (2007), Francis et al (2005), Dhaliwal et al (2008), Karjalainen (2011), Causholli and Knechel (2012). Table 1 Panel F gives a full description of all the variables.

(Insert Table 1 Panel F here)

$$COSTOFDEBT_{it} = \beta_0 + \beta_1 PROFITABILITY_{it} + \beta_2 BM_{it} + \beta_3 LEVERAGE_{it} + \beta_4 CORPSIZE_{it} + \beta_5 INTCOV_{it} + \beta_6 \text{LN}NIBE_{it} + \beta_7 LNMVE_{it} + \beta_8 COLLATERAL_{it} + \beta_9 NEGEQ_{it} + \beta_{10} SICODE_{it} + \beta_{11} CRISK_{it} + \beta_{12} AQ_{k,it} + \beta_{13} CRISIS_{it} + \varepsilon_{it} \quad (45)$$

Wherein:

COSTOFDEBT_{it} is cost of debt measured by the ratio of interest expense in year t+1 to average interest bearing debt outstanding during years t and t+1 (See Francis et al, 2005, p. 308), which is further explained in section 2.7.,

$\text{PROFITABILITY}_{it}$ is profitability measured as shown in Equation (44),

BM_{it} is book-to-market ratio measured as shown in Equation (41),

LEVERAGE_{it} is financial leverage measured as shown in Equation (41),

CORPSIZE_{it} is corporate size measured as shown in Equation (40),

INTCOV_{it} is interest coverage estimated as the ratio of earnings before interest and taxes (EBIT) divided by the interest expenses,

$\text{LN}NIBE_{it}$ is the natural log of net income before extraordinary items,

LNMVE_{it} is the natural log of market value of equity,

COLLATERAL_{it} is collateral value or asset structure of assets measured as shown in Equation (44),

$NEGEQ_{it}$ is the negative book equity which takes the value of 1 if the book value of equity is negative and 0 otherwise,

$SICODE_{it}$ is a dummy variable for industrial classification measured as shown in Equation (40),

$CRISK_{it}$ is the credit risk measured as the ratio of standard deviation of cash flow from operations to average of total assets during years t-1 and t,

$AQ_{k,it}$ is a dimension of audit quality (k= 1, 2, 3, 4, 5)

$AQ_{1,it}$ is audit fees measured as shown in Equation (41),

$AQ_{2,it}$ is modified audit report opinion measured as shown in Equation (41),

$AQ_{3,it}$ is auditor switch measured as shown in Equation (41),

$AQ_{4,it}$ is the status of audit firm measured as shown in Equation (41),

$AQ_{5,it}$ is the existence of audit committee measured as shown in Equation (41),

$CRISIS_{it}$ is a dummy variable for pre and crisis period as shown in Equation (40),

ε_{it} is the error term.

5.2.7. Cost of debt and earnings quality under financial crisis of 2008

There is previous evidence that cost of debt has positive and negative effect on earnings quality. Even though there is negative relationship between earnings quality and cost of debt, Valipour and Moradbeygi (2011) showed that the relationship was positive (negative) at low (high) levels of debt.

Moreover, consistent with Valipour and Moradbeygi (2011), Francis et al (2005) showed that poorer accruals quality is associated with larger cost of debt.

On contrary, Fung and Goodwin (2013) found that short-term debt is positively associated with earnings management. In similar manner, Rodriguez-Perez and Van Hemmen (2010) concluded that marginal increase in debt provide incentives for managers to manipulate earnings, and diversification provides the needed context for this accounting practice to be possible.

Thus, based on previous literature, it is expected that managers have incentives to hold information with high quality to reduce cost of debt:

H_{19}: There is a meaningful relationship between cost of debt and earnings quality.

Based on previous literature, the research hypothesis 19 (H_{19}) that is presented above is examined using the regression equation (46). The variables that are used in this model are the same as Kormedi and Lipe (1987), Dechow et al (1995), Ohlson (1995), Basu (1997), McNichols (2002), Leuz et al (2003), Francis et al (2004), Francis et al (2005), Burgstahler et al (2006), Kothari et al (2005), Roychowdhury and Watts (2007), Jiang (2008). The following regression equation run two times for each research period. Table 1 Panel G gives a full description of all the variables.

(Insert Table 1 Panel G here)

$$COSTOFDEBT_{it} = \beta_0 + \beta_1 LEVERAGE_{it} + \beta_2 CORPSIZE_{it} + \beta_3 PROFITABILITY_{it} + \beta_4 INTCOV_{it} + \beta_5 LNNIBE_{it} + \beta_6 EPS_{it} + \beta_7 \Delta EPS_{it} + \beta_8 PROFIT_{it} + \beta_9 INCR_{it} + \beta_{10} CFO_{it} + \beta_{11} RND_{it} + \beta_{12} EQ_{k,it} + \varepsilon_{it} \quad (46)$$

Wherein:

$COSTOFDEBT_{it}$ is cost of debt measured as shown in Equation (45),

$LEVERAGE_{it}$ is financial leverage measured as shown in Equation (41),

$CORPSIZE_{it}$ is corporate size measured as shown in Equation (40),

$PROFITABILITY_{it}$ is profitability measured as shown in Equation (44),

$INTCOV_{it}$ is interest coverage measured as shown in Equation (45),

$LNNIBE_{it}$ is the natural log of net income before extraordinary items measured as shown in Equation (45),

EPS_{it} is earnings per share before extraordinary items,

ΔEPS_{it} is the change in earnings per share before extraordinary items between year t and t-1,

$PROFIT_{it}$ is a dummy variable that takes 1 if firm's earnings per share before extraordinary items is greater than or equal to 0 and 0 otherwise,

$INCR_{it}$ is a dummy variable that takes 1 if firm's earnings per share before extraordinary items in year t is greater than or equal to that of year t-1 and 0 otherwise,

CFO_{it} is cash flow from operations measured as shown in Equation (43),

RND_{it} is R&D expense deflated by total assets,

$EQ_{k,it}$ is a dimension of earnings quality attributes (k= 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

$EQ_{1,it}$ is ex post conservatism estimated based on Basu (1997) as shown in Equation (40),

$EQ_{2,it}$ is ex ante conservatism estimated based on Beaver and Ryan (2000) as shown in Equation (40),

$EQ_{3,it}$ is value relevance estimated based on Ohlson (1995) as shown in Equation (40),

$EQ_{4,it}$ is accruals quality estimated based on Dechow et al (1995) as shown in Equation (40),

$EQ_{5,it}$ is accruals quality estimated based on McNichols (2002) as shown in Equation (40),

$EQ_{6,it}$ is accruals quality estimated based on Kothari et al (2005) as shown in Equation (40),

$EQ_{7,it}$ is earnings persistence estimated based on Kormedi and Lipe (1987) as shown in Equation (40),

$EQ_{8,it}$ is earnings predictability estimated based on Francis et al (2004) as shown in Equation (40),

$EQ_{9,it}$ is loss avoidance analysis estimated based on Burgstahler et al (2006) as shown in Equation (40),

$EQ_{10,it}$ is earnings smoothness estimated based on Leuz et al (2003) as shown in Equation (40),

ε_{it} is the error term.

5.3. Datasets

For the purpose of this thesis, it is extracted as a sample all advanced countries[4], as they are classified by International Monetary Fund, that have financial data to estimate all empirical models. All data are from the major national indices of above countries and collected from DataStream, the Euro Stat, WorldBank, World Economic Forum and Osiris databases for the fiscal years 2005-2012. Hence, the initial sample consists of 652.512 firm-years observations.

[4] Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Luxemburg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland, Taiwan, United Kingdom and United States.

Based on several selection criteria a part of the data has to be excluded. **First**, from the initial sample, firms that have no applied International Accounting Standards until 2005, which is the first year of examining period, will be excluded from the sample due to succeed a convergence on comparability of examining variables. The reason of this exclusion is that the accounting amounts of firms that apply International Accounting Standards are of higher quality than firms that do not (Barth et al, 2008). Particularly, they claimed that firms applying International Accounting Standards have higher variance of the change in net income, less negative correlation between accruals and cash flows, higher frequency of large negative income, higher value relevance of net income and equity book value for share prices, higher ratios of the variances of change in net income and change in cash flow, lower frequency of small positive income and higher value relevance of net income for good news stock returns with each of these differences being more or little significant. Hence, after excluding firms that are publicly listed in Canada, Hong Kong, Israel, Japan, New Zealand, Singapore, South Korea, Taiwan, and United States, the initial sample is reduced to 391.576 firm-years observations.

Second, following prior research (Barth et al, 1999; Leuz et al, 2003; Burgstahler et al, 2006; Booblert-U-Thai, 2006; Francis and Wang, 2008; Daske et al, 2008; Houqe et al, 2012), financial institutions such as banks, insurance and real estate companies and other financial institutions excluded since they are problematic to compute the earnings quality attributes and decrease the homogeneity of the sample and the comparability of the results across countries. Another viewpoint of exclusion of financial institutions of the sample is because of their specific accounting requirements, which differ substantially from those of industrial and commercial companies and which prevent them from freely selecting the accounting standards

they apply (Burgstahler and Dichev, 1997; Degeorge et al, 1999; Leuz et al, 2003; Van Tendeloo and Vanstraelen, 2005; Francis and Wang, 2008; Daske et al, 2008). Therefore, the sample is further reduced to 282.776 firm-years observations.

Third, firm-years observations for which data required to complete the regression models are missing need to be excluded. Single firm-years observations for which data are missing and that are part of the research periods can be excluded. This is necessary since the three phases in the research period need to be compared. Removing data of one firm in one of the research periods decreases the comparability of the event period phases. Thus, for further increase of comparability of the research period, firm data for which not all four years are available are excluded. Once data have been excluded since not for each research period are available or data fields are empty the sample is further reduced to 146.396 firm-years observations.

The countries of the sample are classified into three clusters defined by Leuz (2010) and categorized into outsider economies with strong outsider protection and legal enforcement (cluster 1)[5], insider economies with better legal enforcement systems (cluster 2)[6] and insider economies with weaker legal enforcement systems (cluster 3)[7]. However, Cyprus, Czech Republic, Estonia, Iceland, Luxemburg, Malta, Slovak Republic and Slovenia is be excluded from the sample since they were not classified by Leuz (2010). **Consequently, the final sample is count on 137.091 firm-years observations.**

Finally, to avoid outlier concern, the dependent and independent variables are winsorized at the 1st and 99th percentiles.

Table 2 describes the sampling and data collection process.

[5] Cluster 1 includes Australia, Ireland and United Kingdom.
[6] Cluster 2 includes Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Norway, Spain, Sweden and Switzerland.
[7] Cluster 3 includes Greece, Italy and Portugal.

(Insert Table 2 here)

5.4. Determination of the pre and financial crisis period

Many researchers have used the financial crisis of 2008 as research period in their papers. However there is no consensus on the beginning of the recent global financial crisis among the countries.

Brown and Davis (2008) and Barrell and Davis (2008) claimed that the financial crisis of 2008 started in August 2007 and reached a climax in the autumn of 2008 with a wave of bank nationalizations across North America and Europe. However, they concluded that the financial crisis was lasted from 2007 to 2008.

Foster and Magdoff (2009) claimed that the financial crisis of 2008 began somewhat inconspicuously in late summer 2007 with the failure of two Bear Sterns hedge funds, and then went from bad to worse over the following year despite countless attempts by governments to halt its progress.

According to Poole (2010), the financial crisis of 2008 broke in mid-August 2007, when the market suddenly cut off funding to several financial entities and ended December 2008 when markets gradually improved and credit conditions became more settled and credit began to flow again.

McKibbin and Stoeckel (2010) used the period 2007 to 2008 as the period of the financial crisis hit. They claimed that the financial crisis of 2008 is defined as the bursting of the housing market bubble in late 2007, the ensuing collapse in the sub-prime mortgage market and related financial markets and the subsequent collapse of Lehman Brothers in 2008 which resulted in a sharp increase in risk premia around the world.

Acharya et al (2009), Schwartz (2009), Crotty (2009), Claessens et al (2010), Helleiner (2011) and Furcen and Mourougane (2012) argued that the first stage of the recent financial crisis is August of 2007 and ended in December of 2008.

Examining the real effects of financial constraints on corporate policies under the financial crisis of 2008, Campello et al (2010) used August of 2007 as the start of financial crisis and December of 2008 as the ended of financial crisis.

Similarly, Ivashina and Scharfstein (2010) used the period 2007 to 2008 to examine bank lending during the financial crisis of 2008.

Thus, based on previous research and the analysis of the financial crisis of 2008 in section 3, it can be stated that year 2008 can be considered the first year of the crisis in world developed countries since the real effects began to appear in year 2008. This point of view is strengthened by analyzing the Figures 1 to 10 which are further explained in section 3.4.

Consequently, for the purpose of this thesis, the pre financial crisis period refers to the financial years 2005-2007 and the financial crisis period refers to the financial years 2008-2012.

5.5. Requirements to use linear regression analysis

Before employing linear regression analysis, the data set should be tested for normality, homoscedasticity and multicollinearity. According to Fox (1997) and Cohen et al (2013), regression cannot be used when one or more of the three requirements is not met.

5.5.1. Normal distribution

The first requirement to use linear regression is that the data should be normally distributed. Normal distribution can be checked either numerically or graphically. When checking graphically, whether the data have a normal distribution, P-P plot, and Box plot will be examined. P-P plot is a probability plot, which is a graphical method for comparing two probability distributions by plotting their quantities against each other. If there is normality, the plotted points should approximately lie on a straight line. Box plot is another useful visualization for viewing how the data are distributed. If there is normality, there is no appearance of outliers in Box plot.

Numerically, Shapiro et al (1968) claimed that there are nine statistical procedures for evaluating the normality of a complete sample. The nine statistics are W (Shapiro and Wilk, 1965), $\sqrt{b_1}$ (standard third moment), b_2 (standard fourth moment), KS (Kolmogorov-Smirnov), CM (Cramer-Von-Mises), WCM (weighed CM), D (modified KS), CS (chi-squared), and u (studentized range).

For the purpose of this thesis, to secure approximation of data to normal distribution, Kolmogorov-Smirnov test (KS test) is used due to the large sample that is examined. The decision basis was to accept the null hypothesis that the data follow normal distribution if the probability of the KS test is more than 0,05. Only the continuous variables are examined except from dichotomous variables (dummy variables) which are not subject to the normal distribution.

Consequently, from Table 3, it can be extracted that using KS test, the statistical value is high, and the probability is less than 0,05 for some of the examining continuous variables, which means that they are not close to their normal distribution. To overcome this problem, the natural logarithm for these variables was

considered. However, since the sample is extremely large, not distributing the data normally may not influence credibility of this thesis (Hamdan et al, 2012).

(Insert Table 3 here)

5.5.2. Homoscedasticity

Homoscedasticity exists when all variables have the same finite variance. The assumption of homoscedasticity is made in using linear regression since it simplifies the mathematical treatment. There are two tests to examine homoscedasticity (Goldfeld and Quandt, 1965). The first is parametric and use the F-statistic from Levene's test and the second is nonparametric and uses the number of peaks in the ordered sequence of unsigned residuals. However, for brevity and for the purpose of this thesis, homoscedasticity is examined by examining the parametric Levene's test. According to Martin and Bridgmon (2012), a Levene's test verified the equality of variances in the samples (homogeneity of variance) ($p>0,05$). In detail, the null hypothesis for the parametric Levene's test is that there is an equality of variance. If the p-value is below 0,05, the null hypothesis is rejected and it is assumed that there is no equality of variance (therefore, there is no homoscedasticity). On contrary, if it is above 0,05, the null hypothesis is accepted and therefore there is homoscedasticity. Consequently, Table 4 reports that the Levene's tests in all regression models verified the equality of variances in the sample (homogeneity of variance ($p>0,05$).

(Insert Table 4 here)

5.5.3. Multicollinearity

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can

be linearly predicted from the others with a non-trivial degree of accuracy. In the presence of multicollinearity, the estimate of one variable's impact on the dependent variable while controlling for the others tends to be less precise than if predictors were uncorrelated with another. According to Chen et al (2010), if multicollinearity is present in the model the estimates of the regression coefficients can become unstable and standard errors of the coefficients can be inflated. To measure multicollinearity, the variance inflation factor (VIF) will be examined since it has a clear interpretation in terms of the effects of multicollinearity on the estimated variance of the i'th regression coefficient (O'Brien, 2007). Unfortunately, there are many rules of thumb – most commonly the rule of 10 – associated with VIF is regarded by many practitioners as a sign of severe or serious multicollinearity. Therefore, the VIF of 10 will be used which indicates that the variance of i'th regression coefficient is 10 times greater than it would have been if the i'th independent variable had been linearly independent of the other independent variable in the analysis. It means that the multicollinearity is present when VIF values are that lower than 10 and Tolerance is higher 0,1 (Chen et al, 2010). Table 5 shows that there is multicollinearity in all almost predictor variables.

(Insert Table 5 here)

Consequently linear regression can be used to test hypotheses since all requirements (normality, homoscedasticity and multicollinearity) are met.

5.6. Summary

Consistent with previous literature, several papers examined the effect of bad economic situations or economic downturn or financial crisis on earnings

management, audit quality and cost of capital. Hence, this study investigated the impact of financial crisis of 2008 on earnings quality by measuring the level and sign of it by advanced countries worldwide over the period of 2005-2012. Further, the joint effect of global financial crisis of 2008 and investor protection on audit quality and then the joint effect of audit quality and investor protection on earnings quality among three clusters based on the country classification of Leuz (2010) are analyzed. In the end, it is examined the cost of capital and the changes of audit quality and earnings quality influencing on it due to the financial crisis of 2008 on listed firms of advanced countries worldwide over the period of 2005-2012.

The choice of advanced countries has several advantages. First, the market capitalization of developed countries through the examined period amount almost 55% globally. Thus, the results are much closer to the reality in relation with other papers that used a representative sample which makes the findings questionable. Second, advanced countries have been severely affected during the financial crisis of 2008. Hence, it is excepted a diversification of the impact of financial crisis of 2008 on earnings quality, audit quality and cost of capital before and during the crisis period through examining sample. Third, consistent with Filip and Raffournier (2012), most cited papers of all time conducted at a single country level which makes the results questionable. Consequently, this paper faces this geographical closeness of results by using 18 largest economies of the world and thus, provide a stronger evidence. Moreover, it is the first attempt to analyze the impact of financial crisis of 2008 on earnings management, audit quality and cost of capital in the examining sample by categorizing the sample countries into 3 clusters depending on the level of investor protection: cluster 1 with strong shareholder protection and legal enforcement, cluster 2 with better legal enforcement systems and cluster 3 with weak

investor protection and legal enforcement systems (Leuz, 2010). Finally, this thesis paper uses countries that are complied with International Accounting Standards (IAS) until 2005 due to succeed a convergence on comparability of examining variables. Thus, like Filip and Raffournier (2012), this study isolates the impact of financial crisis of 2008 on earnings management, audit quality and cost of capital while the other factors are hold constant.

Another advantage of conducting this thesis is that earnings management is measured by using 10 different approaches of earnings quality. Prior literature has focused on cross-country differences in the earnings quality using some of them one aspect of earnings attributes and others two or more of them (e.g. Alford et al, 1993; Ali and Hwang, 2000; Ball et al, 2003). Thus, this study cover this gap by using most of important earnings quality attributes, like ex post and ex ante conservatism, value relevance, three accrual quality measures, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness.

To conclude, this thesis focuses on the following examining areas:

- 10 different aspects of earnings quality are examined under financial crisis of 2008 (ex post conservatism estimated by Basu (1997) model, ex ante conservatism estimated by Beaver and Ryan (2000) model, value relevance estimated by Ohlson (1995) model, accruals quality estimated by Dechow et al (1995), McNichols (2002) and Kothari et al (2005) models, earnings persistence estimated by Kormedi and Lipe (1987) model, earnings predictability estimated by Francis et al (2004) model, loss avoidance analysis estimated by Burgstahler et al (2006) model and earnings smoothness estimated by Leuz et al (2003) model).

- The joint effect of financial crisis of 2008 and investor protection (measured by 8 different measures: property rights, judicial independence, transparency of government policymaking, strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, strength of investor protection and legal rights index) on audit quality (measured by 6 different measures: audit fees, modified audit report opinion, auditor switch, status of audit firm, existence of audit committee and demand for auditing) is examined.
- The joint effect of audit quality (measured by 6 different measures as explained in previous paragraph) and investor protection (measured by 8 different measures as explained in previous paragraph) on earnings quality under financial crisis of 2008 (measured by 10 different measures as explained in previous paragraph) is examined.
- The effect of earnings quality (measured by 10 different measures as explained in previous paragraph) on cost of equity capital (measured by 2 different measures: constant growth Gordon model introduced by Palea (2007) and PEG approach introduced by Easton (2004)) and cost of debt (measured by the ratio of interest expense in year t+1 to average interest bearing debt outstanding during years t and t+1) under the financial crisis of 2008 are examined.

6. Empirical research findings

6.1. Introduction

In this chapter the research results will be discussed. First, descriptive statistics will be analyzed. Second, it will be provided Pearson (Spearman-rank) correlation matrix among independent variables in all regression equations. Third, regression analysis are presented and finally, it will be summarized the findings of this thesis. Thus, this chapter answers the following sub-questions:

Which is the effect of financial crisis of 2008 on earnings quality?

Which is the effect of financial crisis of 2008 and investor protection on audit quality?

Which is the effect of audit quality and investor protection on earnings quality?

Which is the effect of audit quality on cost of capital (cost of equity capital and cost of debt)?

Which is the effect of earnings quality on cost of capital (cost of equity capital and cost of debt)?

6.2. Descriptive statistics

Descriptive statistics for the variables used in our analysis are given in Table 6. Table 6 Panel A compares the continues variables among three clusters during pre and crisis period.

The results of Table 6 Panel A reveals an increase in conservatism (ex post and ex ante) (EQ_1 and EQ_2 respectively) (from 0,06526 to 1,52752 and -0,00896 to -0,00027 in cluster 1 respectively) (from 1,20480 to 1,94221 and 1,98117 to 2,15694

in cluster 2 respectively) (from 1,00224 to 1,81918 and 0,00124 to 0,00141 in cluster 3 respectively), accruals quality (measured by Dechow et al (1995), McNichols (2002), and Kothari et al (2005)) (EQ_4, EQ_5 and EQ_6 respectively) (from 4,80592 to 1,84581, 4,05460 to 1,76553 and 1,95610 to 1,68369 in cluster 1 respectively) (from 189,04120 to 37,06603, 189,05010 to 14,91213 and 42,72452 to 11,56243 in cluster 2 respectively) (from 5,33738 to 2,27862, 5,33112 to 2,27062 and 2,32850 to 1,14606 in cluster 3 respectively), earnings predictability (EQ_8) (from 0,61437 to 1,13903 in cluster 1) (from 0,72947 to 1,64340 in cluster 2) (from 0,99962 to 1,14289 in cluster 3), loss avoidance (EQ_9) (from -0,28699 to -0,71969 in cluster 1) (from -0,19944 to -0,27808 in cluster 2) (from 0,01183 to -0,14650 in cluster 3), and a decrease in earnings persistence (EQ_7) (from 0,13481 to 0,07507 in cluster 1) (from 9,07381 to 0,46587 in cluster 2) (from 1,35409 to 1,17300 in cluster 3), value relevance (EQ_3) (from 0,98406 to 0,93111 in cluster 1) (from 0,69830 to 0,06288 in cluster 2) (from 0,79142 to 0,71751 in cluster 3), and earnings smoothness (EQ_{10}) (from 2,48379 to 2,39597 in cluster 1) (from 0,57332 to 0,56297 in cluster 2) (from 1,19262 to 1,09653 in cluster 3) during financial crisis of 2008. However, the affection of crisis on fluctuations of the earnings quality attributes among clusters differentiates due to the level of investor protection.

There is a common premise that high earnings quality is more frequent in countries with high level of investor protection. According to Kinnunen and Koskela (2003), high investor protection countries restrict insiders' profit appropriation which in turn reduces their incentives to manipulate earnings to conceal their profit diversion activities. The same results come from several other papers, like Leuz et al (2003), Haw et al (2004), Burgstahler et al (2006) and Nabar amd Boonlert-U-Thai (2007), who found that earnings management is negatively related to shareholder protection.

Hence, Table 6 Panel A shows that countries in cluster 1, which are characterized by high level shareholder protection and legal enforcement, appears lower conservatism (ex post and ex ante) (EQ_1 and EQ_2 respectively), higher value relevance (EQ_3), lower accruals quality (based on Dechow et al (1995), McNichols (2002), and Kothari et al (2005)) (EQ_4, EQ_5 and EQ_6 respectively), higher earnings persistence (EQ_7), lower earnings predictability (EQ_8), lower avoidance analysis (EQ_9) and higher earnings smoothness (EQ_{10}) rather than in the countries in clusters 2 and 3 in both of research periods.

Consistent with King (2009) and Mokhova (2011), Table 6 Panel A shows that the mean of cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$), the mean of cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$) and the mean of cost of debt (COSTOFDEBT) were increased during the crisis period for all clusters. However, the increase of cost of capital was more severe for countries in cluster 3, which are characterized by low level of investor protection. Particularly, for cluster 1 the mean of cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) was increased from -1,87481 to -0,52436, the mean of cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$) was increased from 0,17239 to 0,18398 and the mean of cost of debt (COSTOFDEBT) was increased from 0,47487 to 0,50014. In parallel, the mean of cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) was increased from -4,55275 to -1,94485, the mean of cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$) was increased from 0,18669 to 0,19549 and the mean of cost of debt (COSTOFDEBT) was increased from 0,00070 to 0,00094 for cluster 2. For

cluster 3 the mean of cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) was increased from -30,47657 to -15,72832, the mean of of cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$) was increased from 24,50089 to 30,18324 and the mean of cost of debt (COSTOFDEBT) was increased from 0,00039 to 0,00047.

Concerning how audit quality was changed in pre and crisis period, the results in Table 6 Panel A appear a decrease of audit quality in all clusters during financial crisis of 2008. Specifically, the mean of audit fees (AQ_1) was decreased from 20.734,65916 to 9.056,81467 in cluster 1, 50.931,66192 to 37.331,20995 in cluster 2 and 16.334,14023 to 14.963,75347 in cluster 3. In the same vein, the mean of demand for auditing (AQ_3) was decreased from 0,00008 to 0,00005 in cluster 1, 0,00030 to 0,00002 in cluster 2 and 0,00045 to 0,00029 in cluster 3. Consistent with Francis et al (2003), clusters 2 and 3 appear higher audit quality since they exhibit higher means of audit fees (AQ_1) and demand for auditing (AQ_3) respectively.

Regarding investor protection, there was ambiguity how financial crisis of 2008 influence investor protection variables among clusters. Table 6 Panel A shows that clusters 1 and 2 are characterized by higher investor protection among clusters. In detail, cluster 1 appears stronger financial auditing and reporting standards regarding financial performance, stronger supervision of investors and boards on management decisions, stronger protection of interests of minority shareholders, stronger investor protection and stronger legal rights of investors (higher means of $Invpr_4$, $Invpr_5$, $Invpr_6$, $Invpr_7$ and $Invpr_8$ respectively). In addition, cluster 2 appears stronger protection of property rights, higher judiciary independent from influences of members of government, citizens, or firms, and higher transparency of government policymaking (higher means of $Invpr_1$, $Invpr_2$ and $Invpr_3$ respectively). In detail, the

means of property rights ($INVPR_1$) (from 5,77274 to 5,85375), judicial independence ($INVPR_2$) (from 5,99869 to 6,15217) and transparency of government policymaking ($INVPR_3$) (from 4,86634 to 5,02282) were increased and the means of strength of auditing and reporting standards ($INVPR_4$) (from 6,06552 to 5,79376), efficacy of corporate boards ($INVPR_5$) (from 5,59722 to 5,35311), protection of minority shareholders' interests ($INVPR_6$) (from 5,63383 to 5,14363), strength of investor protection ($INVPR_7$) (from 7,27741 to 7,14183) and legal rights index ($INVPR_8$) (from 9,64044 to 9,30645) were decreased in cluster 1 during financial crisis of 2008. In addition, the means of transparency of government policymaking ($INVPR_3$) and strength of investor protection ($INVPR_7$) were increased and the means of all other investor protection proxies were decreased (from 6,43725 to 5,93722 for property rights ($INVPR_1$), 6,33212 to 6,10527 for judicial independence ($INVPR_2$), 6,05250 to 5,58823 for strength of auditing and reporting standards ($INVPR_4$), 5,58364 to 5,25543 for efficacy of corporate boards ($INVPR_5$), 5,72227 to 5,06205 for protection of minority shareholders' interests ($INVPR_6$) and 7,41644 to 6,95934 for legal rights index ($INVPR_8$)) in cluster 2 during financial crisis of 2008. Finally, the means of property rights ($INVPR_1$) (from 5,02097 to 4,43364), judicial independence ($INVPR_2$) (from 3,998396 to 3,58529), strength of auditing and reporting standards ($INVPR_4$) (from 4,76290 to 4,37064), efficacy of corporate boards ($INVPR_5$) (from 4,16774 to 3,95827) and protection of minority shareholders' interests ($INVPR_6$) (from 4,51290 to 4,05246) were decreased and the means of transparency of government policymaking ($INVPR_3$) (from 3,56613 to 3,61896), strength of investor protection ($INVPR_7$) (from 4,55806 to 4,84303) and legal rights index ($INVPR_8$) (from 3,11290 to 3,17283) were increased in cluster 3 during financial crisis of 2008.

Table 6 Panel A shows controversial changes of continous control variables among clusters during financial crisis of 2008. Specifically, cluster 1 exhibits lower means of financial leverage (LEVER), corporate size (CORPSIZE), corporate performance (CORPERFOR), market share (MASH), corporate efficiency (CORPEFFIC), corporate multinationality (MULTIN), dividend yield (DIVIDYIELD), annual stock return (R), the product of annual stock return and the proxy of bad news (R*DR), the change in net income (ΔNI), financial development (MCAP), market concentration using Herfindahl – Hirschman index (HERF), credit risk (CRISK), corporate dividends (DPO), corporate natural log of market value of equity (LNMV), trading volume (VOLUME), cash flow from operations (CFO), natural log of debt to assets ratio (LNLEV), collateral value or asset structure of assets (COLLATERAL), non-debt tax shields (NON-DEBT), profitability (PROFITABILITY), interest coverage (INTCOV), natural log of net income before extraordinary items (LNNIBE), natural log of market value of equity (LNMVE), R&D expense (RND), change in receivables (ΔRAV), net income (NI), total accruals (TA), return on assets (ROA), risk (RISK), profitability (PROFIT), solvency (SOLV), corporate complexity (COMPLEX), accruals (ACCRUAL) and inherent risk (IRISK), and higher means of TOBIN's Q (TOBINQ), sales volatility (SV), cash flow from operations volatility (CFOV), length of operating cycle (LOC), corporate profitability (CORPROFIT), capital intensity (CAPINT), total debt (DEBT), the market beta coefficient (BETA), economic development (GDP), corporate annual earnings growth per share (EG), book-to-market ratio (BM), natural log of book to market ratio (LNBM), financial leverage (LEVERAGE), growth (GROWTH), uniqueness (UNIQUENESS), liquidity (LIQUIDITY), change in earnings per share (ΔEPS), property, plant, and equipment (PPE), current assets (Current), leverage (LEVER),

change in revenue (ΔREV) and free cash flow (FCF). In the same vein, cluster 2 appears higher means of leverage (LEVER), sales volatility (SV), cash flow from operations volatility (CFOV), length of operating cycle (LOC), corporate profitability (CORPROFIT), market share (MASH), capital intensity (CAPINT), corporate efficiency (CORPEFFIC), total debt (DEBT), the change in net income (ΔNI), economic development (GDP), market concentration using Herfindahl – Hirschman index (HERF), credit risk (CRISK), corporate dividends (DPO), book-to-market ratio (BM), natural log of debt to assets ratio (LNLEV), natural log of book to market ratio (LNBM), financial leverage (LEVERAGE), non-debt tax shields (NON-DEBT), growth (GROWTH), uniqueness (UNIQUENESS), profitability (PROFITABILITY), interest coverage (INTCOV), current assets (Current), return on assets (ROA) and inherent risk (IRISK), and lower means of TOBIN's Q (TOBINQ), corporate size (CORPSIZE), corporate performance (CORPERFOR), marginal corporate tax rate dummy variable (MCTR), corporate multinationality (MULTIN), dividend yield (DIVIDYIELD), annual stock return (R), the product of annual stock return and the proxy of bad news (R*DR), the market beta coefficient (BETA), financial development (MCAP), corporate annual earnings growth per share (EG), corporate natural log of market value of equity (LNMV), trading volume (VOLUME), cash flow from operations (CFO), collateral value or asset structure of assets (COLLATERAL), liquidity (LIQUIDITY), natural log of net income before extraordinary items (LNNIBE), natural log of market value of equity (LNMVE), change in earnings per share (ΔEPS), R&D expense (RND), change in receivables (ΔRAV), property, plant, and equipment (PPE), net income (NI), total accruals (TA), leverage (LEVER), change in revenue (ΔREV), risk (RISK), profitability (PROFIT), solvency (SOLV)and corporate complexity (COMPLEX). Finally, cluster 3 appears

lower means of TOBIN's Q (TOBINQ), corporate size (CORPSIZE), cash flow from operations volatility (CFOV), corporate profitability (CORPROFIT), corporate performance (CORPERFOR), capital intensity (CAPINT), corporate efficiency (CORPEFFIC), corporate multinationality (MULTIN), annual stock return (R), the product of annual stock return and the proxy of bad news (R*DR), the market beta coefficient (BETA), financial development (MCAP), credit risk (CRISK), corporate annual earnings growth per share (EG), corporate dividends (DPO), corporate natural log of market value of equity (LNMV), trading volume (VOLUME), cash flow from operations (CFO), collateral value or asset structure of assets (COLLATERAL), growth (GROWTH), profitability (PROFITABILITY), natural log of net income before extraordinary items (LNNIBE), natural log of market value of equity (LNMVE), R&D expense (RND), change in receivables (ΔRAV), property, plant, and equipment (PPE), net income (NI), total accruals (TA), current assets (Current), return on assets (ROA), change in revenue (ΔREV), solvency (SOLV), corporate complexity (COMPLEX), accruals (ACCRUAL) and inherent risk (IRISK), and higher means of leverage (LEVER), sales volatility (SV), length of operating cycle (LOC), market share (MASH), marginal corporate tax rate dummy variable (MCTR), dividend yield (DIVIDYIELD), total debt (DEBT), the change in net income (ΔNI), economic development (GDP), market concentration using Herfindahl – Hirschman index (HERF), book-to-market ratio (BM), natural log of debt to assets ratio (LNLEV), natural log of book to market ratio (LNBM), financial leverage (LEVERAGE), non-debt tax shields (NON-DEBT), uniqueness (UNIQUENESS), liquidity (LIQUIDITY), interest coverage (INTCOV), change in earnings per share (ΔEPS), leverage (LEVER) and risk (RISK).

Table 6 Panel B compares the discrete variables among three clusters during pre and crisis period. The results suggest that all clusters present an increase of the frequency of the existence of audit committee (AQ_5) in crisis period (from 19,88% to 22.40% in cluster 1, 20,89% to 25,67% in cluster 2 and 12,05% to 15,46% in cluster 3). However, the results for other discrete audit quality measures are questionable among clusters. Table 6 Panel B appears an increase of the frequency of the use of Big Four auditors (AQ_4) from 54,70% to 56,50% in cluster 3 and a decrease from 64,41% to 58,41% and from 75,15% to 71,19% in clusters 1 and 2 respectively. Additionally, there is an increase of the frequency of the appearance of a qualified audit opinion (AQ_2) for clusters 1 and 3 (from 5,37% to 27,13% in cluster 1 and from 0,81% to 0,98% in cluster 3) and a decrease for cluster 2 (from 3,23% to 2,93%). Finally, the results of Table 6 Panel B shows an increase of the frequency of the firms that switch auditors from pre to crisis period in clusters 1 and 2 (from 4,31% to 7,99% and from 1,98% to 13,76% respectively) and a decrease in cluster 3 (from 22,85% to 18,79%).

Finally, Table 6 Panel B compares the discrete control variables among clusters during pre and crisis period. The results are controversial. Specifically, the frequencies of industrial classification dummy variable (SICODE), negative earnings realization (NER), timely loss recognition (LL), losses (LOSSES), financial distress (LAGLOSS) and proxy for a bad news (DR) in cluster 1, negative earnings realization (NER), small profits (SP), timely loss recognition (LL), losses (LOSSES) and financial distress (LAGLOSS) in cluster 2 and industrial classification (SICODE), negative earnings realization (NER), negative book equity (NEGEQ), small profits (SP), timely loss recognition (LL), losses (LOSSES), financial distress (LAGLOSS) and proxy for a bad news (DR) in cluster 3 were increased. On contrary, the

frequencies of classification of firm by market capitalization (FIRM), negative book equity (NEGEQ), profitability (INCR), profitability (PROFIT) and small profits (SP) in cluster 1, industrial classification (SICODE), negative book equity (NEGEQ), profitability (INCR), profitability (PROFIT) and proxy for a bad news (DR) in cluster 2 and profitability (INCR) and profitability (PROFIT) in cluster 3 were decreased.

(Insert Table 6 Panels A and B here)

6.3. Correlation analysis

Pearson correlation coefficients (not reported here) among all independent regression variables for each examining regression equation show diversity among the clusters. For brevity, we only outline the correlations among test variables that are negatively or positively correlated in all clusters.

Concerning the correlation matrix of regression equation 40, corporate size (CORPSIZE) is positively correlated with length of operating cycle (LOC), market share (MASH), marginal corporate tax rate dummy variable (MCTR) and proxy for a bad news dummy variable (DR), and negatively correlated with industrial classification dummy variable (SICODE) and crisis period dummy variable (CRISIS). Sales volatility (SV) is positively correlated with financial distress dummy variable (LAGLOSS) and negative correlated with crisis period (CRISIS). Cash flow from operations volatility (CFOV) is positively correlated with proxy for a bad news (DR) and economic development (GDP), and negatively correlated with financial development (MCAP) and market concentration using Herfindahl – Hirschman index (HERF). Length of operating cycle (LOC) is negatively correlated with financial distress dummy variable (LAGLOSS) and industrial classification (SICODE), and positively correlated with market share (MASH) and marginal corporate tax rate

dummy variable (MCTR). Financial distress dummy variable (LAGLOSS) is negatively correlated with market share (MASH), marginal corporate tax rate dummy variable (MCTR), annual stock return (R), the product of annual stock return and the proxy of bad news (R*DR) and financial development (MCAP), and positively correlated with proxy for a bad news (DR), crisis period (CRISIS) and the change in net income (ΔNI). Market share (MASH) is positively correlated with marginal corporate tax rate dummy variable (MCTR) and market concentration using Herfindahl – Hirschman index (HERF), and negatively correlated with industrial classification dummy variable (SICODE). Annual stock return (R) is negatively correlated with proxy for a bad news dummy variable (DR) and positively correlated with the product of annual stock return and the proxy of bad news (R*DR). Proxy for a bad news dummy variable (DR) is negatively correlated with the product of annual stock return and the proxy of bad news (R*DR) and industrial classification dummy variable (SICODE). Corporate efficiency (CORPEFFIC) is positively correlated with proxy for a bad news dummy variable (DR) and TOBIN's Q (TOBINQ). Crisis period dummy variable (CRISIS) is negatively correlated with the product of annual stock return and the proxy of bad news (R*DR) and financial development (MCAP), and positively correlated with economic development (GDP). In addition, there is positive correlation between the market beta coefficient (BETA) and economic development (GDP), and negative correlation between corporate profitability (CORPROFIT) and corporate performance (CORPERFOR), and between marginal corporate tax rate dummy variable (MCTR) and industrial classification dummy variable (SICODE).

Concerning the correlation matrix of regression equation 41, the results show that crisis period dummy variable (CRISIS) is positively correlated with transparency of government policymaking ($INVPR_3$), the interaction term of crisis period dummy

variable and investor protection (CRISIS*$INVPR_k$) and losses dummy variable (LOSSES), and negatively correlated with strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), corporate size (CORPSIZE), and inherent risk (IRISK) in all clusters. Property rights ($INVPR_1$) is positively correlated with judicial independence ($INVPR_2$), transparency of government policymaking ($INVPR_3$), strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$) and protection of minority shareholders' interests ($INVPR_6$), and negatively correlated with strength of investor protection ($INVPR_7$) in all clusters. Judicial independence ($INVPR_2$) is positively correlated with transparency of government policymaking ($INVPR_3$) and efficacy of corporate boards ($INVPR_5$), and negatively correlated with industrial classification (SICODE) in all clusters. Transparency of government policymaking ($INVPR_3$) is positively correlated with strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), the interaction term of crisis period dummy variable and investor protection (CRISIS*$INVPR_k$) and losses dummy variable (LOSSES), and negatively correlated with strength of investor protection ($INVPR_7$) in all clusters. Strength of auditing and reporting standards ($INVPR_4$) is positively correlated with efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$) and legal rights index ($INVPR_8$), and negatively correlated with the interaction term of crisis period dummy variable and investor protection (CRISIS*$INVPR_k$) in all clusters. Efficacy of corporate boards ($INVPR_5$) is positively correlated with protection of minority shareholders' interests ($INVPR_6$) and negatively correlated with the interaction term of crisis period dummy variable and investor protection (CRISIS*$INVPR_k$) in all clusters. Protection of

minority shareholders' interests ($INVPR_6$) is positively correlated with legal rights index ($INVPR_8$) and negatively correlated with the interaction term of crisis period dummy variable and investor protection ($CRISIS*INVPR_k$) in all clusters. Strength of investor protection ($INVPR_7$) is positively correlated with the interaction term of crisis period dummy variable and strength of investor protection ($CRISIS*INVPR_7$) in all clusters. The interaction term of crisis period dummy variable and property rights ($CRISIS*INVPR_1$) is positively correlated with the interaction terms of crisis period dummy variable and judicial independence ($CRISIS*INVPR_2$), crisis period dummy variable and transparency of government policymaking ($CRISIS*INVPR_3$), crisis period dummy variable and strength of auditing and reporting standards ($CRISIS*INVPR_4$), crisis period dummy variable and efficacy of corporate boards ($CRISIS*INVPR_5$), crisis period dummy variable and protection of minority shareholders' interests ($CRISIS*INVPR_6$), crisis period dummy variable and strength of investor protection ($CRISIS*INVPR_7$), crisis period dummy variable and legal rights index ($CRISIS*INVPR_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) in all clusters. The interaction term of crisis period dummy variable and judicial independence ($CRISIS*INVPR_2$) is positively correlated with the interaction terms of crisis period dummy variable and transparency of government policymaking ($CRISIS*INVPR_3$), crisis period dummy variable and strength of auditing and reporting standards ($CRISIS*INVPR_4$), crisis period dummy variable and efficacy of corporate boards ($CRISIS*INVPR_5$), crisis period dummy variable and protection of minority shareholders' interests ($CRISIS*INVPR_6$), crisis period dummy variable and strength of investor protection ($CRISIS*INVPR_7$), crisis period dummy variable and legal rights index ($CRISIS*INVPR_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) in all

clusters. The interaction term of crisis period dummy variable and transparency of government policymaking (CRISIS*INVPR$_3$) is positively correlated with the interaction terms of crisis period dummy variable and strength of auditing and reporting standards (CRISIS*INVPR$_4$), crisis period dummy variable and efficacy of corporate boards (CRISIS*INVPR$_5$), crisis period dummy variable and protection of minority shareholders' interests (CRISIS*INVPR$_6$), crisis period dummy variable and strength of investor protection (CRISIS*INVPR$_7$), crisis period dummy variable and legal rights index (CRISIS*INVPR$_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) and corporate size (CORPSIZE) in all clusters. The interaction term of crisis period dummy variable and strength of auditing and reporting standards (CRISIS*INVPR$_4$) is positively correlated with the interaction term of crisis period dummy variable and efficacy of corporate boards (CRISIS*INVPR$_5$), crisis period dummy variable and protection of minority shareholders' interests (CRISIS*INVPR$_6$), crisis period dummy variable and strength of investor protection (CRISIS*INVPR$_7$), crisis period dummy variable and legal rights index (CRISIS*INVPR$_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) and corporate size (CORPSIZE) in all clusters. The interaction term of crisis period dummy variable and efficacy of corporate boards (CRISIS*INVPR$_5$) is positively correlated with the interaction term of crisis period dummy variable and protection of minority shareholders' interests (CRISIS*INVPR$_6$), crisis period dummy variable and strength of investor protection (CRISIS*INVPR$_7$), crisis period dummy variable and legal rights index (CRISIS*INVPR$_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) and corporate size (CORPSIZE) in all clusters. The interaction term of crisis period dummy variable and protection of minority shareholders' interests (CRISIS*INVPR$_6$)

is positively correlated with the interaction term of crisis period dummy variable and strength of investor protection (CRISIS*$INVPR_7$), crisis period dummy variable and legal rights index (CRISIS*$INVPR_8$) and losses dummy variable (LOSSES), and negatively correlated with inherent risk (IRISK) and corporate size (CORPSIZE) in all clusters. The interaction term of crisis period dummy variable and strength of investor protection (CRISIS*$INVPR_7$) is positively correlated with the interaction term of crisis period dummy variable and legal rights index (CRISIS*$INVPR_8$) and negatively correlated with inherent risk (IRISK) in all clusters. The interaction term of crisis period dummy variable and legal rights index (CRISIS*$INVPR_8$) is positively correlated with inherent risk (IRISK) and negatively correlated with corporate size (CORPSIZE) and inherent risk (IRISK) in all clusters. Corporate size (CORPSIZE) is positively correlated with accruals (ACCRUAL) and inherent risk (IRISK), and negatively correlated with industrial classification dummy variable (SICODE) in all clusters. Risk (RISK) is positively correlated with financial leverage (LEVERAGE) in all clusters. Profitability (PROFIT) is negatively correlated with losses dummy variable (LOSSES) in all clusters. Corporate complexity (COMPLEX) is positively correlated with inherent risk (IRISK) in all clusters.

Concerning the correlation matrix of regression equation 42 in pre crisis period, the results reveal that audit fees (AQ_1) is positively correlated with the interaction term of audit fees and investor protection (AQ_1*$INVPR_k$) in all clusters. Modified audit report opinion dummy variable (AQ_2) is positively correlated with property rights ($INVPR_1$), judicial independence ($INVPR_2$), strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), the interaction terms of modified audit report opinion and investor protection (AQ_2*$INVPR_k$), auditor switch and strength of

investor protection (AQ_3*$INVPR_7$) and auditor switch and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with status of audit firm (AQ_4) and the interaction terms of status of audit firm and investor protection (AQ_4*$INVPR_k$) in all clusters. Auditor switch dummy variable (AQ_3) is positively correlated with property rights ($INVPR_1$), judicial independence ($INVPR_2$), strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), the interaction term of auditor switch and investor protection (AQ_3*$INVPR_k$) and timely loss recognition dummy variable (LL), and negatively correlated with status of audit firm dummy variable (AQ_4), existence of audit committee dummy variable (AQ_5), the interaction terms of status of audit firm and investor protection (AQ_4*$INVPR_k$), existence of audit committee and investor protection (AQ_5*$INVPR_k$) and corporate size (CORPSIZE) in all clusters. AQ_4 is positively correlated with existence of audit committee dummy variable (AQ_5), demand for auditing dummy variable (AQ_6), the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with interaction terms of modified audit report opinion dummy variable and investor protection AQ_2*$INVPR_k$, auditor switch dummy variable and investor protection AQ_3*$INVPR_k$, timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. Existence of audit committee dummy variable (AQ_5) is positively correlated with demand for auditing dummy variable (AQ_6), strength of investor protection ($INVPR_7$), the interaction terms of strength of auditing and reporting standards and investor protection (AQ_4*$INVPR_k$), efficacy of corporate

boards and investor protection (AQ_5*$INVPR_k$), protection of minority shareholders' interests and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with property rights ($INVPR_1$), judicial independence ($INVPR_2$), transparency of government policymaking ($INVPR_3$), strength of auditing and reporting standards ($INVPR_4$), protection of minority shareholders' interests ($INVPR_6$), the interaction term of auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. Demand for auditing dummy variable (AQ_6) is positively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. Property rights ($INVPR_1$) is positively correlated with judicial independence ($INVPR_2$), transparency of government policymaking ($INVPR_3$), strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), the interaction terms of modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$) and auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), and negatively correlated with strength of investor protection ($INVPR_7$), the interaction terms of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of

corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$) and net income (NI) in all clusters. Judicial independence ($INVPR_2$) is positively correlated with transparency of government policymaking ($INVPR_3$), strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$) and the interaction terms of modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$), auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), and negatively correlated with strength of investor protection ($INVPR_7$), the interaction terms of existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$) and net income (NI) in all clusters. Transparency of government policymaking ($INVPR_3$) is positively correlated with strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$) and protection of minority shareholders' interests ($INVPR_6$), and negatively correlated with strength of investor protection ($INVPR_7$), the interaction terms of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$) and demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$) in all clusters. Strength of auditing and reporting standards ($INVPR_4$) is positively correlated with efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$), the interaction terms of judicial independence and investor protection (AQ_2*$INVPR_k$) and transparency of

government policymaking and investor protection (AQ_3*$INVPR_k$), and negatively correlated with the interaction term of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. Efficacy of corporate boards ($INVPR_5$) is positively correlated with protection of minority shareholders' interests ($INVPR_6$) and interaction term of modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$), and negatively correlated with net income (NI) in all clusters. Protection of minority shareholders' interests ($INVPR_6$) is positively correlated with modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$) and auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), and negatively correlated with the interaction term of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$) and net income (NI) in all clusters. Strength of investor protection ($INVPR_7$) is positively correlated with the interaction term of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$) in all clusters. Legal rights index ($INVPR_8$) is positively correlated with the interaction terms of status of audit firm dummy variable and judicial independence (AQ_4*$INVPR_2$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$) and demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$), and negatively correlated with the market beta coefficient (BETA) in all clusters. The interaction term of audit fees and property rights (AQ_1*$INVPR_1$) is positively correlated with the interaction term of audit fees and judicial independence (AQ_1*$INVPR_2$), audit fees and transparency of government policymaking (AQ_1*$INVPR_3$), audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders'

interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and judicial independence (AQ_1*$INVPR_2$) is positively correlated with the interaction terms of audit fees and transparency of government policymaking (AQ_1*$INVPR_3$), audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and transparency of government policymaking (AQ_1*$INVPR_3$) is positively correlated with the interaction terms of audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$) is positively correlated with the interaction terms of audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$) is positively correlated with the interactions terms of audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and protection of minority shareholders' interests

(AQ_1*$INVPR_6$) is positively correlated with the interaction terms of audit fees and strength of investor protection (AQ_1*$INVPR_7$) and audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of audit fees and strength of investor protection (AQ_1*$INVPR_7$) is positively correlated with the interaction term of audit fees and legal rights index (AQ_1*$INVPR_8$) in all clusters. The interaction term of modified audit report opinion dummy variable and property rights (AQ_2*$INVPR_1$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and judicial independence (AQ_2*$INVPR_2$), modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$), modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and judicial independence (AQ_2*$INVPR_2$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$), modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards

(AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and strength of auditing and reporting standard (AQ_2*$INVPR_4$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit

report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of

modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$) is positively correlated with the interaction terms of auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) and auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of auditor switch dummy variable and property rights (AQ_3*$INVPR_1$) is positively correlated with the interaction terms of auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$), auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and

investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$) is positively correlated with the interaction terms of auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$), auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and onvestor protection (AQ_4-*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$) is positively correlated with the interaction terms of auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$),

net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$) is positively correlated with the interaction terms of auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$) is positively correlated with the interaction terms of auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$) is positively correlated with the interaction terms of auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy

variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) is positively correlated with the interaction term of auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), cash flow from operations volatility (CFOV) and timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) is positively correlated with timely loss recognition dummy variable (LL), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of status of audit firm dummy variable and property rights (AQ_4*$INVPR_1$) is positively correlated with the interaction terms of status of audit firm dummy variable and judicial independence (AQ_4*$INVPR_2$), status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$), status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and

corporate size (CORPSIZE), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and judicial independence (AQ_4*$INVPR_2$) is positively correlated with the interaction terms of status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$), status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$) is positively correlated with the interaction terms of status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and

corporate size (CORPSIZE), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$) is positively correlated with the interaction terms of status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$) is positively correlated with the interaction terms of status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable

(SICODE) in all clusters. The interaction term of status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$) is positively correlated with the interaction terms of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$) is positively correlated with the interaction term of status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of negatively correlated with audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$) is positively correlated with the interaction terms of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and property rights (AQ_5*$INVPR_1$) is positively correlated with the interaction terms of

existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$), existence of audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$), existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$) is positively correlated with the interaction terms of existence of audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$), existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of

existence of audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$) is positively correlated with the interaction terms of existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$) is positively correlated with the interaction terms of existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$) is positively correlated with the interaction terms of existence of audit committee dummy variable and protection of minority shareholders' interests

(AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$) is positively correlated with the interaction terms of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$) is positively correlated with the interaction terms of existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$) is positively correlated with the interaction term of demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) and industrial classification dummy variable

(SICODE) in all clusters. The interaction term of demand for auditing dummy variable and property rights (AQ_6*$INVPR_1$) is positively correlated with the interaction terms of demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$), demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$) is positively correlated with the interaction terms of demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing

dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$) is positively correlated with the interaction terms of demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$) is positively correlated with the interaction terms of demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$) is positively correlated with the interaction terms of demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size

(CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$) is positively correlated with the interaction terms of demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$) is positively correlated with the interaction term of demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$) is positively correlated with net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. Change in receivables (ΔRAV) is positively correlated with property, plant, and equipment (PPE) in all clusters. Net income (NI) is positively correlated with corporate size (CORPSIZE), and negatively correlated with timely loss recognition dummy variable (LL) in all clusters. Total accruals (TA) is negatively correlated with corporate size (CORPSIZE) in all clusters. Small profits dummy variable (SP) is positively correlated with timely loss recognition dummy variable

(LL) in all clusters. Timely loss recognition dummy variable (LL) is positively correlated with total debt (DEBT) and the market beta coefficient (BETA) in all clusters. Corporate size (CORPSIZE) is negatively correlated with industrial classification dummy variable (SICODE) in all clusters.

Similarly, concerning the correlation matrix of regression equation 42 in crisis period, the results reveal that audit fees (AQ_1) is positively correlated with existence of audit committee dummy variable (AQ_5), demand for auditing dummy variable (AQ_6), the interaction terms of audit fees and investor protection (AQ_1*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. modified audit report opinion dummy variable (AQ_2) is positively correlated with the interaction term of modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$) and negatively correlated with status of audit firm dummy variable (AQ_4) and the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. Auditor switch dummy variable (AQ_3) is positively correlated with the interaction term of auditor switch dummy variable andinvestor protection (AQ_3*$INVPR_k$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) and negatively correlated with status of audit firm dummy variable (AQ_4), existence of audit committee dummy variable (AQ_5), demand for auditing dummy variable (AQ_6), property rights ($INVPR_1$), judicial independence ($INVPR_2$), the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection

(AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. Status of audit firm dummy variable (AQ_4) is positively correlated with existence of audit committee dummy variable (AQ_5), demand for auditing dummy variable (AQ_6), judicial independence ($INVPR_2$), the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of modified audit report opinion dummy variable and investor protection (AQ_2*$INVPR_k$), auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), current assets (Current), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. Existence of audit committee dummy variable (AQ_5) is positively correlated with demand for auditing dummy variable (AQ_6), the interaction terms of audit fees and investor protection (AQ_1*$INVPR_k$), status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with strength of auditing and reporting standards ($INVPR_4$), the interaction term of auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. Demand for auditing dummy variable (AQ_6) is positively correlated with judicial independence ($INVPR_2$), the interaction terms of audit fees and investor protection (AQ_1*$INVPR_k$), status of audit firm dummy

variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$), the interaction term of auditor switch dummy variable and investor protection (AQ_3*$INVPR_k$), total accruals (TA), timely loss recognition dummy variable (LL), the market beta coefficient (BETA) and industrial classification dummy variable (SICODE) in all clusters. Property rights ($INVPR_1$) is positively correlated with judicial independence ($INVPR_2$), transparency of government policymaking ($INVPR_3$), strength of auditing and reporting standards ($INVPR_4$), protection of minority shareholders' interests ($INVPR_6$), the interaction terms of modified audit report opinion dummy variable and property rights (AQ_2*$INVPR_1$), modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$) and cash flow from operations volatility (CFOV) in all clusters. Jjudicial independence ($INVPR_2$) is positively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$), existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$), demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$), demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable

and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$) and corporate size (CORPSIZE), and negatively correlated with the interaction terms of auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) and industrial classification dummy variable (SICODE) in all clusters. Transparency of government policymaking ($INVPR_3$) is positively correlated with strength of auditing and reporting standards ($INVPR_4$), efficacy of corporate boards ($INVPR_5$) and protection of minority shareholders' interests ($INVPR_6$) in all clusters. strength of auditing and reporting standards ($INVPR_4$) is positively correlated with efficacy of corporate boards ($INVPR_5$), protection of minority shareholders' interests ($INVPR_6$) and cash flow from operations volatility (CFOV), and negatively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and property rights (AQ_6*$INVPR_1$), demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$), demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$) and demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$) in all clusters. Efficacy of corporate boards ($INVPR_5$) is positively correlated with protection of minority shareholders' interests ($INVPR_6$) and cash flow from operations volatility (CFOV), and negatively correlated with the interaction terms of existence of

audit committee dummy variable and property rights (AQ_5*$INVPR_1$), existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$) and net income (NI) in all clusters. Protection of minority shareholders' interests ($INVPR_6$) is positively correlated with cash flow from operations volatility (CFOV) in all clusters. Strength of investor protection ($INVPR_7$) is positively correlated with the interaction terms of status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$) and status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), and negatively correlated with current assets (Current) and cash flow from operations volatility (CFOV) in all clusters. Legal rights index ($INVPR_8$) is negatively correlated with the market beta coefficient (BETA) in all clusters. The interaction term of audit fees and property rights (AQ_1*$INVPR_1$) is positively correlated with the interaction terms of audit fees and judicial independence (AQ_1*$INVPR_2$), audit fees and transparency of government policymaking (AQ_1*$INVPR_3$), audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection

(AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and judicial independence (AQ_1*$INVPR_2$) is positively correlated with the interaction terms of audit fees and transparency of government policymaking (AQ_1*$INVPR_3$), audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and transparency of government policymaking (AQ_1*$INVPR_3$) is positively correlated with the interaction terms of audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$), audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and strength of auditing and reporting standards (AQ_1*$INVPR_4$) is positively correlated with the interaction terms of audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$), audit fees and protection of minority shareholders' interests

(AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and efficacy of corporate boards (AQ_1*$INVPR_5$) is positively correlated with the interaction terms of audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$), audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and protection of minority shareholders' interests (AQ_1*$INVPR_6$) is positively correlated with the interaction terms of audit fees and strength of investor protection (AQ_1*$INVPR_7$), audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and strength of investor protection (AQ_1*$INVPR_7$) is positively correlated with the interaction terms of audit fees and legal rights index (AQ_1*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total

accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of audit fees and legal rights index (AQ_1*$INVPR_8$) is positively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA) and timely loss recognition dummy variable (LL) in all clusters. The interaction term of modified audit report opinion dummy variable and property rights (AQ_2*$INVPR_1$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and judicial independence (AQ_2*$INVPR_2$), modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$), modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and judicial independence (AQ_2*$INVPR_2$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$), modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable

and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and transparency of government policymaking (AQ_2*$INVPR_3$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$), modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and strength of auditing and reporting standards (AQ_2*$INVPR_4$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$), modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and efficacy of corporate boards (AQ_2*$INVPR_5$)

is positively correlated with the interaction terms of modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$), modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and protection of minority shareholders' interests (AQ_2*$INVPR_6$) is positively correlated with the interaction terms of modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$), modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and strength of investor protection (AQ_2*$INVPR_7$) is positively correlated with the interaction term of modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$), and negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of modified audit report opinion dummy variable and legal rights index (AQ_2*$INVPR_8$) is negatively correlated with the interaction term of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$) in all clusters. The interaction term of auditor switch dummy variable and property rights (AQ_3*$INVPR_1$) is positively correlated with the interaction terms of auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$), auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$), auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor

switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and judicial independence (AQ_3*$INVPR_2$) is positively correlated with the interaction terms of auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$), auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size

(CORPSIZE) in all clusters.The interaction term of auditor switch dummy variable and transparency of government policymaking (AQ_3*$INVPR_3$) is positively correlated with the interaction terms of auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$), auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and strength of auditing and reporting standards (AQ_3*$INVPR_4$) is positively correlated with the interaction terms of auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$), auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size

(CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and efficacy of corporate boards (AQ_3*$INVPR_5$) is positively correlated with the interaction terms of auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$), auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and protection of minority shareholders' interests (AQ_3*$INVPR_6$) is positively correlated with the interaction terms of auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$), auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of auditor switch dummy variable and strength of investor protection (AQ_3*$INVPR_7$) is positively correlated with the interaction term of auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$), total accruals (TA), current assets (Current), timely loss recognition

dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI), corporate size (CORPSIZE) and the market beta coefficient (BETA) in all clusters. The interaction term of auditor switch dummy variable and legal rights index (AQ_3*$INVPR_8$) is positively correlated with total accruals (TA), current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE), and negatively correlated with the interaction terms of status of audit firm dummy variable and investor protection (AQ_4*$INVPR_k$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE) in all clusters. The interaction term of status of audit firm dummy variable and property rights (AQ_4*$INVPR_1$) is positively correlated with the interaction terms of status of audit firm dummy variable and judicial independence (AQ_4*$INVPR_2$), status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$), status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE),

and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and judicial independence (AQ_4*$INVPR_2$) is positively correlated with the interaction terms of status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$), status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and transparency of government policymaking (AQ_4*$INVPR_3$) is positively correlated with the interaction term of status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$), status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection

(AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and strength of auditing and reporting standards (AQ_4*$INVPR_4$) is positively correlated with the interaction terms of status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$), status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and efficacy of corporate boards (AQ_4*$INVPR_5$) is positively correlated with the interaction terms of status of audit firm dummy variable and protection of minority shareholders' interests (AQ_4*$INVPR_6$), status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and protection of minority shareholders'

interests (AQ_4*$INVPR_6$) is positively correlated with the interaction terms of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$), status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and strength of investor protection (AQ_4*$INVPR_7$) is positively correlated with the interaction terms of status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$), existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of status of audit firm dummy variable and legal rights index (AQ_4*$INVPR_8$) is positively correlated with the interaction terms of existence of audit committee dummy variable and investor protection (AQ_5*$INVPR_k$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with current assets (Current), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and property rights (AQ_5*$INVPR_1$) is positively correlated with the interaction terms of existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$), existence of

audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$), existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and judicial independence (AQ_5*$INVPR_2$) is positively correlated with the interaction terms of existence of audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$), existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial

classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and transparency of government policymaking (AQ_5*$INVPR_3$) is positively correlated with the interaction terms of existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$), existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and strength of auditing and reporting standards (AQ_5*$INVPR_4$) is positively correlated with the interaction terms of existence of audit committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$), existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit

committee dummy variable and efficacy of corporate boards (AQ_5*$INVPR_5$) is positively correlated with the interaction terms of existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$), existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and protection of minority shareholders' interests (AQ_5*$INVPR_6$) is positively correlated with the interaction terms of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$), existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and strength of investor protection (AQ_5*$INVPR_7$) is positively correlated with the interaction term of existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$), demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy

variable (SICODE) in all clusters. The interaction term of existence of audit committee dummy variable and legal rights index (AQ_5*$INVPR_8$) is positively correlated with the interaction term of demand for auditing dummy variable and investor protection (AQ_6*$INVPR_k$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and property rights (AQ_6*$INVPR_1$) is positively correlated with the interaction terms of demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$), demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and judicial independence (AQ_6*$INVPR_2$) is positively correlated with the interaction terms of demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$), demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for

auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and transparency of government policymaking (AQ_6*$INVPR_3$) is positively correlated with the interaction terms of demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$), demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and strength of auditing and reporting standards (AQ_6*$INVPR_4$) is positively correlated with the interaction terms of demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$), demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), the market beta coefficient (BETA), timely loss recognition dummy variable (LL) and

industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and efficacy of corporate boards (AQ_6*$INVPR_5$) is positively correlated with the interaction terms of demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$), demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and protection of minority shareholders' interests (AQ_6*$INVPR_6$) is positively correlated with the interaction terms of demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$), demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and strength of investor protection (AQ_6*$INVPR_7$) is positively correlated with the interaction term of demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$), net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial classification dummy variable (SICODE) in all clusters. The interaction term of demand for auditing dummy variable and legal rights index (AQ_6*$INVPR_8$) is positively correlated with net income (NI) and corporate size (CORPSIZE), and negatively correlated with total accruals (TA), timely loss recognition dummy variable (LL) and industrial

classification dummy variable (SICODE) in all clusters. Change in receivables (ΔRAV) is positively correlated with property, plant, and equipment (PPE) in all clusters. Net income (NI) is positively correlated with corporate size (CORPSIZE) and return on assets (ROA), and negatively correlated with timely loss recognition dummy variable (LL) in all clusters. Total accruals (TA) is negatively correlated with Corporate size (CORPSIZE) in all clusters. Small profits dummy variable (SP) is positively correlated with timely loss recognition dummy variable (LL) and corporate size (CORPSIZE) in all clusters. Corporate size (CORPSIZE) is positively correlated with cash flow from operations volatility (CFOV) and negatively correlated with industrial classification dummy variable (SICODE) in all clusters.

Concerning the correlation matrix of regression equation 43, the results reveal that natural log of debt to assets ratio (LNLEV) is positively correlated with trading volume (VOLUME), corporate size (CORPSIZE), audit fees (AQ_1), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with natural log of debt to assets ratio (LNLEV), natural log of book to market ratio (LNBM), classification of firm by market capitalization dummy variable (FIRM), industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS) in all clusters. Book-to-market ratio (BM) is positively correlated with natural log of book to market ratio (LNBM) and negatively correlated with natural log of debt to assets ratio (LNLEV) in all clusters. Trading volume (VOLUME) is positively correlated with corporate size (CORPSIZE), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with classification of firm by market capitalization dummy variable (FIRM) and crisis period dummy variable (CRISIS) in all clusters. Cash flow from operations (CFO) is

negatively correlated with natural log of debt to assets ratio (LNLEV) and modified audit report opinion dummy variable (AQ_2) in all clusters. Natural log of debt to assets ratio (LNLEV) is positively correlated with natural log of book to market ratio (LNBM), classification of firm by market capitalization dummy variable (FIRM), industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS), and negatively correlated with corporate size (CORPSIZE) and status of audit firm dummy variable (AQ_4) in all clusters. Natural log of book to market ratio (LNBM) is positively correlated with classification of firm by market capitalization dummy variable (FIRM), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS), and negatively correlated with corporate size (CORPSIZE) and status of audit firm dummy variable (AQ_4) in all clusters. Corporate size (CORPSIZE) is positively correlated with audit fees (AQ_1), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with classification of firm by market capitalization dummy variable (FIRM), industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS) in all clusters. Classification of firm by market capitalization dummy variable (FIRM) is positively correlated with industrial classification dummy variable (SICODE) and auditor switch dummy variable (AQ_3), and negatively correlated with status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5) in all clusters. Industrial classification dummy variable (SICODE) is positively correlated with auditor switch dummy variable (AQ_3) and negatively correlated with status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5) in all clusters. Status of audit firm dummy variable (AQ_4) is positively correlated with

existence of audit committee dummy variable (AQ_5) and negatively correlated with modified audit report opinion dummy variable (AQ_2) and auditor switch dummy variable (AQ_3) in all clusters. Audit fees (AQ_1) is positively correlated with existence of audit committee dummy variable (AQ_5) in all clusters. Auditor switch dummy variable (AQ_3) is negatively correlated with existence of audit committee dummy variable (AQ_5) in all clusters. Existence of audit committee dummy variable (AQ_5) is positively correlated with crisis period dummy variable (CRISIS) in all clusters.

Concerning the correlation matrix of regression equation 44 in pre crisis period, the results reveal that the market beta coefficient (BETA) is positively correlated with value relevance (EQ_3) and negatively correlated with sales volatility (SV), accruals quality measured by Dechow et al (1995) (EQ_4) and accruals quality measured by McNichols (2002) (EQ_5) in all clusters. Corporate size (CORPSIZE) is positively correlated with book-to-market ratio (BM), collateral value or asset structure of assets (COLLATERAL), non-debt tax shields (NON-DEBT), profitability (PROFITABILITY) and loss avoidance (EQ_9), and negatively correlated with industrial classification dummy variable (SICODE) in all clusters. Financial leverage (LEVERAGE) is positively correlated with negative earnings realization dummy variable (NER) and negatively correlated with profitability (PROFITABILITY) and loss avoidance (EQ_9) in all clusters. Sales volatility (SV) is positively correlated with negative earnings realization dummy variable (NER) and ex post conservatism (EQ_1), and negatively correlated with value relevance (EQ_3) in all clusters. Negative earnings realization dummy variable (NER) is positively correlated with collateral value or asset structure of assets (COLLATERAL), non-debt tax shields (NON-DEBT), uniqueness (UNIQUENESS) and ex post conservatism (EQ_1), and negatively correlated with profitability (PROFITABILITY) in all clusters. Collateral value or

asset structure of assets (COLLATERAL) is positively correlated with profitability (PROFITABILITY) and ex post conservatism (EQ_1) in all clusters. Non-debt tax shields (NON-DEBT) is positively correlated with growth (GROWTH) and earnings smoothness (EQ_{10}) in all clusters. Profitability (PROFITABILITY) is positively correlated with loss avoidance (EQ_9) in all clusters. Ex post conservatism (EQ_1) is positively correlated with earnings persistence (EQ_7) in all clusters. Value relevance (EQ_3) is positively correlated with earnings persistence (EQ_7) and negatively correlated with accruals quality measured by Dechow et al (1995) (EQ_4) and accruals quality measured by McNichols (2002) (EQ_5) in all clusters. Accruals quality measured by Dechow et al (1995) (EQ_4) is positively correlated with accruals quality measured by McNichols (2002) (EQ_5) in all clusters. Accruals quality measured by Kothari et al (2005) (EQ_6) is negatively correlated with earnings smoothness (EQ_{10}) in all clusters. Earnings predictability (EQ_8) is negatively correlated with earnings smoothness (EQ_{10}) in all clusters.

Similarly, concerning the correlation matrix of regression equation 44 in crisis period, the results reveal that the market beta coefficient (BETA) is positively correlated with value relevance (EQ_3) and negatively correlated with corporate size (CORPSIZE) and ex post conservatism (EQ_1) in all clusters. Corporate size (CORPSIZE) is positively correlated with collateral value or asset structure of assets (COLLATERAL), non-debt tax shields (NON-DEBT) and earnings predictability (EQ_8), and negatively correlated with industrial classification dummy variable (SICODE) in all clusters. Financial leverage (LEVERAGE) is positively correlated with non-debt tax shields (NON-DEBT) and growth (GROWTH) in all clusters. Cash flow from operations volatility (CFOV) is positively correlated with negative earnings realization dummy variable (NER) and accruals quality measured by Kothari et al

(2005) (EQ_6) in all clusters. Sales volatility (SV) is positively correlated with negative earnings realization dummy variable (NER) and growth (GROWTH), and negatively correlated with earnings persistence (EQ_7) and earnings smoothness (EQ_{10}) in all clusters. Negative earnings realization dummy variable (NER) is positively correlated with collateral value or asset structure of assets (COLLATERAL), non-debt tax shields (NON-DEBT), uniqueness (UNIQUENESS), liquidity (LIQUIDITY) and accruals quality measured by Kothari et al (2005) (EQ_6), and negatively correlated with loss avoidance (EQ_9) in all clusters. Non-debt tax shields (NON-DEBT) is positively correlated with growth (GROWTH) in all clusters. Value relevance (EQ_3) is positively correlated with earnings smoothness (EQ_{10}) in all clusters. Accruals quality measured by Dechow et al (1995) (EQ_4) is positively correlated with accruals quality measured by McNichols (2002) (EQ_5) and accruals quality measured by Kothari et al (2005) (EQ_6), and negatively correlated with earnings smoothness (EQ_{10}) in all clusters. Accruals quality measured by McNichols (2002) (EQ_5) is positively correlated with accruals quality measured by Kothari et al (2005) (EQ_6) and negatively correlated with earnings persistence (EQ_7) and earnings smoothness (EQ_{10}) in all clusters.

Concerning the correlation matrix of regression equation 45, the results reveal that corporate size (CORPSIZE) is positively correlated with natural log of net income before extraordinary items (LNNIBE), natural log of market value of equity (LNMVE), collateral value or asset structure of assets (COLLATERAL), credit risk (CRISK), audit fees (AQ_1), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS) in all clusters. Natural log of net income

before extraordinary items (LNNIBE) is positively correlated with natural log of market value of equity (LNMVE), collateral value or asset structure of assets (COLLATERAL), credit risk (CRISK), audit fees (AQ_1), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with negative book equity dummy variable (NEGEQ), industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS) in all clusters. natural log of market value of equity (LNMVE) is positively correlated with credit risk (CRISK), audit fees (AQ_1), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with negative book equity dummy variable (NEGEQ), industrial classification dummy variable (SICODE), auditor switch dummy variable (AQ_3) and crisis period dummy variable (CRISIS) in all clusters. Negative book equity dummy variable (NEGEQ) is positively correlated with auditor switch dummy variable (AQ_3) and negatively correlated with credit risk (CRISK), status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5) in all clusters. Industrial classification dummy variable (SICODE) is positively correlated with auditor switch dummy variable (AQ_3) and negatively correlated with status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5) in all clusters. Credit risk (CRISK) is positively correlated with status of audit firm dummy variable (AQ_4) and existence of audit committee dummy variable (AQ_5), and negatively correlated with modified audit report opinion dummy variable (AQ_2) and auditor switch dummy variable (AQ_3) in all clusters. Status of audit firm dummy variable (AQ_4) is positively correlated with existence of audit committee dummy variable (AQ_5) and negatively correlated with modified audit report opinion dummy variable (AQ_2) and auditor switch dummy

variable (AQ_3) in all clusters. Audit fees (AQ_1) is positively correlated with existence of audit committee dummy variable (AQ_5) in all clusters. Auditor switch dummy variable (AQ_3) is negatively correlated with existence of audit committee dummy variable (AQ_5) in all clusters. Existence of audit committee dummy variable (AQ_5) is positively correlated with crisis period dummy variable (CRISIS) in all clusters.

Concerning the correlation matrix of regression equation 46 in pre crisis period, the results reveal that financial leverage (LEVERAGE) is negatively correlated with loss avoidance (EQ_9) in all clusters. Corporate size (CORPSIZE) is positively correlated with natural log of net income before extraordinary items (LNNIBE), cash flow from operations (CFO), R&D expense (RND) and loss avoidance (EQ_9), and negatively correlated with profitability (INCR) in all clusters. Natural log of net income before extraordinary items (LNNIBE) is positively correlated with profitability (PROFIT), profitability (INCR), cash flow from operations (CFO) and loss avoidance (EQ_9), and negatively correlated with accruals quality measured by Dechow et al (1995) (EQ_4) in all clusters. Earnings per share (EPS) is positively correlated with change in earnings per share (ΔEPS) and profitability (PROFIT) in all clusters. Change in earnings per share (ΔEPS) is negatively correlated with profitability (INCR) in all clusters. Profitability (PROFIT) is positively correlated with profitability (INCR) and negatively correlated with R&D expense (RND) in all clusters. Profitability (INCR) is negatively correlated with R&D expense (RND) in all clusters. Value relevance (EQ_3) is negatively correlated with earnings persistence (EQ_7) in all clusters. Accruals quality measured by Dechow et al (1995) (EQ_4) is positively correlated with accruals quality measured by McNichols (2002) (EQ_5) and negatively correlated with earnings smoothness (EQ_{10}) in all clusters. Accruals quality measured by McNichols (2002) (EQ_5) is negatively

correlated with earnings smoothness (EQ_{10}) in all clusters. Accruals quality measured by Kothari et al (2005) (EQ_6) is negatively correlated with earnings smoothness (EQ_{10}) in all clusters. Earnings predictability (EQ_8) is negatively correlated with earnings smoothness (EQ_{10}) in all clusters.

Similarly, concerning the correlation matrix of regression equation 46 in crisis period, the results reveal that corporate size (CORPSIZE) is positively correlated with natural log of net income before extraordinary items (LNNIBE) and R&D expense (RND), and negatively correlated with profitability (INCR) in all clusters. Profitability (PROFITABILITY) is positively correlated with natural log of net income before extraordinary items (LNNIBE) in all clusters. Interest coverage (INTCOV) is positively correlated with natural log of net income before extraordinary items (LNNIBE) in all clusters. Natural log of net income before extraordinary items (LNNIBE) is positively correlated with profitability (PROFIT), profitability (INCR) and R&D expense (RND), and negatively correlated with accruals quality measured by McNichols (2002) (EQ_5) in all clusters. Change in earnings per share (ΔEPS) is positively correlated with earnings predictability (EQ_8) and earnings smoothness (EQ_{10}) in all clusters. Profitability (PROFIT) is positively correlated with profitability (INCR) and loss avoidance (EQ_9), and negatively correlated with R&D expense (RND) in all clusters. Profitability (INCR) is negatively correlated with R&D expense (RND) and earnings smoothness (EQ_{10}) in all clusters. R&D expense (RND) is positively correlated with accruals quality measured by McNichols (2002) (EQ_5) and accruals quality measured by Kothari et al (2005) (EQ_6) in all clusters. Ex post conservatism (EQ_1) is positively correlated with accruals quality measured by Dechow et al (1995) (EQ_4), accruals quality measured by McNichols (2002) (EQ_5) and accruals quality measured by Kothari et al (2005) (EQ_6) in all clusters. Accruals

quality measured by Dechow et al (1995) (EQ_4) is positively correlated with accruals quality measured by McNichols (2002) (EQ_5) and negatively correlated with earnings predictability (EQ_8) in all clusters. Accruals quality measured by McNichols (2002) (EQ_5) is negatively correlated with earnings persistence (EQ_7) and earnings predictability (EQ_8) in all clusters.

6.4. Regression analysis

6.4.1. Earnings quality under financial crisis of 2008

The correlation analysis suggests that earnings quality is affected at times of macroeconomic crisis, like financial crisis of 2008. However, the results are mixed as ex post conservatism (EQ_1), accruals quality (EQ_4, EQ_5 and EQ_6), and earnings predictability (EQ_8) are negatively influenced by financial crisis of 2008 while value relevance (EQ_3), earnings persistence (EQ_7), and earnings smoothness (EQ_{10}) are positively related to the CRISIS dummy variable. To strengthen the findings in previous sections, the paper uses multiple regression analysis to examine the influence of financial crisis of 2008 on earnings quality. The results are presented in Table 7 where Panels A to J refer to each earnings quality attribute.

6.4.1.1. Earnings conservatism under financial crisis of 2008

Table 7 Panel A reports multiple regressions between ex post conservatism (EQ_1) and crisis period dummy variable (CRISIS). The results show that the crisis period dummy variable (CRISIS) coefficients for all clusters are significant and has negative values of -2,081** for cluster 1, -0,851** for cluster 2, and -1,818** for cluster 3. It means that consistent with $\boldsymbol{H_1}$, the ex post conservatism (EQ_1) in years of financial crisis of 2008 is significantly higher than the degree of conservatism in the

years before the financial crisis of 2008. Moreover, these results support the findings of Warganegara and Vionita (2010), Francis et al (2013), and Kousenidis et al (2013) which implies that in an attempt to cope with bad news, like financial crisis of 2008, managers have an incentive to choose more aggressive conservatism during financial crisis. Cluster 1 displays lower R^2, reflecting lower proportion of variance in the ex post conservatism (EQ_1) which can be explained by independent variables than the other clusters since cluster 1 is characterized by strong investor protection.

Table 7 Panel B reports multiple regressions between ex ante conservatism (EQ_2) and crisis period dummy variable (CRISIS). Inconsistent with $\boldsymbol{H_1}$, the crisis period dummy variable (CRISIS) coefficients (0,011 for cluster 1, -16,020 for cluster 2, -0,005 for cluster 3) for all clusters are not statistically significant with ex ante conservatism (EQ_2). In other words, the observed results do not comply with theoretical expectations. Despite the fact that there is an increase of ex ante conservatism (EQ_2) during the financial crisis of 2008, crisis period dummy variable (CRISIS) has no any affection on this. The R^2 appears to be slightly lower in cluster 1 than in clusters 2 and 3 due to high level of shareholder protection.

Examining control variables, consistent with Lev (1983), Lipe (1990), Ali and Hwang (2000), Dechow and Dichev (2002), Klein (2002), Ball et al (2003), Doyle et al (2007), Cohen (2008), Jiang and Anandarajan (2009), Cahan et al (2009), Gaio (2010), Yunos et al (2010), Valipour and Moradbeygi (2011), Chen et al (2011), and Lee and Swenson (2011), Table 7 Panels A and B indicate that coefficients of sales volatility (SV), cash flow from operations volatility (CFOV), economic development (GDP), financial development (MCAP), market concentration using Herfindahl – Hirschman index (HERF) and corporate size (CORPSIZE) are statistically significant with ex post conservatism (EQ_1) and ex ante conservatism (EQ_2) in all clusters.

However, the findings are shown more stringent in countries in clusters 2 and 3 since they are characterized by low investor protection.

(Insert Table 7 Panels A and B here)

6.4.1.2. Value relevance under financial crisis of 2008

Table 7 Panel C reports multiple regressions between value relevance (EQ_3) and crisis period dummy variable (CRISIS). The results are mixed and consistent with the findings from Iatridis (2010) and Kousenidis et al (2013). For cluster 1, which is characterized by strong investor protection, it presents lower scope for earnings manipulation which in turn it is interpreted by higher earnings quality or higher value relevance (-0,158**). On contrary, for clusters 2 and 3, which are characterized by weak shareholder protection, the crisis period dummy variable (CRISIS) coefficient is significant and have positive values of 0,021** for cluster 2, and 0,180** for cluster 3. Thus, the results from the Table 7 Panel C provide support for $\boldsymbol{H_2}$ for clusters 2 and 3 and inconsistency for $\boldsymbol{H_2}$ for cluster 1. The R^2 is higher in clusters 2 and 3 than in cluster 1 due to low level of shareholder protection.

Examining control variables, consistent with Lev (1983), Ali and Hwang (2000), Dechow and Dichev (2002), Ball et al (2003), Doyle et al (2007), Cohen (2008), Jiang and Anandarajan (2009), Cahan et al (2009), Gaio (2010), Yunos et al (2010), Valipour and Moradbeygi (2011), Chen et al (2011), Lee and Swenson (2011), and Houque et al (2012), Table 7 Panel C shows that coefficients of sales volatility (SV), cash flow from operations volatility (CFOV), financial distress dummy variable (LAGLOSS), market share (MASH), the market beta coefficient (BETA), economic development (GDP), financial development (MCAP) and market concentration using Herfindahl – Hirschman index (HERF) are statistically significant

with value relevance (EQ_3) in all clusters. However, the results are shown more severe in countries in clusters 2 and 3 since they are characterized by low shareholder protection.

(Insert Table 7 Panel C here)

6.4.1.3. Accruals quality under financial crisis of 2008

Table 7 Panels D, E and F reports multiple regressions between accruals quality measured by Dechow et al (1995), McNichols (2002) and Kothari et al (2005) (EQ_4, EQ_5, and EQ_6 respectively) and crisis period dummy variable (CRISIS). Consistent with $\boldsymbol{H_3}$ the results in Table Panels D, E and F indicate that accruals quality measured by Dechow et al (1995) (EQ_4) (-3,883** for cluster 1, -148,487** for cluster 2, -0,190** for cluster 3), accruals quality measured by McNichols (2002) (EQ_5) (-0,637** for cluster 1, -45,014** for cluster 2, -0,150** for cluster 3), accruals quality measured by Kothari et al (2005) (EQ_6) (-2,801** for cluster 1, -149,216** for cluster 2, -0,192** for cluster 3) is negatively associated with crisis period dummy variable (CRISIS). These results support the findings of Ahmed et al (2008), Filip and Laffournier (2012), Habib et al (2013) and Lu (2012) which implies that in an attempt to cope with the financial crisis period of 2008-2009, firms book more accruals to depress earnings so as to improve performance after depression. The R^2 appears to be higher in clusters 2 and 3 than in cluster 1.

Examining control variables, consistent with Lev (1983), Lipe (1990), Ali and Hwang (2000), Klein (2002), Dechow and Dichev (2002), Ball et al (2003), Doyle et al (2007), Cohen (2008), Jiang and Anandarajan (2009), Cahan et al (2009), Yunos et al (2010), Gaio (2010), Valipour and Moradbeygi (2011), Chen et al (2011), and Lee and Swenson (2011), Table 7 Panels D, E and F indicate that coefficients of corporate

size (CORPSIZE), sales volatility (SV), cash flow from operations volatility (CFOV), proxy for a bad news dummy variable (DR), economic development (GDP), financial development (MCAP) and market concentration using Herfindahl – Hirschman index (HERF) are statistically significant with accruals quality measured by Dechow et al (1995), McNichols (2002) and Kothari et al (2005) (EQ_4, EQ_5, and EQ_6 respectively) in all clusters. However, the findings are shown more rigorous in countries in clusters 2 and 3 since they are characterized by low investor protection.

(Insert Table 7 Panels D, E and F here)

6.4.1.4. Earnings persistence under financial crisis of 2008

Table 7 Panel G reports multiple regressions between earnings persistence (EQ_7) and crisis period dummy variable (CRISIS). The coefficients of crisis period dummy variable (CRISIS) 0,014** for cluster 1, 7,898** for cluster 2, and 0,061** for cluster 3 are significantly positive, thus it supports ***H4*** in that the value of earnings persistence (EQ_7) in years of financial crisis of 2008 is significantly low in all clusters. It means that managers have incentives to appear higher values of persistence which indicate high levels of earnings persistence and more transitory earnings. The R^2 is higher in cluster 1 than in clusters 2 and 3.

Examining control variables, consistent with Lev (1983), Lipe (1990), Ali and Hwang (2000), Klein (2002), Dechow and Dichev (2002), Ball et al (2003), Doyle et al (2007), Jiang and Anandarajan (2009), Cahan et al (2009), Gaio (2010), Yunos et al (2010), Valipour and Moradbeygi (2011), Chen et al (2011), Lee and Swenson (2011), and Houque et al (2012), Table 7 Panel G indicates that coefficients of corporate size (CORPSIZE), sales volatility (SV), cash flow from operations volatility (CFOV), financial distress dummy variable (LAGLOSS), market share (MASH),

proxy for a bad news dummy variable (DR), the market beta coefficient (BETA), economic development (GDP) and financial development (MCAP) are statistically significant with earnings persistence (EQ_7) in all clusters. However, the results are shown more stringent in countries in clusters 2 and 3 since they are characterized by low investor protection.

(Insert Table 7 Panel G here)

6.4.1.5. Earnings predictability under financial crisis of 2008

Table 7 Panel H reports multiple regressions between earnings predictability (EQ_8) and crisis period dummy variable (CRISIS). The impact of the financial crisis of 2008 on earnings predictability (EQ_8) can be assessed through the statistically significant coefficients of -40,539** for cluster 1, -205,049** for cluster 2, and -1,045** for cluster 3. The results confirm the research hypothesis $\boldsymbol{H_5}$ which indicate that the high variance of earnings shocks during the financial crisis of 2008 equals to low of the earnings predictability (EQ_8). The R^2 is lower in cluster 1 than in clusters 2 and 3.

Examining control variables, consistent with Lev (1983), Ali and Hwang (2000), Dechow and Dichev (2002), Ball et al (2003), Doyle et al (2007), Cohen (2008), Jiang and Anandarajan (2009), Cahan et al (2009), Yunos et al (2010), Gaio (2010), Lee and Swenson (2011), Valipour and Moradbeygi (2011), Chen et al (2011), and Houque et al (2012), Table 7 Panel H shows that coefficients of sales volatility (SV), cash flow from operations volatility (CFOV), financial distress dummy variable (LAGLOSS), market share (MASH), proxy for a bad news dummy variable (DR), the market beta coefficient (BETA), economic development (GDP), financial development (MCAP) and market concentration using Herfindahl –

Hirschman index (HERF) are statistically significant with earnings predictability (EQ_8) in all clusters. However, the findings are shown more severe in countries in clusters 2 and 3 since they are characterized by low shareholder protection.

(Insert Table 7 Panel H here)

6.4.1.6. Loss avoidance analysis under financial crisis of 2008

Table 7 Panel I reports multiple regressions between loss avoidance (EQ_9) and crisis period dummy variable (CRISIS). Inconsistent with ***H_6***, the results indicate that loss avoidance is not associated with crisis period dummy variable (CRISIS). The R^2 is lower in cluster 1 than in clusters 2 and 3.

On contrary, examining control variables, consistent with Jiang and Anandarajan (2009), Prawitt et al (2009), Kim and Qi (2010), Gaio (2010), Lee and Swenson (2011), Table 7 Panel I indicates that coefficients of corporate profitability (CORPROFIT), the product of annual stock return and the proxy of bad news (R*DR) and economic development (GDP) are statistically significant with loss avoidance (EQ_9) in all clusters. However, the results are shown more rigorous in countries in clusters 2 and 3 since they are characterized by low investor protection.

(Insert Table 7 Panel I here)

6.4.1.7. Earnings smoothness under financial crisis of 2008

Table 7 Panel J reports multiple regressions between earnings smoothness (EQ_{10}) and crisis period dummy variable (CRISIS). The results indicate that the association between crisis period dummy variable (CRISIS) and earnings smoothness (EQ_{10}) are mixed. Inconsistent with ***H_7***, in cluster 1, earnings smoothness (EQ_{10}) is negatively associated with crisis period dummy variable (CRISIS). It means that

managers follow real smoothing which achieve more useful earnings number. Thus, using real smoothing, earnings quality is increased. On contrary, consistent with the prediction, the results reveal a positive and significant association between earnings smoothness (EQ_{10}) and crisis period dummy variable (CRISIS) (0,305** for cluster 2, 0,112** for cluster 3). Hence, similarly with Vladu (2013) and Filip and Raffournier (2012), $\boldsymbol{H_7}$ is accepted. In other words, in clusters 2 and 3, in an attempt to make earnings look less variable over crisis period, managers artificially smooth earnings which indicate poor quality of earnings. This result supports the hypothesis of Barth et al (2008) that managers responds to a negative cash flow stream by increasing accruals. The R^2 is higher in cluster 1 than in clusters 2 and 3.

Examining control variables, consistent with Lev (1983), Ali and Hwang (2000), Dechow and Dichev (2002), Ball et al (2003), Doyle et al (2007), Jiang and Anandarajan (2009), Cahan et al (2009), Gaio (2010), Yunos et al (2010), Lee and Swenson (2011), Valipour and Moradbeygi (2011), Chen et al (2011), and Houque et al (2012), Table 7 Panel J indicates that coefficients of sales volatility (SV), cash flow from operations volatility (CFOV), financial distress dummy variable (LAGLOSS), market share (MASH), annual stock return (R), the product of annual stock return and the proxy of bad news (R*DR), economic development (GDP) and financial development (MCAP) are statistically significant with earnings smoothness (EQ_{10}) in all clusters. However, the findings are shown more stringent in countries in clusters 2 and 3 since they are characterized by low investor protection.

(Insert Table 7 Panel J here)

6.4.2. The joint effect of global financial crisis of 2008 and investor protection on audit quality

The multiple regression results for the joint effect of financial crisis of 2008 and investor protection on audit quality are reported in Table 7 Panels K, L, M, N, O and P. Six regression models are reported in which each audit quality measure is tested one at a time for each cluster. All models are significant for each audit quality variable and for each cluster.

First, we evaluate the association between investor protection and audit quality and then we evaluate the impact of financial crisis of 2008 on audit quality. Finally, after observing these effects, we evaluate the joint effect of financial crisis of 2008 and investor protection on audit quality for each cluster.

6.4.2.1. Investor protection and audit quality

Table 3 Panels K, L, M, N, O and P report that there is an ambiguous relationship between investor protection ($Invpr_k$) and audit quality (AQ_k) among clusters. Particularly, Table 7 Panel K shows that there is no association between audit fees (AQ_1) and investor protection ($Invpr_k$) since the coefficients are insignificant. Consequently, $\boldsymbol{H_8}$ is rejected for all clusters.

Table 7 Panel L reports that there is positive and significant association between transparency of government policymaking ($INVPR_3$) (0,395***), efficacy of corporate boards ($INVPR_5$) (0,103**) and strength of investor protection ($INVPR_7$) (0,018**) for cluster 1, property rights ($INVPR_1$) (0,022***), judicial independence ($INVPR_2$) (0,019**), protection of minority shareholders' interests ($INVPR_6$) (0,025***) and legal rights index ($INVPR_8$) (0,005***) for cluster 2, and judicial independence ($INVPR_2$) (0,019***), transparency of government policymaking

($INVPR_3$) (0,030***), strength of investor protection ($INVPR_7$) (0,013**) and legal rights index ($INVPR_8$) (0,016*) for cluster 3 and modified audit report opinion dummy variable (AQ_2). On contrary, there is negative and significant association between property rights ($INVPR_1$) (-0,260***), judicial independence ($INVPR_2$) (-0,073*), protection of minority shareholders' interests ($INVPR_6$) (-0,141***) and legal rights index ($INVPR_8$) (-0,020**) for cluster 1, transparency of government policymaking ($INVPR_3$) (-0,041***), strength of auditing and reporting standards ($INVPR_4$) (-0,027***), efficacy of corporate boards ($INVPR_5$) (-0,031***) and strength of investor protection ($INVPR_7$) (-0,006***) for cluster 2 and efficacy of corporate boards ($INVPR_5$) (-0,053**) for cluster 3 and modified audit report opinion dummy variable (AQ_2). Consequently, the above positive signs of investor protection ($INVPR_k$) indicate that firms with strong investor protection and legal enforcement are more preferable for qualified audit opinion and therefore $\boldsymbol{H_8}$ is accepted.

Table 7 Panel M reports that the positive signs of coefficients of judicial independence ($INVPR_2$) (0,070***) and strength of auditing and reporting standards (INVPR4) (0,065***) for cluster 1, property rights ($INVPR_1$) (0,230***), efficacy of corporate boards ($INVPR_5$) (0,152***) and strength of investor protection ($INVPR_7$) (0,017***) for cluster 2, and protection of minority shareholders' interests ($INVPR_6$) (0,236***) and legal rights index ($INVPR_8$) (0,045**) for cluster 3 with auditor switch dummy variable (AQ_3) implies that lower investor protection may lead to firms' switching to non Big 4 auditors. Hence, $\boldsymbol{H_8}$ is accepted. On contrary, $\boldsymbol{H_8}$ is rejected in the case of negative signs of property rights ($INVPR_1$) (-0,039*), transparency of government policymaking ($INVPR_3$) (-0,050*), protection of minority shareholders' interests ($INVPR_6$) (-0,066***) and strength of investor protection ($INVPR_7$) (-0,020***) for cluster 1, judicial independence ($INVPR_2$) (-0,018***), transparency of

government policymaking ($INVPR_3$) (-0,087***), strength of auditing and reporting standards ($INVPR_4$) (-0,094***), protection of minority shareholders' interests ($INVPR_6$) (-0,123***) and legal rights index ($INVPR_8$) (-0,003***) for cluster 2 and strength of investor protection ($INVPR_7$) (-0,032*) for cluster 3.

As shown in Table 7 Panel N, the coefficients of property rights ($INVPR_1$) (0,165***), transparency of government policymaking ($INVPR_3$) (0,187***), efficacy of corporate boards ($INVPR_5$) (0,150***) and strength of investor protection ($INVPR_7$) (0,081***) for cluster 1, judicial independence ($INVPR_2$) (0,249***), transparency of government policymaking ($INVPR_3$) (0,200***) and protection of minority shareholders' interests ($INVPR_6$) (0,246***) for cluster 2, and property rights ($INVPR_1$) (0,205***), judicial independence ($INVPR_2$) (0,080*), strength of auditing and reporting standards ($INVPR_4$) (0,369***) and strength of investor protection ($INVPR_7$) (0,106***) for cluster 3 are positive and statistically significant with status of audit firm dummy variable (AQ_4). Therefore, consistent with Francis et al (2003), ***H_8*** is accepted which implies that lower demand for Big 4 auditors is related with weaker investor protection. On contrary, inconsistent with ***H_8***, the coefficients of judicial independence ($INVPR_2$) (-0,276***), strength of auditing and reporting standards ($INVPR_4$) (-0,158***), protection of minority shareholders' interests ($INVPR_6$) (-0,183***), and legal rights index ($INVPR_8$) (-0,052***) for cluster 1, property rights ($INVPR_1$) (-0,386***), strength of auditing and reporting standards ($INVPR_4$) (-0,466***), efficacy of corporate boards ($INVPR_5$) (-0,307***), strength of investor protection ($INVPR_7$) (-0,013**) and legal rights index ($INVPR_8$) (-0,012***) for cluster 2, and protection of minority shareholders' interests ($INVPR_6$) (-0,462***) and legal rights index ($INVPR_8$) (-0,166***) for cluster 3 are negative and significant with modified audit report opinion dummy variable (AQ_2).

Table 7 Panel O reports that there is positive and significant association between judicial independence ($INVPR_2$) (0,078**), transparency of government policymaking ($INVPR_3$) (0,344***), strength of auditing and reporting standards ($INVPR_4$) (0,058**), efficacy of corporate boards ($INVPR_5$) (0,081**), strength of investor protection ($INVPR_7$) (0,073***) and legal rights index ($INVPR_8$) (0,022***) for cluster 1, judicial independence ($INVPR_2$) (0,207***), strength of auditing and reporting standards ($INVPR_4$) (0,175***) and efficacy of corporate boards ($INVPR_5$) (0,098***) for cluster 2, and transparency of government policymaking ($INVPR_3$) (0,037*) for cluster 3 and existence of audit committee dummy variable (AQ_5). On contrary, there is negative and significant association between property rights ($INVPR_1$) (-0,363***) and protection of minority shareholders' interests ($INVPR_6$) (-0,074*) for cluster 1, property rights ($INVPR_1$) (-0,191***), transparency of government policymaking ($INVPR_3$) (-0,059***), protection of minority shareholders' interests ($INVPR_6$) (-0,349***), strength of investor protection ($INVPR_7$) (-0,039***) and legal rights index ($INVPR_8$) (-0,023***) for cluster 2, and efficacy of corporate boards ($INVPR_5$) (-0,141**) and protection of minority shareholders' interests ($INVPR_6$) (-0,120*) for cluster 3 and existence of audit committee dummy variable (AQ_5). Consequently, the above positive signs of investor protection ($INVPR_k$) indicate that firms with strong investor protection and legal enforcement increase the appearance audit committee in firms and therefore ***H_8*** is accepted.

Table 7 Panel P reports stronger correlations between investor protection ($INVPR_k$) and demand for auditing (AQ_6). All investor protection indexes for clusters 1 (property rights ($INVPR_1$): 0,000***, judicial independence ($INVPR_2$): 0,0000*, transparency of government policymaking ($INVPR_3$): 0,0000**, strength of auditing and reporting standards ($INVPR_4$): 0,0000**, efficacy of corporate boards ($INVPR_5$):

0,0000*, protection of minority shareholders' interests ($INVPR_6$): 0,0000***, strength of investor protection ($INVPR_7$): 0,0000*** and legal rights index ($INVPR_8$): 0,0000***) and 2 (property rights ($INVPR_1$): 0,0000***, judicial independence (INVPR2): 0,0000***, transparency of government policymaking ($INVPR_3$): 0,0000***, strength of auditing and reporting standards ($INVPR_4$): 0,000***, efficacy of corporate boards ($INVPR_5$): 0,0000***, protection of minority shareholders' interests ($INVPR_6$): 0,0000***, strength of investor protection ($INVPR_7$): 0,0000** and legal rights index ($INVPR_8$): 0,0000***), and property rights ($INVPR_1$) (0,000***), strength of investor protection ($INVPR_7$) (0,000**) and legal rights index ($INVPR_8$) (0,000***) in cluster 3 are positively correlated with demand for auditing (AQ_6). Consequently, ***H_8*** is accepted which implies that demand for auditing is lower for firms with weak investor protection. On contrary, inconsistent with ***H_8***, the coefficients of judicial independence ($INVPR_2$) (-0,000***), transparency of government policymaking ($INVPR_3$) (-0,000***) and protection of minority shareholders' interests ($INVPR_6$) (-0,000**) for cluster 3 are negative and significant with demand for auditing (AQ_6).

(Insert Table 3 Panels K, L, M, N, O and P here)

6.4.2.2. Audit quality under financial crisis of 2008

Table 7 Panels K, L, M, N, O and P report multiple regressions between audit quality (AQ_k) and crisis period dummy variable (Crisis). In contrast to our expectation and the results from Bell et al (2001), Hudaib and Cooke (2005), Hogan and Wilkins (2008) and Lin and Liu (2010), we found that there is negative impact of financial crisis of 2008 on audit quality. Specifically, inconsistent with ***H_9***, the results indicate

that status of audit firm dummy variable (AQ_4) for clusters 1 (-0,037***) and 2 (-3,703***), and auditor switch dummy variable (AQ_3) (-0,062***) and demand for auditing (AQ_6) (-0,000***) for cluster 3 are negatively correlated with crisis period dummy variable (CRISIS). The ***H_9*** is accepted for positive associations between modified audit report opinion dummy variable (AQ_2), auditor switch dummy variable (AQ_3) and demand for auditing (AQ_6) for clusters 1 (0,182***, 0,031*** and 0,0000***) and 2 (0,192**, 1,155*** and 0,000***), status of audit firm dummy variable (AQ_4) for cluster 3 (1,015***), existence of audit committee dummy variable (AQ_5) for all clusters (0,058*** for cluster 1, 0,086*** for cluster 2 and 0,048*** for cluster 3) with crisis period dummy variable (CRISIS). Finally, there is no association between audit fees (AQ_1) in all clusters and modified audit report opinion dummy variable (AQ_2) for cluster 3 with crisis period dummy variable (CRISIS).

(Insert Table 7 Panels K, L, M, N, O and P here)

6.4.2.3. The joint effect of global financial crisis of 2008 and investor protection on audit quality

Table 7 Panels K, L, M, N, O and P report the two interaction term Crisis*$Invpr_k$ which tests the audit quality across investor protection regimes during the financial crisis of 2008. The results are conflicted among audit quality measures, investor protection indexes and clusters.

Specifically, Table 7 Panel K reports that ***H_{10}*** is rejected since there is no association between audit fees (AQ_1) and two way interaction term Crisis*$Invpr_k$ due to insignificant coefficients of all interaction terms in all clusters. It means that there

is no evidence that audit fees of firms with strong investor protection and legal enforcement are affected during financial crisis.

Table 7 Panel L reports that there is positive and significant association between the interaction term of crisis period dummy variable and strength of auditing and reporting standards (Crisis*$Invpr_4$: 0,024**), the interaction term of crisis period dummy variable and efficacy of corporate boards (Crisis*$Invpr_5$: 0,116***) and the interaction term of crisis period dummy variable and legal rights index (Crisis*$Invpr_8$: 0,052**) for cluster 1, the interaction term of crisis period dummy variable and property rights (Crisis*$Invpr_1$: 0,043***), the interaction term of crisis period dummy variable and judicial independence (Crisis*$Invpr_2$: 0,030***), the interaction term of crisis period dummy variable and transparency of government policymaking (Crisis*$Invpr_3$: 0,016**) and the interaction term of crisis period dummy variable and strength of investor protection (Crisis*$Invpr_7$: 0,006***) for cluster 2 and the interaction term of crisis period dummy variable and transparency of government policymaking (Crisis*$Invpr_3$: 0,020**) for cluster 3 and modified audit report opinion dummy variable (AQ_2). On contrary, there is negative and significant association between the interaction term of crisis period dummy variable and property rights (Crisis*$Invpr_1$: -0,276***), the interaction term of crisis period dummy variable and transparency of government policymaking (Crisis*$Invpr_3$: -0,111***) and the interaction term of crisis period dummy variable and protection of minority shareholders' interests (Crisis*$Invpr_6$: -0,136***) for cluster 1, the interaction term of crisis period dummy variable and efficacy of corporate boards (Crisis*$Invpr_5$: -0,053***), the interaction term of crisis period dummy variable and protection of minority shareholders' interests (Crisis*$Invpr_6$: -0,020***) and the interaction term of crisis period dummy variable and legal rights index (Crisis*$Invpr_8$: -0,009***) for

cluster 2 and the interaction term of crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,051**) for cluster 3 and modified audit report opinion dummy variable (AQ_2). Consequently, the positive signs of interaction terms indicate that firms with strong investor protection and legal enforcement are more preferable to report a qualified opinion during financial crisis and therefore $\boldsymbol{H_{10}}$ is accepted.

Table 7 Panel M reports that the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: 0,301***), crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: 0,054***) and crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: 0,038***) for cluster 2 and the interaction term of crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: 0,216***) for cluster 3 are positive and significant with auditor switch dummy variable (AQ_3) except the interaction term of crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: -0,010**) for cluster 1, the interaction terms of crisis period dummy variable and judicial independence (Crisis*Invpr$_2$: -0,055***), crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: -0,081***), crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,193***), crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: -0,178***) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: -0,027***) for cluster 2 and the interaction term of crisis period dummy variable and property rights (Crisis*Invpr$_1$: -0,094**) for cluster 3 which are negative and significant. Thus, the positive signs of interaction terms indicate that firms with strong investor protection and legal enforcement switch to another auditor during financial crisis and therefore $\boldsymbol{H_{10}}$ is accepted.

Table 7 Panel N reports that there is positive and significant association between the interaction terms of crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: 0,115*) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,042**) for cluster 1, the interaction terms of crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,580***), crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: 0,468***), crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: 0,317***) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,067***) for cluster 2, and the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: 0,214***) and crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,318**) for cluster 3 and status of audit firm dummy variable (AQ_4). On contrary, there is negative and significant association between the interaction terms of crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: -0,049***), crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: -0,137***), crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: -0,170***) and crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: -0,045***) for cluster 1, the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: -0,429***), crisis period dummy variable and judicial independence (Crisis*Invpr$_2$: -0,282***), crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: -0,118***) and crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: -0,083***) for cluster 2, and the interaction terms of crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: -0,133**) and crisis period dummy

variable and strength of investor protection (Crisis*Invpr$_7$: -0,101***) for cluster 3 and status of audit firm dummy variable (AQ_4). Consequently, the positive signs of interaction terms indicate that firms with strong investor protection and legal enforcement are more preferable auditing by Big 4 auditors during financial crisis and therefore $\boldsymbol{H_{10}}$ is accepted.

Table 7 Panel O reports that the interaction terms of crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,049**), crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: 0,055***) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,053***) for cluster 1, the interaction terms of crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: 0,053***), crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,227***), crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: 0,298***) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,021***) for cluster 2 and the interaction term of crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,057**) for cluster 3 are positive and significant with existence of audit committee dummy variable (AQ_5) except the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: -0,344***), crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: -0,078***) and crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,080*) for cluster 1, the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: -0,060***), crisis period dummy variable and judicial independence (Crisis*Invpr$_2$: -0,177***), crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,122***) and crisis period dummy variable and strength of investor

protection (Crisis*Invpr$_7$: -0,041***) for cluster 2, and the interaction terms of crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,146**) and crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: -0,095*) for cluster 3 which are negative and significant. Thus, the positive signs of interaction terms indicate that firms with strong investor protection and legal enforcement used more audit committees during financial crisis and therefore ***H$_{10}$*** is accepted.

Table 7 Panel P reports the coefficients of the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: 0,0000*), crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,0000*) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,0000***) for cluster 1, the interaction terms of crisis period dummy variable and judicial independence (Crisis*Invpr$_2$: 0,0000*), crisis period dummy variable and investor transparency of government policymaking (Crisis*Invpr$_3$: 0,0000*), crisis period dummy variable and strength of auditing and reporting standards (Crisis*Invpr$_4$: 0,0000***), crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: 0,0000***), crisis period dummy variable and protection of minority shareholders' interests (Crisis*Invpr$_6$: 0,0000***), crisis period dummy variable and strength of investor protection (Crisis*Invpr$_7$: 0,0000***) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,0000***) for cluster 2, and the interaction terms of crisis period dummy variable and property rights (Crisis*Invpr$_1$: 0,000**) and crisis period dummy variable and legal rights index (Crisis*Invpr$_8$: 0,000***) for cluster 3 are positive and significant with demand for auditing (AQ_6) except the coefficients of the interaction term of crisis period dummy variable and efficacy of corporate boards (Crisis*Invpr$_5$: -0,000**) for cluster 1 and the interaction

term of crisis period dummy variable and transparency of government policymaking (Crisis*Invpr$_3$: -0,000*) for cluster 3 which are negative and significant. The positive signs of interaction terms indicate that firms with strong investor protection and legal enforcement need more auditing during financial crisis and therefore $\boldsymbol{H_{10}}$ is accepted.

(Insert Table 7 Panels K, L, M, N, O and P here)

6.4.2.4. Regression results of control variables

The results of control variables are similar to the findings of Kikhia (2015), Geiger and Rama (2003), Hassan and Naser (2013), Beattie et al (2001), Gonthier-Besacier and Schatt (2007), Ireland (2003), Srinidhi and Gul (2007), Nikkinen and Sahlstrom (2004), Hay et al (2006) and Chaari et al (2002). Specifically, Table 7 Panels K, L, M, N, O and P reveals that the coefficients of corporate size (CORPSIZE) is statistically significant with audit fees (AQ_1) in all clusters, profitability (PROFIT), inherent risk (IRISK) and losses dummy variable (LOSSES) are statistically significant with modified audit report opinion dummy variable (AQ_2) in all clusters, corporate size (CORPSIZE), industrial classification dummy variable (SICODE) and losses dummy variable (LOSSES) are statistically significant with auditor switch dummy variable (AQ_3) in all clusters, corporate size (CORPSIZE), industrial classification dummy variable (SICODE), accruals (ACCRUAL), inherent risk (IRISK) and losses dummy variable (LOSSES) are statistically significant with Status of audit firm (AQ_4) in all clusters, corporate size (CORPSIZE), industrial classification dummy variable (SICODE), accruals (ACCRUAL), inherent risk (IRISK) and losses dummy variable (LOSSES) are statistically significant with existence of audit committee (AQ_5) in all clusters, and corporate size (CORPSIZE), industrial classification dummy variable (SICODE), accruals (ACCRUAL) and losses

dummy variable (LOSSES) are statistically significant with demand for auditing (AQ_6) in all clusters.

(Insert Table 7 Panels K, L, M, N, O and P here)

6.4.3. The joint effect of audit quality and investor protection on earnings quality

The multiple regression results for the joint effect of audit quality and investor protection on earnings quality in pre and crisis period are reported in Table 7 Panels Q to Z and AA to AK respectively. Ten regression models are reported in which each earnings quality measure is tested one at a time for each cluster in each research period.

First, we evaluate the association between investor protection and earnings quality and then we evaluate the association between audit quality and earnings quality. Finally, after observing these effects, we evaluate the joint effect of audit quality and investor protection on earnings quality for each cluster.

6.4.3.1. Investor protection and earnings quality

Table 7 Panels Q to Z and AA to AK report multiple regressions between investor protection ($Invpr_k$) and earnings quality (EQ_k) in pre and crisis period respectively. The results indicate that this association is mixed among clusters and earnings quality attributes, and between pre and crisis period.

Consistent with ***H_{11}***, Table 7 Panels Q and AA report that judicial independence ($Invpr_2$: -1,075***), transparency of government policymaking ($Invpr_3$: -1,177***) and protection of minority shareholders' interests ($Invpr_6$: -0,714***) in

cluster 2, and transparency of government policymaking ($Invpr_7$: -168,670***) and legal rights index ($Invpr_8$: -1,158***) in cluster 3 in pre crisis period and judicial independence ($Invpr_2$: -8,439***), transparency of government policymaking ($Invpr_3$: -0,956***), protection of minority shareholders' interests ($Invpr_6$: -17,203***) and legal rights index ($Invpr_8$: -3,843***) in cluster 1, judicial independence ($Invpr_2$: -0,103***), transparency of government policymaking ($Invpr_3$: -0,112***), strength of auditing and reporting standards ($Invpr_4$: -0,556***), strength of investor protection ($Invpr_7$: -0,263***) and legal rights index ($Invpr_8$: -0,005***) in cluster 2 and property rights ($Invpr_1$: -2,944***), judicial independence ($Invpr_2$: -0,185**), transparency of government policymaking ($Invpr_3$: -0,726***), strength of auditing and reporting standards ($Invpr_4$: -3,557***), strength of investor protection ($Invpr_7$: -1,030***) and legal rights index ($Invpr_8$: -1,897***) in cluster 3 in crisis period are negatively associated with ex post conservatism (EQ_1). These results indicate that ex post conservatism is higher which implies lower earnings quality in countries with weak investor protection, irrespective of the financial crisis. Contrariwise, inconsistent with ***H_{11}***, strength of investor protection ($Invpr_7$: 0,058***) in cluster 1, property rights ($Invpr_1$: 2,842***), strength of auditing and reporting standards ($Invpr_4$: 1,257***), efficacy of corporate boards ($Invpr_5$: 1,804***) and legal rights index ($Invpr_8$: 0,517***) in cluster 2 and protection of minority shareholders' interests ($Invpr_6$: 0,729***) in cluster 3 in pre crisis period and property rights ($Invpr_1$: 10,718***), strength of auditing and reporting standards ($Invpr_4$: 4,676***), efficacy of corporate boards ($Invpr_5$: 12,378***) and strength of investor protection ($Invpr_7$: 2,244***) in cluster 1, property rights ($Invpr_1$: 0,167***), efficacy of corporate boards ($Invpr_5$: 0,185***) and protection of minority shareholders' interests ($Invpr_6$: 0,282***) in cluster 2, and efficacy of corporate boards ($Invpr_5$: 4,201***) and

protection of minority shareholders' interests ($Invpr_6$: 0,283***) in cluster 3 in crisis period are positively associated with ex post conservatism (EQ_1).

Similarly, consistent with ***H_{11}***, Table 7 Panels R and AB report that only protection of minority shareholders' interests ($Invpr_6$: -0,002*) in cluster 3 in pre crisis period and judicial independence ($Invpr_2$: -0,021**) in cluster 1, and judicial independence ($Invpr_2$: -16.603,518***) and strength of investor protection ($Invpr_7$: -12.096,693*) in cluster 2 in crisis period are negatively associated with ex ante conservatism (EQ_2). These results indicate that ex ante conservatism is higher which implies lower earnings quality in countries with weak investor protection, irrespective of the financial crisis. Contrariwise, inconsistent with ***H_{11}***, strength of auditing and reporting standards ($Invpr_4$: 39.248,335**) in cluster 2 and property rights ($Invpr_1$: 0,044**) in cluster 3 in crisis period are positively associated with ex ante conservatism (EQ_2).

Table 7 Panels S and AC report that judicial independence ($Invpr_2$: 0,349***), transparency of government policymaking ($Invpr_3$: 0,531***), strength of auditing and reporting standards ($Invpr_4$: 0,452***) and protection of minority shareholders' interests ($Invpr_6$: 0,654***) in cluster 2 and strength of auditing and reporting standards ($Invpr_4$: 0,084***) in cluster 3 in pre crisis period and transparency of government policymaking ($Invpr_3$: 2,143***), efficacy of corporate boards ($Invpr_5$: 0,877***) and Strength of investor protection ($Invpr_7$: 0,068***) in cluster 1, judicial independence ($Invpr_2$: 0,142***), strength of auditing and reporting standards ($Invpr_4$: 0,579***), protection of minority shareholders' interests ($Invpr_6$: 0,172***) and legal rights index ($Invpr_8$: 0,044***) in cluster 2, and judicial independence ($Invpr_2$: 0,089***), transparency of government policymaking ($Invpr_3$: 0,234***) and efficacy of corporate boards ($Invpr_5$: 0,892***) in cluster 3 in crisis period are positive and

significant with value relevance (EQ_3). The results provides support for ***H_{11}***, which show that value relevance is lower which implies lower earnings quality in countries with weak investor protection, irrespective of the financial crisis. Contrariwise, legal rights index ($Invpr_8$: -0,174***) in cluster 1, property rights ($Invpr_1$: -1,599***), transparency of government policymaking ($Invpr_5$: -1,647***), strength of investor protection ($Invpr_7$: -0,088***) and legal rights index ($Invpr_8$: -0,012***) in cluster 2 and protection of minority shareholders' interests ($Invpr_6$: -0,217***) and legal rights index ($Invpr_8$: -0,469***) in cluster 3 in pre crisis period and property rights ($Invpr_1$: -0,155***), judicial independence ($Invpr_2$: -2,306***), strength of auditing and reporting standards ($Invpr_4$: -0,022**), protection of minority shareholders' interests ($Invpr_6$: -1,785***) and legal rights index ($Invpr_8$: -0,011***) in cluster 1, property rights ($Invpr_1$: -0,217***), transparency of government policymaking ($Invpr_3$: -0,505***), efficacy of corporate boards ($Invpr_5$: -0,126***) and strength of investor protection ($Invpr_7$: -0,115***) in cluster 2 and property rights ($Invpr_1$: -1,015***), strength of auditing and reporting standards ($Invpr_4$: -0,660***), protection of minority shareholders' interests ($Invpr_6$: -0,056***), strength of investor protection ($Invpr_7$: -0,118***) and legal rights index ($Invpr_8$: -0,352***) in cluster 3 in crisis period are negative and significant with value relevance (EQ_3) and therefore ***H_{11}*** is rejected.

Table 7 Panels T and AD report that judicial independence ($Invpr_2$: -167,910***), transparency of government policymaking ($Invpr_3$: -622,588***) and strength of investor protection ($Invpr_7$: -37,788***) in cluster 2, and legal rights index ($Invpr_8$: -0,045***) in cluster 3 in pre crisis period and judicial independence ($Invpr_2$: -15,046***), transparency of government policymaking ($Invpr_3$: -9,621***), strength of auditing and reporting standards ($Invpr_4$: -0,294***), protection of minority

shareholders' interests ($Invpr_6$: -18,430***) and legal rights index ($Invpr_8$: -4,948***) in cluster 1, transparency of government policymaking ($Invpr_3$: -7,520***), strength of auditing and reporting standards ($Invpr_4$: -44,350***), efficacy of corporate boards ($Invpr_5$: -15,683***) and legal rights index ($Invpr_8$: -3,587***) in cluster 2, and efficacy of corporate boards ($Invpr_5$: -0,979***), protection of minority shareholders' interests ($Invpr_6$: -0,433***) and strength of investor protection ($Invpr_7$: -0,091***) in cluster 3 in crisis period are negatively correlated with accruals quality measured by Dechow et al (1995) (EQ_4). These results indicate that accruals quality is higher which implies lower earnings quality in countries with low investor protection, irrespective of the financial crisis and therefore ***H_{11}*** is accepted. Conversely, inconsistent with ***H_{11}***, strength of investor protection ($Invpr_7$: 0,177***) and legal rights index ($Invpr_8$: 1,650***) in cluster 1, property rights ($Invpr_1$: 695,737***), strength of auditing and reporting standards ($Invpr_4$: 207,502***), efficacy of corporate boards ($Invpr_5$: 439,105***), protection of minority shareholders' interests ($Invpr_6$: 228,030***) and legal rights index ($Invpr_8$: 215,765***) in cluster 2 and protection of minority shareholders' interests ($Invpr_6$: 0,020***) in cluster 3 in pre crisis period and property rights ($Invpr_1$: 23,865***), efficacy of corporate boards ($Invpr_5$: 23,138***) and strength of investor protection ($Invpr_7$: 1,814***) in cluster 1, property rights ($Invpr_1$: 10,971***), judicial independence ($Invpr_2$: 13,434***), protection of minority shareholders' interests ($Invpr_6$: 18,995***) and strength of investor protection ($Invpr_7$: 0,418**) in cluster 2 and property rights ($Invpr_1$: 0,372***), judicial independence ($Invpr_2$: 0,217***), transparency of government policymaking ($Invpr_3$: 0,172***), strength of auditing and reporting standards ($Invpr_4$: 0,427***) and legal rights index ($Invpr_8$: 0,427***) in cluster 3 in crisis period are positively correlated with accruals quality measured by Dechow et al (1995) (EQ_4).

Similarly, Table 7 Panels U and AF report that strength of investor protection ($Invpr_7$: -0,189***) in cluster 1, property rights ($Invpr_1$: -112,521***), judicial independence ($Invpr_2$: -19,595***), efficacy of corporate boards ($Invpr_5$: -144,406***) and strength of investor protection ($Invpr_7$: -14,593***) in cluster 2, and protection of minority shareholders' interests ($Invpr_6$: -0,155***) in cluster 3 in pre crisis period and judicial independence ($Invpr_2$: -5,959***), transparency of government policymaking ($Invpr_3$: -8,113***), strength of auditing and reporting standards ($Invpr_4$: -2,656***), protection of minority shareholders' interests ($Invpr_6$: -4,117***), strength of investor protection ($Invpr_7$: -0,021***) and legal rights index ($Invpr_8$: -1,628***) in cluster 1, transparency of government policymaking ($Invpr_3$: -2,115***), strength of auditing and reporting standards ($Invpr_4$: -1,972***), efficacy of corporate boards ($Invpr_5$: -0,558***), protection of minority shareholders' interests ($Invpr_6$: -4,224***) and legal rights index ($Invpr_8$: -1,181***) in cluster 2, and judicial independence ($Invpr_2$: -0,175***), transparency of government policymaking ($Invpr_3$: -0,092***) and strength of auditing and reporting standards ($Invpr_4$: -0,220***) in cluster 3 in crisis period are negatively correlated with accruals quality measured by McNichols (2002) (EQ_5). These results indicate that accruals quality is higher which implies lower earnings quality in countries with low investor protection, irrespective of the financial crisis and therefore $\boldsymbol{H_{11}}$ is accepted. Conversely, inconsistent with $\boldsymbol{H_{11}}$, legal rights index ($Invpr_8$: 0,777***) in cluster 1, and transparency of government policymaking ($Invpr_3$: 15,819***), strength of auditing and reporting standards ($Invpr_4$: 67,820***), protection of minority shareholders' interests ($Invpr_6$: 187,207***) and legal rights index ($Invpr_8$: 24,790***) in cluster 2 in pre crisis period and property rights ($Invpr_1$: 13,161***) and efficacy of corporate boards ($Invpr_5$: 10,095***) in cluster 1, property rights ($Invpr_1$: 1,930***), judicial independence:

$Invpr_2$ (3,812***) and strength of investor protection ($Invpr_7$: 0,495***) in cluster 2 and property rights ($Invpr_1$: 0,132***), efficacy of corporate boards ($Invpr_5$: 0,111***), protection of minority shareholders' interests ($Invpr_6$: 0,211***), strength of investor protection ($Invpr_7$: 0,091***) and legal rights index ($Invpr_8$: 0,029***) in cluster 3 in crisis period are positively correlated with accruals quality measured by McNichols (2002) (EQ_5).

In the same vein, Table 7 Panels V and AG report that judicial independence ($Invpr_2$: -167,515***), transparency of government policymaking ($Invpr_3$: -622,274***) and strength of investor protection ($Invpr_7$: -37,866***) in cluster 2 and legal rights index ($Invpr_8$: -0,032***) in cluster 3 in pre crisis period and judicial independence ($Invpr_2$: -11,043***), transparency of government policymaking ($Invpr_3$: -1,538***), protection of minority shareholders' interests ($Invpr_6$: -11,560***) and legal rights index ($Invpr_8$: -3,655***) in cluster 1, transparency of government policymaking ($Invpr_3$: -7,246***), strength of auditing and reporting standards ($Invpr_4$: -45,172***), efficacy of corporate boards ($Invpr_5$: -29,816***) and legal rights index ($Invpr_8$: -3,519***) in cluster 2, and efficacy of corporate boards ($Invpr_5$: -0,963***), protection of minority shareholders' interests ($Invpr_6$: -0,527***) and strength of investor protection ($Invpr_7$: -0,094***) in cluster 3 in crisis period are negatively correlated with accruals quality measured by Kothari et al (2005) EQ_6. These results indicate that accruals quality is higher which implies lower earnings quality in countries with low investor protection, irrespective of the financial crisis and therefore $\boldsymbol{H_{11}}$ is accepted. Conversely, inconsistent with $\boldsymbol{H_{11}}$, legal rights index ($Invpr_8$: 1,295***) in cluster 1, property rights ($Invpr_1$: 694,371***), strength of auditing and reporting standards ($Invpr_4$: 208,104***), efficacy of corporate boards ($Invpr_5$: 438,585***), protection of minority shareholders' interests ($Invpr_6$:

228,072***) and legal rights index ($Invpr_8$: 215,765***) in cluster 2 and protection of minority shareholders' interests ($Invpr_6$: 0,020***) in cluster 3 in pre crisis period and property rights ($Invpr_1$: 10,303***), strength of auditing and reporting standards ($Invpr_4$: 0,443***), efficacy of corporate boards ($Invpr_5$: 15,093***) and strength of investor protection ($Invpr_7$: 1,693***) in cluster 1, property rights ($Invpr_1$: 7,331***), judicial independence ($Invpr_2$: 13,324***), protection of minority shareholders' interests ($Invpr_6$: 16,679***) and strength of investor protection ($Invpr_7$: 1,186***) in cluster 2, and property rights ($Invpr_1$: 0,324***), judicial independence ($Invpr_2$: 0,219***), transparency of government policymaking ($Invpr_3$: 0,185***), strength of auditing and reporting standards ($Invpr_4$: 0,570***) and legal rights index ($Invpr_8$: 0,444***) in crisis period are positively correlated with accruals quality measured by Kothari et al (2005) (EQ_6).

Table 7 Panels W and AH report that coefficients of judicial independence ($Invpr_2$: 10,649***), transparency of government policymaking ($Invpr_3$: 35,842***) and strength of investor protection ($Invpr_7$: 1,589***) in cluster 2 in pre crisis period and coefficients of property rights ($Invpr_1$: 14,890***) and efficacy of corporate boards ($Invpr_5$: 6,642***) in cluster 1, property rights ($Invpr_1$: 0,298***), transparency of government policymaking ($Invpr_3$: 1,673***), strength of auditing and reporting standards ($Invpr_4$: 1,021***), strength of investor protection ($Invpr_7$: 0,863***) and legal rights index ($Invpr_8$: 0,535***) in cluster 2, and efficacy of corporate boards ($Invpr_5$: 2,720***), protection of minority shareholders' interests ($Invpr_6$: 13,367***) and strength of investor protection ($Invpr_7$: 3,284***) in cluster 3 in crisis period are positive and significant with earnings persistence (EQ_7). Consistent with $\boldsymbol{H_{11}}$, earnings persistence is lower which implies lower earnings quality as investor protection becomes weaker, irrespective of the financial crisis. On

contrary, inconsistent with ***H11***, the coefficients of strength of investor protection ($Invpr_7$: -0,238***) and legal rights index ($Invpr_8$: -0,589***) in cluster 1, property rights ($Invpr_1$: -43,845***), strength of auditing and reporting standards ($Invpr_4$: -9,244***), efficacy of corporate boards ($Invpr_5$: -26,699***), protection of minority shareholders' interests ($Invpr_6$: -11,050***) and legal rights index ($Invpr_8$: -12,411***) in cluster 2, and protection of minority shareholders' interests ($Invpr_6$: -0,377***) in cluster 3 in pre crisis period and the coefficients of judicial independence ($Invpr_2$: -5,626***), transparency of government policymaking ($Invpr_3$: -9,729***), strength of auditing and reporting standards ($Invpr_4$: -1,140***), protection of minority shareholders' interests ($Invpr_6$: -4,213***), strength of investor protection ($Invpr_7$: -0,043***) and legal rights index ($Invpr_8$: -1,805***) in cluster 1, judicial independence ($Invpr_2$: -0,367***), efficacy of corporate boards ($Invpr_5$: -0,577***) and protection of minority shareholders' interests ($Invpr_6$: -2,233***) in cluster 2, and property rights ($Invpr_1$: -3,013***), judicial independence ($Invpr_2$: -2,593***), transparency of government policymaking ($Invpr_3$: -1,979***), strength of auditing and reporting standards ($Invpr_4$: -12,193***) and legal rights index ($Invpr_8$: -1,006***) in cluster 3 in crisis period are negative and significant with earnings persistence (EQ_7).

Consistent with ***H11***, Table 7 Panels X and AI report that judicial independence ($Invpr_2$: -224,004***), transparency of government policymaking ($Invpr_3$: -778,334***) and strength of investor protection ($Invpr_7$: -42,870***) in cluster 2 and legal rights index ($Invpr_8$: -0,033***) in cluster 3 in pre crisis period and transparency of government policymaking ($Invpr_3$: -9,077***), efficacy of corporate boards ($Invpr_5$: -3,519***), protection of minority shareholders' interests ($Invpr_6$: -0,600***), strength of investor protection ($Invpr_7$: -2,220***), legal rights index

$Invpr_8$: -0,832***) in cluster 1, judicial independence ($Invpr_2$: -0,136***) and strength of auditing and reporting standards ($Invpr_4$: -0,281***) in cluster 2, and property rights ($Invpr_1$: -5,691***), judicial independence ($Invpr_2$: -4,256***), transparency of government policymaking ($Invpr_3$: -3,470***), strength of auditing and reporting standards ($Invpr_4$: -14,934***) and legal rights index ($Invpr_8$: -1,704***) in cluster 3 in crisis period are negatively associated with earnings predictability (EQ_8). These results indicate that earnings predictability is higher which implies lower earnings quality in countries with weak investor protection, irrespective of the financial crisis. Antithetically, inconsistent with $\boldsymbol{H_{11}}$, strength of investor protection ($Invpr_7$: 3,827**) and legal rights index ($Invpr_8$: 23,656***) in cluster 1, property rights ($Invpr_1$: 914,368***), strength of auditing and reporting standards ($Invpr_4$: 225,939***), efficacy of corporate boards ($Invpr_5$: 560,064***), protection of minority shareholders' interests ($Invpr_6$: 281,880***) and legal rights index ($Invpr_8$; 265,307***) in cluster 2 and judicial independence ($Invpr_2$: 0,005***) in cluster 3 in pre crisis period and property rights ($Invpr_1$: 11,087***), judicial independence ($Invpr_2$: 3,039***) and strength of auditing and reporting standards ($Invpr_4$: 1,748***) in cluster 1, property rights ($Invpr_1$: 0,231***), transparency of government policymaking ($Invpr_3$: 0,008**), efficacy of corporate boards ($Invpr_5$: 0,293***), protection of minority shareholders' interests ($Invpr_6$: 0,055***), strength of investor protection ($Invpr_7$: 0,035***) and legal rights index ($Invpr_8$: 0,019***) in cluster 2, and efficacy of corporate boards ($Invpr_5$: 12,152***), protection of minority shareholders' interests ($Invpr_6$: 15,542***) and strength of investor protection ($Invpr_7$: 3,406***) in cluster 3 in crisis period are positively associated with earnings predictability (EQ_8).

Table 7 Panels Y and AJ report that property rights ($Invpr_1$: -12,825*) in cluster 2 and protection of minority shareholders' interests ($Invpr_6$: -0,024***) in cluster 3 in pre crisis period and transparency of government policymaking ($Invpr_3$: -17,181**) in cluster 2, and protection of minority shareholders' interests ($Invpr_6$: -0,224**) and strength of investor protection ($Invpr_7$: -0,102***) in cluster 3 in crisis period are negatively correlated with loss avoidance (EQ_9). These results indicate that loss avoidance is higher which implies lower earnings quality in countries with low investor protection, irrespective of the financial crisis and therefore ***H_{11}*** is accepted. Contrariwise, inconsistent with ***H_{11}***, strength of investor protection ($Invpr_7$: 2,236***) in cluster 1, protection of minority shareholders' interests ($Invpr_6$: 17,423*) in cluster 2, and judicial independence ($Invpr_2$: 0,209*) and legal rights index ($Invpr_8$: 0,150**) in cluster 3 in crisis period are positively correlated with loss avoidance (EQ_9).

Finally, Table 7 Panels Z and AK report that the coefficients of strength of investor protection ($Invpr_7$: 0,045***) in cluster 1, property rights ($Invpr_1$ (0,951***), transparency of government policymaking ($Invpr_3$: 0,499***), protection of minority shareholders' interests ($Invpr_6$: 1,151***) and strength of investor protection ($Invpr_7$: 0,044***) in cluster 2, and protection of minority shareholders' interests ($Invpr_6$: 0,087***) and legal rights index ($Invpr_8$: 0,341***) in cluster 3 in pre crisis period and the coefficients of property rights ($Invpr_1$: 2,196***) and transparency of government policymaking ($Invpr_3$: 0,636*) in cluster 1, strength of auditing and reporting standards ($Invpr_4$: 0,032***), efficacy of corporate boards ($Invpr_5$: 0,633***), protection of minority shareholders' interests ($Invpr_6$: 2,159***) and legal rights index ($Invpr_8$: 0,517***) in cluster 2, and judicial independence ($Invpr_2$: 1,938***), transparency of government policymaking ($Invpr_3$: 2,741***), strength of auditing and reporting standards ($Invpr_4$: 0,435***) and legal rights index $Invpr_8$:

0,914***) in cluster 3 in crisis period are positive and significant with earnings smoothness (EQ_{10}). It means that ***H_{11}*** is accepted since earnings smoothness is lower which implies lower earnings quality in countries with weak investor protection, irrespective of the financial crisis. Contrariwise, the coefficients of legal rights index $Invpr_8$: -0,193***) in cluster 1, and judicial independence ($Invpr_2$: -1,236***), strength of auditing and reporting standards ($Invpr_4$: -0,051***), efficacy of corporate boards ($Invpr_5$: -1,283***) and legal rights index ($Invpr_8$: -0,052***) in cluster 2 in pre crisis period and the coefficients of judicial independence ($Invpr_2$: -5,860***), strength of auditing and reporting standards ($Invpr_4$: -1,142***), efficacy of corporate boards ($Invpr_5$: -1,646***), strength of investor protection ($Invpr_7$: -0,188***) and legal rights index ($Invpr_8$: -1,302***) in cluster 1, property rights ($Invpr_1$: -0,882***), judicial independence ($Invpr_2$: -0,633***), transparency of government policymaking $Invpr_3$: -1,922***) and strength of investor protection ($Invpr_7$: -0,717***) in cluster 2, and property rights ($Invpr_1$: -0,135*), efficacy of corporate boards ($Invpr_5$: -2,334***), protection of minority shareholders' interests ($Invpr_6$: -2,639***) and strength of investor protection ($Invpr_7$: -0,520***) in cluster 3 in crisis period are negative and significant with earnings smoothness (EQ_{10}) and therefore ***H_{11}*** is rejected.

(Insert Table 7 Panels Q to AK here)

6.4.3.2. Audit quality and earnings quality

Table 7 Panels Q to Z and AA to AK report multiple regressions between audit quality (AQ_k) and earnings quality (EQ_k) in pre and crisis period respectively. Likewise the results from the association between earnings quality and investor

protection, the regression results for the above linkage are mixed in relation to different measures of earnings quality.

Table 7 Panels Q and AA report that inconsistent with $\boldsymbol{H_{12}}$ there is no association between ex post conservatism (EQ_1) and audit quality (AQ_k) in all clusters in pre and crisis period. It means that any variance of audit quality has no effect on ex post conservatism (EQ_1) and therefore no effect on earnings quality.

On contrary, consistent with $\boldsymbol{H_{12}}$, Table 7 Panels R and AB report that only modified audit report opinion (AQ_2: -61,085***) in cluster 2 in pre crisis period and existence of audit committee (AQ_5: -227.140,773*) in cluster 2 in crisis period are negatively associated with ex ante conservatism (EQ_2). These results indicate that higher audit quality implies higher earnings quality (lower ex ante conservatism). Contrariwise, inconsistent with $\boldsymbol{H_{12}}$, demand for auditing (AQ_6: 63.494.947,010**) in cluster 2 in crisis period is positively associated with ex ante conservatism (EQ_2).

Table 7 Panels S and AC report that auditor switch (AQ_3) in all clusters (0,013*** in cluster 1, 0,852*** in cluster 2 and 0,986*** in cluster 3) and demand for auditing (AQ_6: 2.172,134***) in pre crisis period and modified audit report opinion (AQ_2: 0,283***), auditor switch (AQ_3: 1,358***) and existence of audit committee (AQ_5: 0,286***) in cluster 1, auditor switch (AQ_3: 0,896***), status of audit firm (AQ_4: 0,236***) and existence of audit committee (AQ_5: 0,261***) in cluster 2, and status of audit firm (AQ_4: 0,091***) in cluster 3 in crisis period are positive and significant with value relevance (EQ_3). Therefore, consistent with $\boldsymbol{H_{12}}$, higher audit quality implies higher earnings quality (higher value relevance), irrespective of the financial crisis. Contrariwise, inconsistent with $\boldsymbol{H_{12}}$, existence of audit committee (AQ_5: -0,041***) and demand for auditing (AQ_6: -29,291***) in cluster 1, modified audit report opinion (AQ_2: -0,454***), status of audit firm (AQ_4: -

0,009***) and existence of audit committee (AQ_5: -0,538***) in cluster 2 in pre crisis period and status of audit firm (AQ_4: -0,016***) in cluster 1, modified audit report opinion (AQ_2 (-0,421*) in cluster 2, and modified audit report opinion (AQ_2: -0,141***) and existence of audit committee (AQ_5: -0,052***) in cluster 3 in crisis period are negative and significant with value relevance (EQ_3).

Table 7 Panels T and AD report that the coefficients of modified audit report opinion (AQ_2: -0,983***) and auditor switch (AQ_3: -0,587***) in cluster 1, auditor switch (AQ_3: -0,628***) and existence of audit committee (AQ_5: -303,968***) in cluster 2, and modified audit report opinion (AQ_2: -0,054***), auditor switch (AQ_3: -0,358***), status of audit firm (AQ_4: -0,020***) and existence of audit committee (AQ_5: -0,195***) in cluster 3 in pre crisis period and the coefficients of status of audit firm (AQ_4: -0,095***) and demand for auditing (AQ_6: -491,169***) in cluster 1, auditor switch (AQ_3: -5,896***), status of audit firm (AQ_4: -33,927***) and existence of audit committee (AQ_5: -29,419***) in cluster 2, and status of audit firm (AQ_4: -0,150**) and demand for auditing (AQ_6: -230,732*) in cluster 3 in crisis period are negative and significant with accruals quality measured by Dechow et al (1995) (EQ_4. It means that higher audit quality implies higher earnings quality (lower accruals quality), irrespective of the financial crisis and therefore $\boldsymbol{H_{12}}$ is accepted. Conversely, the coefficients of modified audit report opinion (AQ_2: 46,359***), status of audit firm (AQ_4: 262,836***) and demand for auditing (AQ_6: 2.196.439,085***) in cluster 2 in pre crisis period and the coefficient of modified audit report opinion (AQ_2: 0,116***) and existence of audit committee (AQ_5: 1,424**) in cluster 1, and audit fees (AQ_1: 0,0000***) and modified audit report opinion (AQ_2: 45,807***) in cluster 2 in crisis period are positive and significant with accruals quality measured by Dechow et al (1995) (EQ_4). Therefore, these positive signs reveal that $\boldsymbol{H_{12}}$ is rejected.

Similarly, Table 7 Panels U and AF report that the coefficients of modified audit report opinion (AQ_2: -0,204***) in cluster 1 and auditor switch (AQ_3: -149,178***) in cluster 2 in pre crisis period and the coefficients of status of audit firm (AQ_4: -0,083***) and demand for auditing (AQ_6: -359,410***) in cluster 1, auditor switch (AQ_3: -0,383***) and status of audit firm (AQ_4: -1,075***) in cluster 2, and modified audit report opinion (AQ_2: -0,180**), status of audit firm (AQ_4: -0,141***) and existence of audit committee (AQ_5: -0,084**) in cluster 3 in crisis period are negative and significant with accruals quality measured by McNichols (2002) (EQ_5). It means that higher audit quality implies higher earnings quality (lower accruals quality), irrespective of the financial crisis and therefore $\boldsymbol{H_{12}}$ is accepted. On contrary, the coefficients of modified audit report opinion (AQ_2: 3,611***), status of audit firm (AQ_4: 52,485***) and demand for auditing (AQ_6: 11.650,810***) in cluster 2 and status of audit firm (AQ_4: 0,098***) in cluster 3 in pre crisis period and the coefficient of audit fees (AQ_1: 0,0000*), modified audit report opinion (AQ_2: 0,069***) and existence of audit committee (AQ_5: 1,173***) in cluster 1, and modified audit report opinion (AQ_2: 0,380***), existence of audit committee (AQ_5: 0,195***) and demand for auditing (AQ_6: 647,363***) in cluster 2 in crisis period are positive and significant with accruals quality measured by McNichols (2002) (EQ_5). Therefore, these positive signs reveal that $\boldsymbol{H_{12}}$ is rejected.

In the same vein, Table 7 Panels V and AG report that the coefficients of modified audit report opinion (AQ_2: -0,704***) in cluster 1, existence of audit committee (AQ_5: -303,756***) in cluster 2 and modified audit report opinion (AQ_2: -0,048***), status of audit firm (AQ_4: -0,018***) and existence of audit committee (AQ_5: -0,211***) in cluster 3 in pre crisis period and the coefficients of status of audit firm (AQ_4: -0,097***) and demand for auditing (AQ_6: -563,742***) in cluster 1,

auditor switch (AQ_3: -77,354***) and status of audit firm (AQ_4: -35,645***) in cluster 2, and modified audit report opinion (AQ_2: -0,387*) and status of audit firm (AQ_4: -0,127*) in cluster 3 in crisis period are negative and significant with accruals quality measured by Kothari et al (2005) (EQ_6). It means that higher audit quality implies higher earnings quality (lower accruals quality), irrespective of the financial crisis and therefore $\boldsymbol{H_{12}}$ is accepted. Contrariwise, the coefficients of modified audit report opinion (AQ_2: 46,362***), auditor switch (AQ_3: 57,218***), status of audit firm (AQ_4: 262,738***) and demand for auditing (AQ_6: 2.194.418,249***) in cluster 2 in pre crisis period and the coefficient of modified audit report opinion (AQ_2: 1,284**) and existence of audit committee (AQ_5: 1,862***) in cluster 1, and audit fees (AQ_1: 0,0000***) and modified audit report opinion (AQ_2: 43,002***) in cluster 2 in crisis period are positive and significant with accruals quality measured by Kothari et al (2005) (EQ_6). Therefore, these positive signs reveal that $\boldsymbol{H_{12}}$ is rejected.

Table 7 Panels W and AH report that modified audit report opinion (AQ_2: 0,398***) and auditor switch (AQ_3: 0,158***) in cluster 1, auditor switch (AQ_3: 0,0000***) and existence of audit committee (AQ_5: 16,686***) in cluster 2, and auditor switch (AQ_3: 0,001**) and status of audit firm (AQ_4: 0,232***) in cluster 3 in pre crisis period and auditor switch (AQ_3: 0,888***), status of audit firm (AQ_4: 0,034***) and demand for auditing (AQ_6: 63,329*) in cluster 1, auditor switch (AQ_3: 0,963***), status of audit firm (AQ_4: 3,989***) and existence of audit committee (AQ_5: 3,849***) in cluster 2 and auditor switch (AQ_3: 1,596***) in cluster 3 in crisis period are positively correlated with earnings persistence (EQ_7). The results indicate that consistent with H_{12}, higher audit quality implies higher earnings quality (higher earnings persistence), irrespective of the financial crisis. On contrary, inconsistent with H_{12}, existence of audit committee (AQ_5: -0,168***) in cluster 1, and modified

audit report opinion (AQ_2: -2,441***), status of audit firm (AQ_4: -15,149***) and demand for auditing (AQ_6: -119.000,277***) in cluster 2 in pre crisis period and modified audit report opinion (AQ_2: -2,638***) and existence of audit committee (AQ_5: -1,358***) in cluster 1, modified audit report opinion (AQ_2: -0,109***) in cluster 2, and modified audit report opinion (AQ_2: -0,496**), status of audit firm (AQ_4: -0,809***) and demand for auditing (AQ_6: -2.678,143**) in cluster 3 in crisis period respectively are negatively correlated with earnings persistence (EQ_7).

Table 7 Panels X and AI report that the coefficients of modified audit report opinion (AQ_2: -13,274***) in cluster 1, existence of audit committee (AQ_5: -385,098***) in cluster 2 and modified audit report opinion (AQ_2: -0,016***), status of audit firm (AQ_4: -0,006***) and demand for auditing (AQ_6: -33,574***) in pre crisis period and the coefficients of modified audit report opinion (AQ_2: -1,192**) in cluster 1, modified audit report opinion (AQ_2: -0,652**) in cluster 2 and status of audit firm (AQ_4: -1,187**) in cluster 3 in crisis period are negative and significant with earnings predictability (EQ_8). It means that higher audit quality implies higher earnings quality (lower earnings predictability), irrespective of the financial crisis and therefore $\boldsymbol{H_{12}}$ is accepted. On contrary, the coefficients of modified audit report opinion (AQ_2: 56,813***), auditor switch (AQ_3: 70,445***), status of audit firm (AQ_4: 329,972***) and demand for auditing (AQ_6: 2.789.845,851***) in cluster 2 and existence of audit committee (AQ_5: 0,116***) in cluster 3 in pre crisis period and the coefficient of auditor switch (AQ_3: 0,046**) and existence of audit committee (AQ_5: 1,038**) in cluster 1, auditor switch (AQ_3: 0,386***), status of audit firm (AQ_4: 0,204***) and existence of audit committee (AQ_5: 0,379***) in cluster 2 and modified audit report opinion (AQ_2: 4,524**) in cluster 3 in crisis period are positive

and significant with earnings predictability (EQ_8). Therefore, these positive signs reveal that $\boldsymbol{H_{12}}$ is rejected.

Consistent with $\boldsymbol{H_{12}}$, Table 7 Panels Y and AJ report that only modified audit report opinion (AQ_2: -10,057***) in cluster 2 and existence of audit committee (AQ_5: -0,436*) in cluster 3 in pre crisis period and auditor switch (AQ_3: -3,758**) in cluster 2 in crisis period are negatively associated with loss avoidance (EQ_9). These results indicate that higher audit quality implies higher earnings quality (lower loss avoidance). Contrariwise, inconsistent with $\boldsymbol{H_{12}}$, modified audit report opinion (AQ_2: 0,086*) in cluster 3 in pre crisis period and modified audit report opinion (AQ_2: 2,771*) and auditor switch (AQ_3: 1,109*) in cluster 3 in crisis period are positively associated with loss avoidance (EQ_9).

Finally, Table 7 Panels Z and AK report that auditor switch (AQ_3: 0,000***) in cluster 1, auditor switch (AQ_3: 0,008***) and status of audit firm (AQ_4: 0,166***) in cluster 2, and modified audit report opinion (AQ_2: 0,201***) and demand for auditing (AQ_6: 358,161***) in cluster 3 in pre crisis period and modified audit report opinion (AQ_2: 3,366*), auditor switch (AQ_3: 8,963***) and status of audit firm (AQ_4: 0,120***) in cluster 1, auditor switch (AQ_3: 1,285***) in cluster 2 and status of audit firm (AQ_4: 1,519***) in cluster 3 in crisis period are positive and significant with earnings smoothness (EQ_{10}). The results implies that higher audit quality implies higher earnings quality (higher earnings smoothness), irrespective of the financial crisis and therefore $\boldsymbol{H_{12}}$ is accepted. Conversely, modified audit report opinion (AQ_2: -0,033**), existence of audit committee (AQ_5: -0,044***) and demand for auditing (AQ_6: -89,537***) in cluster 2, and modified audit report opinion (AQ_2: -0,025**) and existence of audit committee (AQ_5: -1,197***) in cluster 3 in pre crisis period and existence of audit committee (AQ_5: -6,824***) and demand for auditing (AQ_6: -

306,040***) in cluster 1, and modified audit report opinion (AQ_2: -5,216***) and demand for auditing (AQ_6: -124,740**) in cluster 2 in crisis period are negative and significant with earnings smoothness (EQ_{10}) and therefore ***H_{12}*** is rejected.

(Insert Table 7 Panels Q to AK here)

6.4.3.3. The joint effect of audit quality and investor protection on earnings quality

Table 7 Panels Q to Z and AA to AK report the two interaction term AQ_k*$Invpr_k$ which tests the joint effect of audit quality and investor protection on earnings quality in pre and crisis period respectively. The results are conflicted among earnings quality attributes, investor protection indexes, clusters and research periods.

Specifically, Table 7 Panels Q and AA report that the interaction term of audit quality and investor protection (AQ_k*$Invpr_k$) is insignificant with ex post conservatism (EQ_1) in all clusters in pre crisis period and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,655**), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_{4:}$ -0,304*), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,869***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,242***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -2,058***) and existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,484***) in cluster 1, the interaction terms of modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,054**), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,114***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,082***), existence of audit committee and strength of auditing and

reporting standards (AQ_5*$Invpr_4$: -0,079***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,061***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -0,174***) and existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,075***) in cluster 2, and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -1,850**), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -2,594***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,627*) and existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,784***) in cluster 3 in crisis period are negative and significant with ex post conservatism (EQ_1). It means that there is no joint effect of audit quality and investor protection on earnings quality in pre crisis period and therefore ***H_{13}*** is rejected. Further, ***H_{13}*** is accepted for the negative interactions effects of audit quality and investor protection on earnings quality in crisis period. On contrary, inconsistent with ***H_{13}***, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 2,727***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 1,185***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,285***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,433***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,413*), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,785**) and existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,342***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,059**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,184***), existence of

audit committee and property rights (AQ_5*$Invpr_1$: 0,168***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,073***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,026***) and existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,085***) in cluster 2, and the interaction terms of modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: 1,608**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 5,636**), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,152*) and existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,205**) in cluster 3 are positively correlated with ex post conservatism (EQ_1) in crisis period.

Similarly, Table 7 Panels R and AB report that ex ante conservatism (EQ_2) is associated with the two way interaction term of audit quality and investor protection (AQ_k*$Invpr_k$) differently among clusters and between reported periods. Particularly, the interaction term of audit quality and investor protection (AQ_k*$Invpr_k$) is insignificant with ex ante conservatism (EQ_2) in all clusters in pre crisis period and the interaction terms of existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -62.968,925***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -96.382,380**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -20.507,933*) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -244.652.460,679***) in cluster 2 in crisis period with ex ante conservatism (EQ_2). Consequently, it means that lower audit quality implies lower earnings quality (higher ex ante conservatism) in countries as investor protection becomes weaker in crisis period and therefore $\boldsymbol{H_{13}}$ is accepted. Conversely, the interaction term of status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,002***) in cluster 1 in

pre crisis period, and the interaction terms of existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 143.565,768***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 683.679.813,708*) in cluster 1 and the interaction term of status of audit firm and property rights (AQ_4*$Invpr_1$: 0,049**) in cluster 3 in crisis period are positively correlated with ex ante conservatism (EQ_2), and therefore $\boldsymbol{H_{13}}$ is rejected.

Table 7 Panels S and AC report that the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,058**), auditor switch and judicial independence (AQ_3*$Invpr_2$: 0,333***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 0,258***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 0,897***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,164***) and status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,042***) in cluster 1, the interaction terms of audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,0000**), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000**), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,104***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,036**), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 68,351***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 22,863***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,026***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 0,675***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,008***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,010***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,135***), existence of audit committee and protection of

minority shareholders' interests (AQ_5*$Invpr_6$: 0,037**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 58,088***) in cluster 2, and the interaction terms of modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,317**), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,726***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,248***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,105**) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 78,629***) in cluster 3 in pre crisis period and the interaction terms of audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and strength of auditing and reporting standards (AQ_1*$Invpr_4$: 0,0000***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,725***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,052***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,012***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,016***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,092***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,010***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,088***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,022**), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,022*), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,045**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,018***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 246,405***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 35,628**) in cluster 1, the interaction

terms of audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000*), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000*), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,237***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,044***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 0,0000*), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,007*), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,055***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 0,590***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,014**), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,016***) existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,101***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,085***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,006**) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 252,222**) in cluster 2, and the interaction terms of audit fees and property rights (AQ_1*$Invpr_1$: 0,0000*), audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,0000*), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,364***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,575***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,139***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 0,0000**), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,188***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,219***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,071***), existence of audit committee and

property rights (AQ_5*$Invpr_1$: 0,082***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,103***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 104,195**), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 253,589**), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 130,766***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 66,710***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 504,996***) in cluster 3 in crisis period are positively correlated with value relevance (EQ_3). Consistent with ***H_{13}***, the results indicate that lower audit quality implies lower earnings quality (lower value relevance) in countries as investor protection becomes weaker, irrespective of the financial crisis. Antithetically, inconsistent with ***H_{13}***, the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,070**) and status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,116***) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,063*), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,116***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,014**), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -0,390***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,382***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,037***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,088***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,017***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,018***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -208,924***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -

188,280***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -99,415***) in cluster 2, and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,440**), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: -25,893***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -1,085***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -0,067*), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,023**) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -97,037***) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,039***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,020*), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,040**), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,014***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -75,296**), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,082*), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,050***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,060***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -1,652***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,108***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,026***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -110,918***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -150,606***) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,041***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,068***), modified audit report opinion and strength of investor

protection (AQ_2*$Invpr_7$: -0,029***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,103***), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,256***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -0,098***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,010***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -0,098***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,011***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,042***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,021*), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,055***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -112,800**) and demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -159,292*) in cluster 2, and the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: -0,287***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,114*), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,446***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,522***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -96,324**), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,087***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,148***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -0,141***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,062*), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,080***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,204***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,245*), existence of audit committee and

strength of investor protection (AQ_5*$Invpr_7$: -130,828***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -705,982***) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -65,005***) in cluster 3 in crisis period are negatively correlated with value relevance (EQ_3).

Table 7 Panels T and AD report that the interaction terms of auditor switch and property rights (AQ_3*$Invpr_1$: -0,522***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -1,666***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,308***) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -1.255,229**) in cluster 1, the interaction terms of audit fees and transparency of government policymaking (AQ_2*$Invpr_3$: -157,322***), audit fees and strength of investor protection (AQ_2*$Invpr_7$: -41,713**), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: -0,589***), status of audit firm and property rights (AQ_4*$Invpr_1$: -359,765***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -52,002***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -487,638***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -114,837***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -35,600***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -116,816***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -94,853***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -71,184**), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -578.511,950***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -307.130,259***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -121.988,390***) in cluster 2, and the interaction terms of auditor switch and strength of investor protection

(AQ_3*$Invpr_7$: -0,005***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,041***) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -30,093**) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -4,129***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,224***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,913***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,298***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,581***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -9,015***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,855***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,143***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -224,861**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -604,289***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -3,244***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: -8,599***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -4,427***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -3,556***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -0,627**), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -30,543***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -1,279***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -7,499***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,334***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -

9.469,813***) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: -21.762,541***) in cluster 2, and the interaction terms of audit fees and property rights (AQ_1*$Invpr_1$: -0,216**), audit fees and judicial independence (AQ_1*$Invpr_2$: -0,106*), audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: -0,112**), audit fees and strength of auditing and reporting standards (AQ_1*$Invpr_4$: -0,677***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -0,082***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,173***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,075***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,049***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,134***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,044*), demand for auditing and property rights (AQ_6*$Invpr_1$: -36,583*), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -31,308**) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: -52,865***) in cluster 3 in crisis period are negative and significant with accruals quality measured by Dechow et al (1995) (EQ_4). It means that lower audit quality implies lower earnings quality (higher accruals quality) in countries as investor protection becomes weaker, irrespective of the financial crisis and therefore $\boldsymbol{H_{13}}$ is accepted. Contrariwise, the interaction terms of auditor switch and judicial independence (AQ_3*$Invpr_2$: 0,896***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 28,963***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 1,079***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 682,969**) in cluster 1, the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 116,737***), status of audit firm and

judicial independence (AQ_4*$Invpr_2$: 73,049***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 87,208***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 852,337***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 15,334***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 109,030***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 34,222***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 33,410***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 376.661,839***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 59.768,252***) in cluster 2, and the interaction terms of auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 5,693***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,033***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,076***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,026**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,016**) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 32,301***) in cluster 3 in pre crisis period and the interaction terms of audit fees and judicial independence (AQ_1*$Invpr_2$: 0,0000*), audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,109**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 1,061***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,186***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 0,186***), status of audit firm and property rights (AQ_4*$Invpr_1$:

6,796***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,070*), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,715***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,070***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,055***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,237***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 2,428***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,454***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,161***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 681,352***), demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 1.227,813***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 486,207***) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 8,728***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 1,774***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 0,000***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,0000**), status of audit firm and property rights (AQ_4*$Invpr_1$: 22,977***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,653***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 6,688***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 5,900***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,760***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 3,208***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 1,985***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,991***), existence of audit committee and

strength of auditing and reporting standards (AQ_5*$Invpr_4$: 4,407***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 2,571***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 11.541,786**) and demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 20.002,163***) in cluster 2, and the interaction terms of audit fees and efficacy of corporate boards (AQ_1*$Invpr_5$: 0,511***), audit fees and protection of minority shareholders' interests (AQ_1*$Invpr_6$: 0,596***), audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,125***), audit fees and legal rights index AQ_1*$Invpr_8$ (0,125**), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,005*), status of audit firm and property rights (AQ_4*$Invpr_1$: 0,047***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 0,179***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,070***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,189***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 72,429***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 44,615***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 122,191***) in cluster 3 in crisis period are positive and significant with accruals quality measured by Dechow et al (1995) (EQ_4), and therefore ***H_{13}*** is rejected.

Similarly, Table 7 Panels U and AF report that the interaction terms of auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: -0,110***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -0,618***) and status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,338***) in cluster 1, the interaction terms of modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -4,375*), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -57,603***), status of audit firm and property rights

(AQ_4*$Invpr_1$: -102,197***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -10,996***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -137,825***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -3,890***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -5,969***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -17,100***) and existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -23,047***) in cluster 2, and the interaction terms of auditor switch and judicial independence (AQ_3*$Invpr_2$: -0,243***) and status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,254***) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -1,417***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -1,107***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,262***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,029***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -1,708***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -1,217***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -0,085***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,214***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,088***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,358***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,073***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -387,637***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -431,369***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -1,729***), modified audit report opinion and protection

of minority shareholders' interests (AQ_2*$Invpr_6$: -1,336***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,483***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,621***), auditor switch and property rights (AQ_3*$Invpr_1$: -5,650***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -0,216***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: -0,683***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: -1,932***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,125**), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,967***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -1,196***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,883***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -1,554***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,866***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -2.628,289***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -6.786,499***) and demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -4.467,277***) in cluster 2, and the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: -0,090**), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,062***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,063***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,290***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -0,175***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: -0,106***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -0,181***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -0,038***), status of audit firm and

property rights (AQ_4*$Invpr_1$: -0,076***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,101***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -0,083***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,025**), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,071***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,022***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,067***), demand for auditing and property rights (AQ_6*$Invpr_1$: -22,191**), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -20,899***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -8,772**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -67,029***) in cluster 3 in crisis period are negative and significant with accruals quality measured by McNichols (2002) (EQ_5). It means that lower audit quality implies lower earnings quality (higher accruals quality) in countries as investor protection becomes weaker, irrespective of the financial crisis and therefore ***H_{13}*** is accepted. On contrary, the interaction terms of auditor switch and strength of investor protection (AQ_3*$Invpr_7$ (0,077***) and status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,567***) in cluster 1, the interaction terms of audit fees and strength of auditing and reporting standards (AQ_1*$Invpr_4$: 0,0000*), audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,0000**), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000**), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 11,062***), auditor switch and judicial independence (AQ_3*$Invpr_2$: 22,185**), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 24,850**), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 11,300***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 6,386**), status of audit firm and judicial independence

(AQ_4*$Invpr_2$: 9,984***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 75,249***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 175,534***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 8,330***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 9,757***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 14,128**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 2,291**), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 5,363***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 13.759,528*) in cluster 2, and the interaction terms of auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,137***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,092***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,149***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,090***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,096*), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,041*) and existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 15,243*) in cluster 3 in pre crisis period and the interaction terms of audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,332***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,343***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,078***), auditor switch and property rights (AQ_3*$Invpr_1$: 0,700***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 2,605***), auditor switch and strength of investor protection

(AQ_3*$Invpr_7$: 0,117***), status of audit firm and property rights (AQ_4*$Invpr_1$: 3,576***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,036***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 0,330***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 4,635***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,483***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,028***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,076**), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,085**), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 1,210***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,051***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 634,586***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 174,812***) in cluster 1, the interaction terms of audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,0000**), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 1,224***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 3,914***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 0,182*), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 5,226***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 2,328***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,784***), status of audit firm and property rights (AQ_4*$Invpr_1$: 3,668***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,762***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,657***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,276***), existence of audit committee

and judicial independence (AQ_5*$Invpr_2$: 0,433***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,547***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,536***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,514***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,250***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,169***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: 1.171,019**), demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 6.460,142***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 1.933,090***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 2.624,086***) in cluster 2, and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,223***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,278***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,061***), auditor switch and property rights (AQ_3*$Invpr_1$: 0,038***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 0,188***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,175***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,065***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,246***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,095***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,024***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 0,024**), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,043***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,076***), existence of audit committee and protection of

minority shareholders' interests (AQ_5*$Invpr_6$: 0,026**), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 41,913***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 19,808***) in cluster 3 in crisis period are positive and significant with accruals quality measured by McNichols (2002) (EQ_5), and therefore ***H_{13}*** is rejected.

In the same vein, Table 7 Panels V and AG report that the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -157,282***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -41,729**), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -244,295***), status of audit firm and property rights (AQ_4*$Invpr_1$: -360,414***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -51,979***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -487,532***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -114,863***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -35,584***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -116,516***), existence of audit committee and strength of auditing and reporting standards (AQ_5*: -71,144**), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -375,109***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -577.987,637***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -306.839,202***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -121.871,278***) in cluster 2, and the interaction terms of status of audit firm and judicial independence (AQ_4*: -0,023**) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -28,980**) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and judicial independence

(AQ_2*$Invpr_2$: -0,222**), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,121*), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,026**), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,078***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -5,812***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -1,460***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,253***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,163**), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -7,047***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -2,072***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,712***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,158***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -221,920**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -911,051***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -4,696***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: -6,314***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -5,448***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -3,591***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -2,753***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: -2,997***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -5,354***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -31,454***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -5,500***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -

6,610***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -9.779,590***) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: -23.618,556***) in cluster 2, and the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: -0,262***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,153***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,144***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,768***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: -0,674***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: -0,461***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: -0,120***), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,264***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,177***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -0,111***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,080***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,204***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,050***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,153***), demand for auditing and property rights (AQ_6*$Invpr_1$: -49,430**) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -32,740**) in cluster 3 in crisis period are negative and significant with accruals quality measured by Kothari et al (2005) (EQ_6). It means that lower audit quality implies lower earnings quality (higher accruals quality) in countries as investor protection becomes weaker, irrespective of the financial crisis and therefore ***H_{13}*** is accepted. Antithetically, the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 116,699***), auditor switch and

judicial independence (AQ_3*$Invpr_2$: 200,167***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 91,738*), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 37,267*), auditor switch and legal rights index (AQ_3*$Invpr_8$: 27,506**), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 73,009***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 87,891***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 851,901***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 115,265***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 108,964***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 33,395***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 42,226***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 376.223,968***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 59.722,210***) in cluster 2, and the interaction terms of auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,017*), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,020**), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,079***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,028***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,017***) and demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: 29,946**) in cluster 3 in pre crisis period and the interaction terms of audit fees and property rights (AQ_1*$Invpr_1$: 0,0000***), audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 2,340***), modified

audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,366***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,085***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 2,720***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 1,465***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 4,003***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,794***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 1,737***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,354***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,040***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,174***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,356***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,127***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 1.418,100***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 296,886***) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 9,286***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 1,813***), auditor switch and property rights (AQ_3*$Invpr_1$: 1,768***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 3,829***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 1,517*), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 9,149***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 3,072***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 3,299***), status of audit firm and property rights (AQ_4*: 20,827***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,460**), status of audit firm and

efficacy of corporate boards (AQ_4*$Invpr_5$: 5,516***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 5,626***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,843***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 2,399***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 1,978***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,756**), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 3,744***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 1,071*), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 2,392***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,478***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 11.570,270**), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 20.826,074***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 4.079,123**) in cluster 2, and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,556***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,734***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,165***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 0,117*), auditor switch and property rights (AQ_3*$Invpr_1$: 0,324***), auditor switch and judicial independence (AQ_3*$Invpr_2$: 0,138***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 0,138***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 0,448***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,307***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,646***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,165***), status of audit firm and strength of

investor protection (AQ_4*$Invpr_7$: 0,023***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 0,043*), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,167***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,071**), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 77,116***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 44,003***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 130,557***) in cluster 3 in crisis period are positive and significant with accruals quality measured by Kothari et al (2005) (EQ_6), and therefore ***H_{13}*** is rejected.

Table 7 Panels W and AH report that there is positive association between the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,323***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,694***) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 402,085***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 8,898**), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 2,350**), status of audit firm and property rights (AQ_4*$Invpr_1$: 17,198***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 2,923***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 26,945***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 6,074***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 2,071***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 5,343***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 6,717***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: 33.663,437***), demand for auditing and transparency of

government policymaking (AQ_6*$Invpr_3$: 16.698,701***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 6.469,993***) in cluster 2 and the interaction terms of auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 0,000**), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,217***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,0000**), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,363***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,218***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 36,410**) in cluster 3 in pre crisis period and the interaction terms of audit fees and judicial independence (AQ_1*$Invpr_2$: 0,0000***), audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and strength of auditing and reporting standards (AQ_1*$Invpr_4$: 0,0000**), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 0,285***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,141***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,699***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,081***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 0,054***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,0000**), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 3,967***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,275***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 0,062***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,208***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,252***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 192,015***) and demand

for auditing and legal rights index (AQ_6*$Invpr_8$: 711,615***) in cluster 1, the interaction terms of audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000**), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 2,030***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,474***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,229***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,169***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,516***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 1,225***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 1,086***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 764,922*) in cluster 2 and the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: 3,124***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 2,279***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 1,512***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: 6,988***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,561***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,818***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 1,195***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,852***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 1,705***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,613**), demand for auditing and property rights (AQ_6*$Invpr_1$: 1.008,300***), demand for auditing and judicial independence (AQ_6*$Invpr_2$:

356,796***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 470,126**) in cluster 3 in crisis period with earnings persistence (EQ_7). Consequently, these positive signs of interaction terms indicate that lower audit quality implies lower earnings quality (higher earnings persistence) in countries with weak investor protection, irrespective of the financial crisis and therefore H_{13} is accepted. Conversely, the interaction terms of modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,097*), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,342***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -228,708***) in cluster 1, the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -6,545***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -4,153***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -47,398***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -6,531***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -6,568***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -1,869***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -1,945***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -3.334,139**) in cluster 2 and the interaction terms of status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,617***) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,113**), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -0,767***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -17,167***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -3,174***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -4,183***), status of audit

firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -2,197***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,148*), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,524***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,187**), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,283**), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -1.601,273***) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -1.397,166***) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,434***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,349**), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,341***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: -0,063**), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,173***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,422***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -1,396***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,101***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -1,194***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,110***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,746***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,736***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,070**) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -947,792*) in cluster 2, and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: -3,392***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -8,736***), modified audit report opinion and

strength of investor protection (AQ_2*$Invpr_7$: -2,325***), status of audit firm and property rights (AQ_4*$Invpr_1$: -1,707***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -2,046***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,683***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -1,258***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -0,483**), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -1,333***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,335***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -2.371,170***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -775,087***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -293,968***) in cluster 3 in crisis period are negatively correlated with earnings persistence (EQ_7) and therefore H_{13} is rejected.

Table 7 Panels X and AI report that the interaction terms of auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: -10,511***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -24,312***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -3,836***) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -24.662,950***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -192,412***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -51,667**), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -301,849***), status of audit firm and property rights (AQ_4*$Invpr_1$: -412,051***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: -65,133***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -

604,788***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -44,752***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -148,275***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -118,557***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -91,044**), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -735.453,156***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -390.063,444***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -154.973,535***) in cluster 2, and the interaction terms of auditor switch and judicial independence (AQ_3*$Invpr_2$: -0,036***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,034***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,035***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: -0,017***) and existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,008***) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,239***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -1,190***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,042***), auditor switch and transparency of government policymaking (AQ_3*: -0,262**), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: -3,307***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: -0,919***), status of audit firm and property rights (AQ_4*$Invpr_1$: -2,258***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,505***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,665***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,032***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -

0,759***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: -0,119***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -359,237***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -452,204) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,043***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,025*), auditor switch and property rights (AQ_3*$Invpr_1$: -0,036**), auditor switch and judicial independence (AQ_3*$Invpr_2$: -0,023***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -0,152***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: -0,023***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,133***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,354***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -0,084***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,188***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -0,139***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,071***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,088***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -160,107***), demand for auditing and strength of auditing and reporting standards (AQ_6*$Invpr_4$: -421,133***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -63,624**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: -99,181***) in cluster 2, and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: -6,952***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -11,186***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -2,663***), auditor switch and property rights (AQ_3*$Invpr_1$:

-5,434***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -4,662***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: -4,447***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -16,274***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -3,039***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -6,091***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -2,668***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,592***), existence of audit committee and property rights (AQ_5*$Invpr_1$: -0,707***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -1,367***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -3.064,409***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -1.214,651***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -165,883***) in cluster 3 in crisis period are negative and significant with earnings predictability (EQ_8). It means that lower audit quality implies lower earnings quality (higher earnings predictability) in countries as investor protection becomes weaker, irrespective of the financial crisis and therefore ***H_{13}*** is accepted. Antithetically, the interaction terms of auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 7,291***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 15,266***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 13.510,998***) in cluster 1, the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 143,366***), auditor switch and judicial independence (AQ_3*$Invpr_2$: 246,195***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 114,692*), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 46,494*), auditor switch and legal rights index (AQ_3*$Invpr_8$: 34,444*), status of audit firm and judicial

independence (AQ_4*$Invpr_2$: 9,961***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 75,238***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 1.068,390***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 184,814***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 145,489***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 140,309***), existence of audit committee and strength of investor protection (AQ_5*: 42,276***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 42,026***), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 482.556,405***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 75.726,825***) in cluster 2, the interaction terms of modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,009*), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,027***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,004***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 0,025***), status of audit firm and strength of investor protection (AQ_4*: 0,004***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: 5,370***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 2,231*) in cluster 3 in pre crisis period and the interaction terms of audit fees and judicial independence (AQ_1*$Invpr_2$: 0,0000*), audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000***), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 1,837***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,135***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 1,274***), modified audit report opinion and strength of investor

protection (AQ_2*$Invpr_7$: 0,221***), auditor switch and judicial independence (AQ_3*$Invpr_2$: 3,433***), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: 0,306*), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,286***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,205***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,992***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: 5,668***), status of audit firm and strength of investor protection (AQ_4*: 0,128***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,178***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,173***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,334***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,141***), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 449,194***) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 429,295***) in cluster 1, the interaction terms of audit fees and transparency of government policymaking (AQ_1*$Invpr_3$: 0,0000**), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,200***), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,034**), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,120***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 0,049***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,119***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,009***), status of audit firm and property rights (AQ_4*$Invpr_1$: 0,119***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,031***), status of audit firm and protection of minority

shareholders' interests (AQ_4*$Invpr_6$: 0,188***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,015***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,008**), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,084***), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: 0,089***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,115***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: 548,150***) and demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: 264,053***) in cluster 2, and the interaction terms of modified audit report opinion and property rights (AQ_2*: 4,026***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 2,459***), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 2,013***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: 10,818***), auditor switch and efficacy of corporate boards (AQ_3*$Invpr_5$: 15,093***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 15,660***), auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 2,887***), status of audit firm and property rights (AQ_4*$Invpr_1$: 2,528***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 2,133***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 1,596***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 1,294***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 2,041***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,518***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 2,369***), demand for auditing and property rights (AQ_6*$Invpr_1$: 1.011,396***), demand for auditing and judicial

independence (AQ_6*$Invpr_2$: 547,468***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 2.815,886***) in cluster 3 in crisis period are positive and significant with earnings predictability (EQ_8), and therefore ***H_{13}*** is rejected.

Table 7 Panels Y and AJ report that the interaction terms of existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,032*) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -45,277*) in cluster 3 in pre crisis period and the interaction term of modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: -33,247***) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -91,621***), modified audit report opinion and strength of investor protection (AQ_2*: -31,477***), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: -30,766**) and status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -18,939***) in cluster 2, and the interaction terms of modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: -0,553*) and auditor switch and legal rights index (AQ_3*$Invpr_8$: -0,185*) in cluster 3 in crisis period are negative and significant with loss avoidance (EQ_9). It means that lower audit quality implies lower earnings quality (higher earnings loss avoidance) in countries as investor protection becomes weaker, irrespective of the financial crisis and therefore ***H_{13}*** is accepted. On contrary, the interaction terms of auditor switch and strength of investor protection (AQ_3*$Invpr_7$: 0,027*) and existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,147*) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 34,451***) and modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 8,111***) in cluster 1, the interaction terms of modified audit report opinion and

efficacy of corporate boards (AQ_2*$Invpr_5$: 46,991*), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 72,849***), auditor switch and transparency of government policymaking (AQ_3*$Invpr_3$: 30,759***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 18,294***) and status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 6,647*) in cluster 2, and the interaction terms of auditor switch and property rights (AQ_3*$Invpr_1$: 0,192*) and auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,249**) in cluster 3 in crisis period are positive and significant with loss avoidance (EQ_9), and therefore $\boldsymbol{H_{13}}$ is rejected.

Finally, Table 7 Panels Z and AK report that the coefficients of the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,062*), auditor switch and property rights (AQ_3*$Invpr_1$: 0,0000**), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,154***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,084***) and demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 97,245**) in cluster 1, the interaction terms of audit fees and strength of investor protection (AQ_1*$Invpr_7$: 0,0000*), audit fees and legal rights index (AQ_1*$Invpr_8$: 0,0000*), modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: 0,355***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,090***), modified audit report opinion and legal rights index (AQ_2*$Invpr_8$: 0,074*), status of audit firm and property rights (AQ_4*$Invpr_1$: 0,669***), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,044*), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,456***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: 0,148***), status of audit firm and protection of minority

shareholders' interests (AQ_4*$Invpr_6$: 1,409***), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: 0,064*), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,086**) and existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,125*) in cluster 2 and the interaction terms of auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: 0,0000**), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,580***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 0,352***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,187***) and existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,086***) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,857**), auditor switch and judicial independence (AQ_3*$Invpr_2$: 3,758*), status of audit firm and property rights (AQ_4*$Invpr_1$: 3,233***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,880***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,587**), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,188***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: 1,167***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,354***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 396,751*) in cluster 1, the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: 0,491***), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: 0,239***), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 0,525**), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 0,225***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,140**), modified audit

report opinion and legal rights index (AQ_2*: 0,400***), status of audit firm and judicial independence (AQ_4*: 0,091***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,166***), status of audit firm and strength of auditing and reporting standards (AQ_4*: 1,007***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: 0,228***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: 0,058***), existence of audit committee and property rights (AQ_5*$Invpr_1$: 0,169***), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,213***), existence of audit committee and legal rights index (AQ_5*$Invpr_8$: 0,083***), demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: 360,776**) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 1.247,950***) in cluster 2, and the interaction terms of modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: 1,173**), modified audit report opinion and protection of minority shareholders' interests (AQ_2*$Invpr_6$: 2,957***), modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: 0,822***), auditor switch and legal rights index (AQ_3*$Invpr_8$: 0,0000**), status of audit firm and judicial independence (AQ_4*$Invpr_2$: 0,462***), status of audit firm and transparency of government policymaking (AQ_4*$Invpr_3$: 0,463***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: 0,546***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: 0,158**), existence of audit committee and protection of minority shareholders' interests (AQ_5*$Invpr_6$: 0,389***), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: 0,163***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: 149,025**), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: 136,130***) and demand for auditing and legal rights index (AQ_6*$Invpr_8$: 478,678***) in cluster 3 in crisis period

are positive and significant with earnings smoothness (EQ_{10}). It means that lower audit quality implies lower earnings quality (lower earnings smoothness) in countries with weaker investor protection, irrespective of the financial crisis and therefore $\boldsymbol{H_{13}}$ is accepted. On contrary, inconsistent with $\boldsymbol{H_{13}}$, the interaction terms of modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,061*), auditor switch and strength of auditing and reporting standards (AQ_3*$Invpr_4$: -0,582***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,141***) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -54,284**) in cluster 1, the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,228*), auditor switch and protection of minority shareholders' interests (AQ_3*$Invpr_6$: -0,852***), auditor switch and legal rights index (AQ_3*$Invpr_8$: -7,589***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -1,504***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,038***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,082**), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,166**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,040***) and demand for auditing and judicial independence (AQ_6*$Invpr_2$: -620,004**) in cluster 2, and the interaction terms of modified audit report opinion and strength of investor protection (AQ_2*$Invpr_7$: -0,106*), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,396***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,122***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -50,305**) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -27,727*) in cluster 3 in pre crisis period and the interaction terms of modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,745**), modified audit report opinion and

transparency of government policymaking (AQ_2*$Invpr_3$: -0,421***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -0,449**), modified audit report opinion and efficacy of corporate boards (AQ_2*$Invpr_5$: -0,495*), status of audit firm and judicial independence (AQ_4*$Invpr_2$: -0,911***), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -1,080***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,479*), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,539***), existence of audit committee and strength of auditing and reporting standards (AQ_5*$Invpr_4$: -0,496**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,496**) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -694,937**) in cluster 1, the interaction terms of modified audit report opinion and transparency of government policymaking (AQ_2*$Invpr_3$: -0,835***), status of audit firm and property rights (AQ_4*$Invpr_1$: -1,205***), status of audit firm and protection of minority shareholders' interests (AQ_4*$Invpr_6$: -0,432***), status of audit firm and legal rights index (AQ_4*$Invpr_8$: -0,071***), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,055*), existence of audit committee and efficacy of corporate boards (AQ_5*$Invpr_5$: -0,127**), existence of audit committee and strength of investor protection (AQ_5*$Invpr_7$: -0,126***), demand for auditing and judicial independence (AQ_6*$Invpr_2$: -417,143*), demand for auditing and transparency of government policymaking (AQ_6*$Invpr_3$: -545,023**) and demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -2.773,647***) in cluster 2, and the interaction terms of modified audit report opinion and property rights (AQ_2*$Invpr_1$: -1,007**), modified audit report opinion and judicial independence (AQ_2*$Invpr_2$: -0,923***), modified audit report opinion and transparency of government policymaking

(AQ_2*$Invpr_3$: -0,698***), modified audit report opinion and strength of auditing and reporting standards (AQ_2*$Invpr_4$: -2,219***), auditor switch and judicial independence (AQ_3*$Invpr_2$: -7,033**), status of audit firm and property rights (AQ_4*$Invpr_1$: -0,178**), status of audit firm and strength of auditing and reporting standards (AQ_4*$Invpr_4$: -0,532***), status of audit firm and efficacy of corporate boards (AQ_4*$Invpr_5$: -0,365***), status of audit firm and protection of minority shareholders' interests (AQ_4*: -1,978***), status of audit firm and strength of investor protection (AQ_4*$Invpr_7$: -0,074**), existence of audit committee and judicial independence (AQ_5*$Invpr_2$: -0,153*), existence of audit committee and transparency of government policymaking (AQ_5*$Invpr_3$: -0,358***), demand for auditing and property rights (AQ_6*$Invpr_1$: -396,442***), demand for auditing and efficacy of corporate boards (AQ_6*$Invpr_5$: -401,150*), demand for auditing and protection of minority shareholders' interests (AQ_6*$Invpr_6$: -176,159*) and demand for auditing and strength of investor protection (AQ_6*$Invpr_7$: -86,874*) in cluster 3 in crisis period are negative and significant with earnings smoothness (EQ_{10}).

(Insert Table 7 Panels Q to AK here)

6.4.3.4. Regression results of control variables in pre and crisis period

The results of control variables are similar to the findings of Becker et al (1998), Krishnan (2003), Balsam et al (2003), Zhou and Elder (2004), Chen et al (2005), Lin et al (2006), Maijoor and Vanstraelen (2006), Chia et al (2007), Caramanis and Lennox (2008), Van Tendeloo and Vanstraelen (2008), Baxter and Cotter (2009), Prawitt et al (2009), Gerayli et al (2011), Chen et al (2011), Iatridis (2012), Hamdan et al (2012), Hamdan et al (2013), Iatridis and Dimitras (2013),

Yasar (2013), Soliman and Ragab (2014), Badolato et al (2014), Gajevszky (2014) and Salleh and Haat (2014). Specifically, Table 7 Panels Q to AK reveals that a) corporate size (CORPSIZE), timely loss recognition dummy variable (LL), cash flow from operations volatility (CFOV) and total debt (DEBT) in pre crisis period, and current assets (Current), timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV), the market beta coefficient (BETA) and industrial classification dummy variable (SICODE) in crisis period are statistically significant with ex post conservatism (EQ_1) in all clusters, b) net income (NI), current assets (Current), timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in pre crisis period, and net income (NI), timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV), the market beta coefficient (BETA) and industrial classification dummy variable (SICODE) in crisis period are statistically significant with value relevance (EQ_3) in all clusters, c) cash flow from operations volatility (CFOV) in pre crisis period, and timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in crisis period are statistically significant with accruals quality measured by Dechow et al (1995) (EQ_4) in all clusters, d) timely loss recognition dummy variable (LL), corporate size (CORPSIZE) and cash flow from operations volatility (CFOV) in pre crisis period, and small profits dummy variable (SP), corporate size (CORPSIZE) and cash flow from operations volatility (CFOV) in crisis period are statistically significant with accruals quality measured by McNichols (2002) (EQ_5) in all clusters, e) cash flow from operations volatility (CFOV) in pre crisis period, and timely loss recognition dummy variable (LL), corporate size

(CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in crisis period are statistically significant with accruals quality measured by Kothari et al (2005) (EQ_6) in all clusters, f) net income (NI), timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV), total debt (DEBT), the market beta coefficient (BETA), industrial classification dummy variable (SICODE) and return on assets (ROA) in pre crisis period, and corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in crisis period are statistically significant with earnings persistence (EQ_7) in all clusters, g) net income (NI), timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in pre crisis period, and timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in crisis period are statistically significant with earnings predictability (EQ_8) in all clusters, h) corporate size (CORPSIZE) and total debt (DEBT) in pre crisis period and timely loss recognition dummy variable (LL) in crisis period are statistically significant with loss avoidance (EQ_9) in all clusters and i) timely loss recognition dummy variable (LL), corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in pre crisis period, and corporate size (CORPSIZE), cash flow from operations volatility (CFOV) and the market beta coefficient (BETA) in crisis period are statistically significant with earnings smoothness (EQ_{10}) in all clusters.

(Insert Table 7 Panels Q to AK here)

6.4.4. Cost of equity capital and audit quality under financial crisis of 2008

Table 7 Panel AL shows that $\boldsymbol{H_{14}}$ holds only for countries of cluster 2 (2,563*), implying that crisis period dummy variable (CRISIS) has positive association with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$). Moreover, from Table 7 Panel AM, the results show that the crisis period dummy variable (CRISIS) coefficients for all clusters are significant and have positive values of 0,022** for cluster 1, 0,008** for cluster 2 and 0,028** for cluster 3. It means that consistent with $\boldsymbol{H_{14}}$, cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$) is significantly higher in years of financial crisis of 2008. All these results support the findings of Mokhova (2011) which implies that the fall of global financial market at the end of October of 2008, the decrease of firm's stocks therefore their market capitalization and the rapidly increasing risks caused by instability lead to higher cost of equity capital.

The study has also found that there is controversial relationship between cost of equity capital and audit quality. Consistent with $\boldsymbol{H_{15}}$, Table 7 Panel AL reports that status of audit firm dummy variable (AQ_4) for clusters 1 (-1,475*) and 2 (-0,740**) is negatively associated with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$). In parallel, Table 7 Panel AM shows that auditor switch dummy variable (AQ_3) for cluster 2 (-0,034**) and status of audit firm dummy variable (AQ_4) (-0,062*** for cluster 1, -0,024** for cluster 2 and -0,025* for cluster 3) and existence of audit committee dummy variable (AQ_5) (-0,113*** for cluster 1, -0,083*** for cluster 2 and -0,083*** for cluster 3) for all clusters are negatively associated with cost of equity capital under PEG ratio method

introduced by Easton (2004) ($COSTOFEQUITY_2$) therefore $\boldsymbol{H_{15}}$ is accepted. Thus, these results support the findings of Easley and O' Hara (2004), Fernando et al (2010), and Chen et al (2011) which implies that the less of audit quality the higher of cost of equity capital in crisis period.

However, unlike the previous findings, modified audit report opinion dummy variable (AQ_2) for clusters 1 (2,030*) and 3 (4,140*), existence of audit committee dummy variable (AQ_5) for cluster 2 (0,297**) and audit fees (AQ_1) for cluster 1 (0,0000*) are positively associated with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) and modified audit report opinion dummy variable (AQ_2) for clusters 1 (0,033***) and 2 (0,255***) are positively associated with cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$). Consequently, $\boldsymbol{H_{15}}$ is rejected. Although the R^2 is equal among clusters in the case of cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$), the R^2 is higher in cluster 1 than in clusters 2 and 3 in the case of cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$).

Examining control variables, consistent with previous literature, Table 7 Panel AL shows that corporate size (CORPSIZE) for all clusters, book-to-market ratio (BM) and the market beta coefficient (BETA) for cluster 1, corporate natural log of market value of equity (LNMV) for cluster 2, natural log of debt to assets ratio (LNLEV) for clusters 2 and 3 and corporate dividends (DPO) for cluster 3 are statistically significant with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$), and based on results of Table 7 Panel AM, book-to-market ratio (BM), the market beta coefficient (BETA), natural log of debt to assets ratio (LNLEV), natural log of book to market ratio (LNBM), corporate size

(CORPSIZE) and classification of firm by market capitalization dummy variable (FIRM) for all clusters, natural log of debt to assets ratio (LNLEV) for cluster 1, trading volume (VOLUME) for clusters 1 and 2, total debt (DEBT) and cash flow from operations (CFO) for cluster 3 are statistically significant with cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$). However, the results are shown more severe in countries in clusters 2 and 3 since they are characterized by low shareholder protection.

(Insert Table 7 Panels AL and AM here)

6.4.5. Cost of equity capital and earnings quality under financial crisis of 2008

As shown by the linear regression results in Tables 7 Panels AN and AO, the coefficients on ex post conservatism (EQ_1) and earnings smoothness (EQ_{10}) for cluster 2 (-0,719** and -0,657** respectively), earnings persistence (EQ_7) for cluster 3 (-5,062***), and value relevance (EQ_3) and accruals quality measured by McNichols (2002 (EQ_5) for cluster 1 (-2,066** and -0,811** respectively), loss avoidance (EQ_9) for cluster 2 (-0,001**), accruals quality measured by Dechow et al (1995) (EQ_4) and earnings predictability (EQ_8) for cluster 3 (-2.155,287** and -37,134** respectively) are statistically significant and with a negative sign in pre and crisis period respectively. Therefore, consistent with Bhattacharya et al (2003), Francis et al (2004; 2005), Chan et al (2009) and McInnis (2010), these results are consistent with $\boldsymbol{H_{16}}$ and imply that cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) is negatively associated with earnings quality. However, earnings quality, measured by ex post conservatism (EQ_1) for clusters 1 (0,047*) and 3 (1,688**), value relevance (EQ_3) and accruals quality

measured by McNichols (2002 (EQ_5) for clusters 1 (12,132** and 1,389*** respectively) and 2 (7,092** and 0,030* respectively), earnings smoothness (EQ_{10}) for cluster 1 (1,060*) and accruals quality measured by Kothari et al (2005) (EQ_6) for cluster 3 (0,522**) in pre crisis period, and ex post conservatism (EQ_1) and earnings predictability (EQ_8) for cluster 1 (16,944*** and 2,323*** respectively) and value relevance (EQ_3) for cluster 2 (34,433***) in crisis period, is positively associated with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) and therefore $\boldsymbol{H_{16}}$ is rejected. The R^2 is slightly higher in cluster 3 than in clusters 1 and 2 in pre crisis period. On contrary, the R^2 is higher in cluster 1 than in clusters 2 and 3 due to high level of shareholder protection in crisis period.

Regarding the control variables, the results in Table 7 Panels AN and AO indicate that cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) is inversely associated with book-to-market ratio (BM) and cash flow from operations volatility (CFOV) for cluster 2, negative earnings realization dummy variable (NER) and collateral value or asset structure of assets (COLLATERAL) for cluster 3 in pre crisis period, and with book-to-market ratio (BM) for cluster 1 and non-debt tax shields (NON-DEBT) for cluster 2 in crisis period. On contrary, cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$) is positively associated with corporate size (CORPSIZE) for clusters 1 and 2 in pre crisis period, and with the market beta coefficient (BETA) and corporate size (CORPSIZE) for cluster 1, sales volatility (SV) for cluster 2 and industrial classification dummy variable (SICODE) for cluster 3 in crisis period.

In Table 7 Panels AP and AQ, it is reported the results of estimating the regression of earnings quality attributes on the cost of equity capital under PEG ratio

method introduced by Easton (2004) ($COSTOFEQUITY_2$) and the control variables described in regression equation 44. Consistent with ***H_{16}***, ex post conservatism (EQ_1) for all clusters (-0,119** for cluster 1, -0,048*** for cluster 2 and -0,055** for cluster 3), ex ante conservatism (EQ_2) and accruals quality measured by McNichols (2002 (EQ_5) for clusters 1 (-0,011* and -0,056*** respectively) and 2 (-0,001*** and -0,001** respectively), value relevance (EQ_3) and loss avoidance (EQ_9) for clusters 1 (-0,215* and -0,002*** respectively) and 3 (-0,102* and -0,147*** respectively), accruals quality measured by Dechow et al (1995) (EQ_4) for cluster 2 (-0,005***), accruals quality measured by Kothari et al (2005) (EQ_6) for cluster 3 (-6,235**), earnings predictability (EQ_8) for cluster 1 (-0,001***) in pre crisis period, and value relevance (EQ_3) and EQ_7 for cluster 3 (-0,168** and -0,083*** respectively), accruals quality measured by Dechow et al (1995) (EQ_4) and earnings smoothness (EQ_{10}) for cluster 1 (-0,075*** and -0,008** respectively), accruals quality measured by McNichols (2002 (EQ_5) for cluster 2 (-0,009***) and accruals quality measured by Kothari et al (2005) (EQ_6) for clusters 2 (-0,003***) and 3 (-2,470***) in crisis period are negatively associated with ex ante conservatism (EQ_2). These results enhance the findings of Bhattacharya et al (2003), Francis et al (2004; 2005), Chan et al (2009) and McInnis (2010) which implies that earnings quality attributes individually have negative effect on cost of equity capital. Contrariwise, the results in Table 7 Panels AP and AQ show an inconsistency with ***H_{16}*** for value relevance (EQ_3) and earnings predictability (EQ_8) for cluster 2 (0,528*** and 0,005*** respectively), accruals quality measured by Dechow et al (1995) (EQ_4) for cluster 3 (5,828***) and earnings persistence (EQ_7) for clusters 2 (0,030***) and 3 (0,178***) in pre crisis period, and ex ante conservatism (EQ_2), accruals quality measured by Kothari et al (2005) (EQ_6) and earnings persistence (EQ_7) for cluster 1 (1,355***, 0,065*** and 0,034***

respectively), accruals quality measured by Dechow et al (1995) (EQ_4) for clusters 2 (0,004***) and 3 (2,531***), accruals quality measured by McNichols (2002 (EQ_5) and loss avoidance (EQ_9) for clusters 1 (0,046*** and 0,0000*** respectively) and 3 (0,549*** and 0,008*** respectively), and earnings predictability (EQ_8) (0,019*** for cluster 1, 0,037** for cluster 2 and 0,083*** for cluster 3) for all clusters in crisis period which are positively associated with cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$). Likewise with cost of equity capital under constant growth model introduced by Palea (2007) ($COSTOFEQUITY_1$), according to Table 7 Panels AP and AQ, the R^2 is lower in cluster 1 than in clusters 2 and 3 in pre crisis period and the R^2 is higher in cluster 1 than in clusters 2 and 3 in crisis period.

Moreover, examining the control variables, consistent with previous literature, Table 7 Panels AP and AQ indicate that coefficients of book-to-market ratio (BM) for all clusters, financial leverage (LEVERAGE), collateral value or asset structure of assets (COLLATERAL) and liquidity (LIQUIDITY) for cluster 1, negative earnings realization dummy variable (NER) for all clusters, non-debt tax shields (NON-DEBT) for clusters 1 and 2, the market beta coefficient (BETA), growth (GROWTH) and industrial classification dummy variable (SICODE) for cluster 2, corporate size (CORPSIZE) and cash flow from operations volatility (CFOV) for clusters 2 and 3, sales volatility (SV) and profitability (PROFITABILITY) for cluster 3 in pre crisis period, and book-to-market ratio (BM), financial leverage (LEVERAGE) and collateral value or asset structure of assets (COLLATERAL) for clusters 1 and 3, corporate size (CORPSIZE) and negative earnings realization dummy variable (NER) for all clusters, non-debt tax shields (NON-DEBT) for clusters 1 and 2, industrial classification dummy variable (SICODE) and liquidity (LIQUIDITY) for cluster 1,

sales volatility (SV) for clusters 2 and 3, the market beta coefficient (BETA), growth (GROWTH) and profitability (PROFITABILITY) for cluster 3 in crisis period are statistically significant with cost of equity capital under PEG ratio method introduced by Easton (2004) ($COSTOFEQUITY_2$).

(Insert Table 7 Panels AN, AO, AP and AQ here)

6.4.6. Cost of debt and audit quality under financial crisis of 2008

Table 7 Panel AR reports multiple regressions between cost of debt, crisis period dummy variable and audit quality metrics. First, the impact of the crisis period (CRISIS) on cost of debt (COSTOFDEBT) can be assessed through the statistically significant coefficients of 0,527** for cluster 1 and 0,011** for cluster 2. Thus, consistent with Mokhova (2011), these results confirm the research hypothesis $\boldsymbol{H_{17}}$ which indicate that the total eventual losses in most economies led to the world recession which in turn have an impact on the availability of credit and as a result on the cost of debt capital.

Second, Table 7 Panel AR shows that the association between cost of debt (COSTOFDEBT) and audit quality measures can be extracted through the negative statistically significant coefficients of status of audit firm dummy variable (AQ_4) and audit fees (AQ_1) for cluster 1 (-1,173** and -0,0000** respectively), modified audit report opinion dummy variable (AQ_2) for cluster 2 (-0,004*) and existence of audit committee dummy variable (AQ_5) for cluster 3 (-0,002***). Consequently, consistent with findings from Blackwell et al (1998), Pittman and Fortin (2004), Kim et al (2011), Karjalainen (2011) and Causholli and Knechel (2012), the results provides support for $\boldsymbol{H_{18}}$ which show that there is negative association between audit quality and cost of debt. On contrary, based on the findings of Dhaliwal et al (2008), there is

inconsistency with $\boldsymbol{H_{18}}$ for modified audit report opinion dummy variable (AQ_2) for clusters 1 (1,733**) and 3 (0,0000**), auditor switch dummy variable (AQ_3) for cluster 2 (0,015**) and status of audit firm dummy variable (AQ_4) for cluster 3 (0,001***) as a result of positive association between cost of debt (COSTOFDEBT) and audit quality (expressed by modified audit report opinion dummy variable (AQ_2), auditor switch dummy variable (AQ_3) and status of audit firm dummy variable (AQ_4)). The R^2 is slightly higher in cluster 3 than in clusters 1 and 2.

Third, examining control variables, consistent with Chow and Rice (1982), Krishnan (2003), Fortin and Pittman (2007), Francis et al (2005), Dhaliwal et al (2008), Karjalainen (2011) and Causholli and Knechel (2012), Table 7 Panel AR shows that coefficients of book-to-market ratio (BM) for cluster 1, corporate size (CORPSIZE) for all clusters, natural log of market value of equity (LNMVE) for clusters 2 and 3, industrial classification dummy variable (SICODE) for cluster 2, natural log of net income before extraordinary items (LNNIBE) and collateral value or asset structure of assets (COLLATERAL) for cluster 3 are statistically significant with cost of debt (COSTOFDEBT).

(Insert Table 7 Panel AR here)

6.4.7. Cost of debt and earnings quality under financial crisis of 2008

The results from Table 7 Panels AS and AT indicate that there is ambiguity about the relationship between cost of debt and earnings quality. Consistent with Francis et al (2005) and Valipour and Moradbeygi (2011), the results from Tables 7 Panels AS and AT support $\boldsymbol{H_{19}}$ for ex post conservatism (EQ_1) and earnings persistence (EQ_7) for cluster 2 (-0,0000* and -0,0000* respectively), ex ante conservatism (EQ_2), accruals quality measured by McNichols (2002) (EQ_5) and

earnings predictability (EQ_8) for cluster 1 (-0,055*, -0,635** and -0,025* respectively), earnings smoothness (EQ_{10}) for clusters 1 (-2,465***) and 3 (-0,0000*) in pre crisis period, and ex post conservatism (EQ_1) for cluster 1 (-0,0000**), accruals quality measured by Dechow et al (1995) (EQ_4) for cluster 3 (-0,023**), earnings predictability (EQ_8) and earnings smoothness (EQ_{10}) for cluster 2 (-0,002* and -0,0000* respectively) in crisis period. It means that lower (higher) earnings quality is associated with higher (lower) cost of debt. On contrary, consistent with Fung and Goodwin (2013) and Rodriguez-Perez and Van Hemmen (2010), the coefficients of ex ante conservatism (EQ_2) and earnings persistence (EQ_7) for cluster 3 (0,001* and 0,001* respectively), accruals quality measured by Dechow et al (1995) (EQ_4) for cluster 2 (0,0000*), and loss avoidance (EQ_9) for clusters 2 (0,0000*) and 3 (0,0000**) in pre crisis period, and accruals quality measured by Dechow et al (1995) (EQ_4) and accruals quality measured by McNichols (2002) (EQ_5) for cluster 2 (0,0000** and 0,0000** respectively), accruals quality measured by Kothari et al (2005) (EQ_6) and earnings predictability (EQ_8) for clusters 1 (0,0000** and 0,0000* respectively) and 3 (0,022** and 0,0000** respectively), and earnings persistence (EQ_7) for cluster 3 (0,0000*) in crisis period are positively associated with cost of debt (COSTOFDEBT) as a result of denial of $\boldsymbol{H_{19}}$. The R^2 is slightly equal in all clusters in pre and crisis period.

The coefficients on the control variables are consistent with previous literature (see Kormedi and Lipe, 1987; Dechow et al, 1995; Ohlson, 1995; Basu, 1997; McNichols, 2002; Leuz et al, 2003; Francis et al, 2004; Francis et al, 2005; Burgstahler et al, 2006; Kothari et al, 2005; Roychowdhury and Watts, 2007; Jiang, 2008). Table 7 Panels AS and AT show that there is significant association between cost of debt (COSTOFDEBT) and financial leverage (LEVERAGE) for all clusters,

natural log of net income before extraordinary items (LNNIBE), change in earnings per share (ΔEPS) and cash flow from operations (CFO) for cluster 1, profitability (PROFITABILITY), change in earnings per share (ΔEPS) and profitability dummy variable (INCR) for cluster 2, profitability (PROFIT) for clusters 2 and 3, corporate size (CORPSIZE) and interest coverage (INTCOV) for cluster 3 in pre crisis period, and corporate size (CORPSIZE) and interest coverage (INTCOV) for cluster 1, natural log of net income before extraordinary items (LNNIBE) for clusters 1 and 2, profitability dummy variable (PROFIT) for all clusters, profitability dummy variable (INCR) for clusters 2 and 3, and change in earnings per share (ΔEPS), cash flow from operations (CFO) and R&D expense (RND) for cluster 3 in crisis period.

(Insert Table 7 Panels AS and AT here)

6.5. Summary

Consistent with previous literature, the main findings of this thesis are as follows:

- ✓ During the financial crisis of 2008, all clusters display higher conservatism (ex post and ex ante), higher accruals quality, lower earnings persistence, lower value relevance, higher earnings predictability, higher loss avoidance, and lower earnings smoothness. However, these fluctuations of the earnings quality attributes among clusters during the financial crisis differentiate due to the level of investor protection.
- ✓ The ex post conservatism in all clusters in years of financial crisis of 2008 is significantly higher than the degree of conservatism in the years before the financial crisis of 2008.

- ✓ The degree of value relevance in clusters 2 and 3 is significantly lower during the financial crisis of 2008 counter to finding in cluster 1 where value relevance is significantly higher.
- ✓ Firms book more accruals to depress earnings during financial crisis. It means that all clusters appear lower earnings quality (lower accruals quality) during financial crisis of 2008.
- ✓ Managers have incentives to appear higher values of persistence during financial crisis of 2008 which indicate high levels of earnings persistence and more transitory earnings.
- ✓ Earnings predictability appears to be lower during the financial crisis of 2008 in all clusters.
- ✓ Earnings smoothness is negatively associated with crisis dummy variable in cluster 1 and positively associated in clusters 2 and 3. With other words, on cluster 1 managers follow real smoothing (high quality of earnings) and in clusters 2 and 3 follow artificial smoothing (low quality of earnings).
- ✓ As for ex ante conservatism, and loss avoidance there is no relationship with crisis dummy variable in all clusters.
- ✓ Examining the association between audit quality and investor protection, even though the results are mixed among clusters, all measures of audit quality is positively associated with most of institutional factors of investor protection in all clusters except audit fees which is not correlated with none of investor protection indexes. Further, the results show that these correlations are stronger in clusters 1 and 2 which are characterized by higher level of investor protection in relation with cluster 3.

- ✓ Concerning the impact of financial crisis on audit quality, the results show that audit quality is lower during financial crisis in all clusters and in most of audit quality measures except from audit fees which is not correlated with crisis dummy variable in all clusters.
- ✓ The results show that investor protection and crisis dummy variable have a joint role in the production of higher audit quality numbers. With other words, audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis in all clusters except from audit fees which is not correlated with none of the interaction terms. This positive impact is shown stronger in clusters 1 and 2, since the investor protection is stricter than in cluster 3.
- ✓ The results confirm the findings of vast majority of previous literature that there is negative association between audit quality and earnings management. Further, there is strong positive association between earnings quality and investor protection. In detail, earnings quality is weaker in countries with weak investor protection in all clusters in pre and crisis period.
- ✓ The results imply that lower audit quality implies lower earnings quality in countries with weak investor protection in all clusters, irrespective of the financial crisis. The influence of this interaction term is stronger in cluster 2 which is characterized by medium investor protection.
- ✓ The financial crisis of 2008 lead in a fall of global financial markets, a decrease of firm's stocks and an increase of financial risks which in turn increase the cost of equity capital.
- ✓ Examining the relationship between audit quality and cost of equity capital, the results are mixed among clusters. However, in general, the results show that cost

of equity capital is negatively associated with firms that audited by Big Four auditors, and firms that switch auditor and positively associated with firms with a modified audit report, and audit fees.

- ✓ The results show a controversial relationship between earnings quality and cost of equity capital among clusters, but, in general, ex post conservatism and value relevance in pre crisis period and value relevance and accruals quality in crisis period are negatively associated with cost of equity.
- ✓ The results indicate a negative impact of financial crisis of 2008 on cost of debt.
- ✓ Firms that audited by Big Four auditors, audit fees, firms with a modified audit report and firms that have an audit committee have a negative association with cost of debt capital.
- ✓ The results indicate that the association between cost of debt and earnings quality are mixed among clusters. Specifically, ex post conservatism, accruals quality, earnings predictability and earnings smoothness in pre and crisis period is shown to be inversely associated with cost of debt as hypothesized.

7. Conclusion

This thesis focuses on 18 developed countries which are categorized into outsider economies with strong outsider protection and legal enforcement (cluster 1), insider economies with better legal enforcement systems (cluster 2) and insider economies with weaker legal enforcement systems (cluster 3) based on the country classification of Leuz (2010). It aims to ascertain whether the financial crisis of 2008 affected the earnings quality, its determinants and its consequences of listed firms of advanced countries as per investor protection. With other words, **first**, it investigates how this deterioration affected earnings management measured by ten different dimensions of earnings quality: ex post and ex ante conservatism, value relevance, three accruals quality measures, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness. **Second**, the joint effect of financial crisis of 2008 and investor protection on audit quality and the joint effect of audit quality and investor protection on earnings quality are examined. **In the end**, it is studied how financial crisis of 2008 and the differences in audit quality and earnings management in pre and crisis period affect cost of capital, measured by cost of equity capital and cost of debt.

In detail, nineteen hypotheses are developed to examine the research questions of this thesis. **First**, concerning the effect of financial crisis of 2008, it is expected that earnings management is increased and therefore earnings quality is decreased. **Second**, concerning how audit quality is influenced from institutional factors of investor protection in pre and crisis period jointly, it is hypothesized first, that audit quality is positively correlated with investor protection, second, audit quality is higher during financial crisis, and third, audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis. In the same vein, concerning

how earnings quality is influenced from audit quality and investor protection jointly, it is hypothesized first, that earnings quality is positively associated with audit quality, second, there is positive association between earnings quality and investor protection, and third audit quality is higher which implies that earnings quality is greater as investor protection becomes stronger, irrespective of the financial crisis. **Third**, regarding the cost of capital in the context of financial crisis of 2008, audit and earnings quality, first, it is hypothesized that the financial crisis of 2008 has rise equity beta which led to the increase of equity risk premium and therefore an increase of cost of equity capital. Moreover, regarding the affect of audit quality on cost of equity capital, it is expected a negative association. Further, it is hypothesized that there is statistically negatively reliable association between each earnings quality attribute considered individually and measures of the cost of equity capital. Third, it is expected that the total losses in most economies led to the world recession have an impact on the availability of credit as a result on the cost of debt capital. In addition, it is expected a negative association between audit quality and cost of debt. In the end, it is hypothesized that poorer earnings quality is associated with larger cost of debt.

Most of the findings are consistent with hypotheses. **First**, concerning the effect of financial crisis of 2008 on earnings quality, the main finding is a significant decrease of earnings quality in the crisis period. Therefore, in the crisis period, all clusters display higher conservatism (ex post and ex ante), higher accruals quality, lower earnings persistence, lower value relevance, higher earnings predictability, higher loss avoidance, and lower earnings smoothness. However, these fluctuations of the earnings quality attributes among clusters during the financial crisis differentiate due to the level of investor protection.

The results support the findings of Leuz et al (2003), Haw et al (2004), Burgstahler et al (2006), and Nabar and Boonlert-U-Thai (2007) who indicated that earnings quality is positively associated with investor protection while earnings management is negatively associated. Consequently, countries in cluster 1, which are characterized by high level shareholder protection, appears lower conservatism (ex ante and ex post), higher value relevance, lower accruals quality, higher earnings persistence, lower earnings predictability, lower avoidance analysis and higher earnings smoothness rather than in the countries in clusters 2 and 3.

From regression analysis, examining the relationship between earnings quality and CRISIS dummy variable, the results are mixed. Consistent with Warganegara and Vionita (2010), Francis et al (2013), and Kousenidis et al (2013), the ex post conservatism in all clusters in years of financial crisis of 2008 is significantly higher than the degree of conservatism in the years before the financial crisis of 2008. It means that in an attempt to cope with bad news, managers have an incentive to choose more aggressive conservatism during financial crisis.

Furthermore, the results are controversial examining the impact of financial crisis on value relevance. Consistent with Iatridis (2010) and Kousenidis et al (2013), the degree of value relevance in clusters 2 and 3 is significantly lower during the financial crisis of 2008 counter to finding in cluster 1 where value relevance is significantly higher.

Examining the accruals quality, the findings support the findings of Ahmed et al (2008), Filip and Laffournier (2012), Habib et al (2013) and Lu (2012) which implies that firms book more accruals to depress earnings during financial crisis. It means that all clusters appear lower earnings quality (lower accruals quality) during the financial crisis of 2008.

Similarly with value relevance, there is positive association between earnings persistence and CRISIS dummy variable in all clusters. It means that managers have incentives to appear higher values of persistence which indicate high levels of earnings persistence and more transitory earnings.

Subsequent, the results confirm the findings of Bikker and Haaf (2002) and Albertazzi and Gamabacorta (2009) who claimed that in recession period, profitability reduces and firms face higher earnings volatility. Consequently, consistent with Dichev and Tang (2009) because of the existence of negative relationship between earnings volatility and earnings predictability, earnings predictability appears to be lower during the financial crisis in all clusters.

Earnings smoothness is negatively associated with CRISIS dummy variable in cluster 1 and positively associated in clusters 2 and 3. With other words, on cluster 1 managers follow real smoothing (high quality of earnings) and in clusters 2 and 3 follow artificial smoothing (low quality of earnings).

As for ex ante conservatism, and loss avoidance there is no relationship with CRISIS dummy variable in all clusters.

Second, examining the association between audit quality and investor protection, even though the results are mixed among clusters, all measures of audit quality is positively associated with most of institutional factors of investor protection in all clusters except audit fees which is not correlated with none of investor protection indexes. Further, the results show that these correlations are stronger in clusters 1 and 2 which are characterized by higher level of investor protection in relation with cluster 3. In sum, consistent with Jaggi and Low (2011) and Leuz et al (2003), we observe that stronger protection of property rights, judiciary independent from influences of members government, citizens, or firms, financial auditing and

reporting standards regarding financial performance, the supervision of investors and boards on management decisions, the protection of interests of minority shareholders, the investor protection and the legal rights of investors, and firms are more clearly informed by the government of changes in policies and regulations implies higher audit quality.

Further, concerning the impact of financial crisis on audit quality, the results again, are opposite from expectations and the findings of previous literature. In general, audit quality is lower during financial crisis in all clusters and in most of audit quality measures except from audit fees which is not correlated with crisis dummy variable in all clusters.

In addition, overall the evidence is compelling and consistently shows that investor protection and crisis dummy variable have a joint role in the production of higher audit quality numbers. With other words, audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis in all clusters except from audit fees which is not correlated with none of the interaction terms. This positive impact is shown stronger in clusters 1 and 2, since the investor protection is stricter than in cluster 3. In detail, stronger protection of property rights, judiciary independent from influences of members government, citizens, or firms, financial auditing and reporting standards regarding financial performance, the supervision of investors and boards on management decisions, the protection of interests of minority shareholders, the investor protection and the legal rights of investors, and firms are more clearly informed by the government of changes in policies and regulations increase the appearance of modified audit opinion, the level of switching to Big 4 auditor, more preferable use of Big 4 auditor, the existence of audit committees and higher demand for auditing during financial crisis in all clusters.

Examining the joint effect of investor protection and audit quality on earnings quality, we also consider that the results are mixed among clusters and research periods. First, consistent with Guenther and Young (2000), Bushman and Smith (2001), Leuz et al (2003), Shen and Chih (2005), Burgstahler et al (2006), Nabar and Boonlert-U-Thai (2007), Cahan et al (2008) and Houque et al (2012), the findings indicate that there is strong positive association between earnings quality and investor protection. In detail, earnings quality is weaker in countries with weak investor protection in all clusters in pre and crisis period.

Subsequent, the results confirm the findings of vast majority of previous literature that there is negative association between audit quality and earnings management. Hence, consistent with Jensen and Meckling (1976), Watts and Zimmerman (1983), Teoh and Wong (1993), Becker et al (1998), DeFond and Subramanyam (1998), Francis et al (1999), Francis and Krishnan (1999), Frankel et al (2002), Krishnan (2003), Balsam et al (2003), Chung et al (2003), Butler et al (2004), Maijoor and Vanstraelen (2006), Caramanis and Lennox (2008), Van Tendeloo and Vanstraelen (2008), Hussainey (2009), Chia et al (2011), Hajizadeh and Rahimi (2012), Iatridis (2012), Hamdan et al (2012) and Iatridis and Dimitras (2013), lower audit quality implies lower earnings quality in all clusters, irrespective of the financial crisis.

Finally, the results show that investor protection and auditing have a joint role in the production of higher quality earnings numbers. However, the results are mixed among clusters and between research periods. Consistent with previous findings (Francis et al, 2003; Francis and Wang, 2008; Van Tendeloo and Vanstraelen, 2008), lower audit quality implies lower earnings quality in countries with weak investor protection in all clusters, irrespective of the financial crisis. The influence of this

interaction term is stronger in cluster 2 which is characterized by medium investor protection.

Third, concerning the impact of financial crisis of 2008 on cost of capital, the findings support the results of Mokhova (2011) which implies that the financial crisis of 2008 lead in a fall of global financial markets, a decrease of firm's stocks and an increase of financial risks which in turn increase the cost of equity capital.

Further, examining the relationship between audit quality and cost of equity capital, the results are mixed among clusters. However, in general, the results show that cost of equity capital is negatively associated with firms that audited by Big Four auditors, and firms that switch auditor and positively associated with firms with a modified audit report, and audit fees. Consequently, consistent with Easley and O' Hara (2004), Fernando et al (2010), and Chen et al (2011), these negative associations implies that the less of audit quality the higher of cost of equity capital in crisis period and vice versa.

Subsequent, the results show a controversial relationship between earnings quality and cost of equity capital among clusters, but, in general, consistent with the findings of Bhattacharya et al (2003), Francis et al (2004; 2005), Chan et al (2009) and McInnis (2010), ex post conservatism and value relevance in pre crisis period and value relevance and accruals quality in crisis period are negatively associated with cost of equity.

In addition, the findings indicate a negative impact of global financial crisis of 2008 on cost of debt. With other words, consistent with expectation, the total losses in most economies led to the world recession have an impact on the availability of credit as a result on the cost of debt capital.

Consistent with the findings from Blackwell et al (1998), Pittman and Fortin (2004), Kim et al (2011), Karjalainen (2011) and Causholli and Knechel (2012), firms that audited by Big Four auditors, audit fees, firms with a modified audit report and firms that have an audit committee have a negative association with cost of debt capital, as expected.

Finally, the results indicate that the association between cost of debt and earnings quality are mixed among clusters. Consistent with previous literature (Francis et al, 2005; Valipour and Moradbeygi, 2011), ex post conservatism, accruals quality, earnings predictability and earnings smoothness in pre and crisis period is shown to be inversely associated with cost of debt as hypothesized.

7.1. Implications

Previous literature argued that regulators and standard setters do not fully understand the reasons for and consequences of earnings quality during bad conditions (i.e. Watts, 2003a, 2003b; Francis et al, 2003). Hence, this thesis has implications for regulators and accounting standards setters when they face financial crisis and prepare defense mechanisms. With other words, the findings of this research give insights to policy makers and accounting regulators to understand the effects of economic recession on the earnings quality of advanced countries worldwide as per investor protection which in turn help them to prepare accounting rules which reduce earnings manipulation and in parallel increase earnings quality during a negative economic period. Thus, it gives insights them to stabilize investors' confidence in financial crisis period by posing stricter regulations and more transparent financial reporting that reduces information asymmetry and investors' awareness of management manipulation. Consequently, by protecting the market

during financial recession, investors have the opportunity to manage their investments in a manner to identify and choose portfolios which are lucrative for them even though they face bad economic periods, like financial crisis.

Moreover, examining the effect of financial crisis of 2008 on cost of capital, findings of this research may be useful to managers, stock market authorities, accounting standard setters and auditors. Particularly, the negative effect of financial crisis of 2008 on cost of capital shows that investors' required rate of return decreases in order to save their firms or to get rid of their firms even at lower rate of return. Thus, the results may be of interest to post crisis financial management and auditors to define the impact of the crisis on cost of equity capital and cost of debt determining the factors which influence the cost of capital and how they have changed due to the financial crisis and by the means of that knowledge make the optimal financial decision to develop the firm and to make the appropriate auditing due to reduce the likelihood of opportunism and earnings manipulation and to report number's validity. Moreover, examining several aspects of audit quality due to financial crisis, the findings will help auditors to reestimate how auditing is developed in order to increase the audit quality which in turn will lower risks and as a result decrease cost of capital.

Finally, examining the joint effect of financial crisis of 2008 and investor protection on audit quality and the joint effect of audit quality and investor protection on earnings quality, there are several implications of this research for audit quality, investor protection and earnings management literature. Specifically, whether there is previous studies which provide evidence of how investor protection influence audit quality (Choi et al, 2008; Leuz et al, 2003) and of how an economic downturn, like financial crisis of 2008, influence audit quality (Houston et al, 1999; Be'dard and

Johnstone, 2004; Hudaib and Cooke, 2005; Lin and Liu, 2010; Xu et al, 2011; Aldamen et al, 2012), there is no evidence of how these two factors also have an impact on audit quality jointly. Thus, this research gives insights in auditing literature of whether audit quality is higher in firms with strong investor protection and legal enforcement during financial crisis. In the same vein, several papers examined the investor protection as a determinant of earnings quality. For instance, Nabar and Boonlert-U-Thai (2007), Cahan et al (2008) and Houque et al (2012) found that there is a positive impact of investor protection. Further, most of previous literature indicates that there is a positive association between earnings quality and auditing (Becker et al, 1998; Francis et al, 1999; Balsam et al 2003; Caramanis and Lennox, 2008). Hence, this thesis adds and enlightens previous literature, whether these two factors influence earnings quality jointly.

7.2. Contributions

This research offers several contributions in the accounting and financial literature. First, it enhances the limited previous literature (i.e. Kousenidis et al, 2013; Iatridis and Dimitras, 2013) examining the effects of a bad economic condition, like the recently financial crisis, on earnings quality, audit quality and cost of capital. Second, it the first study that uses a large number of countries as a sample which provides stronger evidence. It uses 18 largest economies of the world which covered the 55% of the global market capitalization. Thus, the results are much closer to the reality in relation with other studies that used a representative sample which makes the findings questionable. Third, it is the first paper that categorizes the countries into clusters as per level of shareholder protection and give a targeted and specific findings that should be of interest to investors (cluster 1 with strong shareholder protection and

legal enforcement, cluster 2 with better legal enforcement systems and cluster 3 with weak investor protection and legal enforcement systems). Fourth, it is the first study that faces earnings quality, audit quality, investor protection and cost of capital by different perspective. With other words, earnings management is measured by using 10 different dimensions of earnings quality: ex post and ex ante conservatism, value relevance, three accrual quality measures, earnings persistence, earnings predictability, loss avoidance analysis and earnings smoothness. Audit quality is measured by 6 different proxies: the status of audit firm, the existence of audit committee, the demand for auditing, audit fees, the modified audit opinion and auditor switch. After the paper of Houque et al (2012), this research escapes the stereotype of previous papers of using the legal protection database compiled by La Porta et al (1997, 1998) since Spamann (2010) found significant differences between common law and code law countries with respect of the "The Antidirector Right Index". For this reason, 8 updated investor protection measures from World Economic Forum database are used: property rights, judicial independence, transparency of government policymaking, strength of auditing and reporting standards, efficacy of corporate boards, protection of minority shareholders' interests, strength of investor protection and legal rights index. Finally, cost of equity capital is measured by 2 different indexes: the constant growth Gordon model introduced by Palea (2007) and the PEG approach introduced by Easton (2004).

7.3. Limitations and future research

This study has certain limitations, which are commonly associated with empirical studies which use data across countries. Particularly, an extension of the present thesis would be an examination of the determinants and consequences of

earnings quality attributes that are not tested here during the financial crisis. Hence, taking into account the review of Dechow et al (2010), future research should give insights that have received relatively little attention, how the following earnings quality determinants are affected during the financial crisis of 2008: a) specific firm operation characteristics (i.e. firm performance; debt; growth and investment; size; debt covenants), b) financial reporting practices (i.e. accounting methods; other financial reporting practices including financial statement classification and interim reporting), c) governance and controls (i.e. equity compensation; managerial change; board characteristics; earnings-based components), d) capital market incentives (i.e. incentives when firms raise capitals; incentives provided by earnings-based targets), broadly defined, are associated with the earnings quality attributes during the financial crisis. Moreover, except of testing cost of capital, plenty of consequences of earnings quality during the financial crisis are largely unexplored. Consequently, based on Dechow et al (2010), there are several categories of consequences of earnings quality (i.e. litigation propensity; audit opinion; market evaluations; real activities including disclosure; executive compensation; labor market outcomes; analyst forecast accuracy) which should need for further research during the financial crisis of 2008.

Further, this thesis has no captured all the effects of other important institutional factors which are mentioned and analyzed in The Global Competitiveness and The Financial Development Reports of World Economic Forum on earnings quality and auditing. Hence, future papers should extend this research by examining several others institutional and governance factors which may affect audit quality and earnings management.

In addition, this research may suffer for the problem of omitted countries that are excluded from the sample since they have no applied International Accounting

Standards until 2005. Thus, future research shall use the omitted countries and then juxtaposes their results with the findings of this thesis.

Finally, another potential area for future research is to examine earnings quality, its determinants, its consequences and possibly their reversals after the firms have recovered from the recent financial crisis of 2008.

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Appendix A: List of previous researches that use different earnings quality attributes which have a relationship with investor protection, audit quality and cost of capital (Chronological order)						
Author/s	**Name of article**	**Year**	**Sample size**	**Sample country**	**Research period**	**Earnings quality proxy**
Lev, B.	Some economic determinants of time-series properties of earnings	1983	35.756 firm-year observations	n/a	n/a	Earnings persistence
Kormedi, R. and Lipe, R.	Earnings innovations, earnings persistence and stock returns	1987	145 firms	n/a	1947-1980	Earnings persistence
Teoh, S. H. and Wong, T. J.	Perceived auditor quality and the earnings response coefficien	1993	15.480 firm year observations	New York Stock Exchange, the American Stock Exchange and NASDAQ	1973-1988	Earnings response coefficient
Krishnan, J.	Auditor switching and conservatism	1994	2.989 firm year observations	n/a	1986-1988	Earnings conservatism
DeAngelo, H., DeAngelo, L. and Skinner, D. J.	Accounting choice in troubled companies	1994	76 firms	USA	1980-1985	Accruals
DeFond, M. L. and Jiambalvo, J.	Debt covenant violation and manipulation of accruals	1994	n/a	n/a	n/a	Abnormal accruals
Ohlson, J. A.	Earnings, book value, and dividends in equity valuation	1995	n/a	n/a	n/a	Value relevance
Dechow, P. M., Sloan, R. G. and Sweeney, A. P.	Detecting earnings management	1995	168.771 firm year observations	n/a	1950-1991	Accruals quality
Wild, J. J.	The audit committee and earnings quality	1996	n/a	n/a	n/a	Discretionary accruals
Basu, S.	The conservatism principle and the asymmetric timeliness of earnings	1997	25.531 firm year observations	USA	1963-1990	Ex post conservatism
Han, J. C. and Wang, S.-W.	Political costs and earnings management of oil companies during the 1990 Persian Gulf crisis	1998	76 firms	Persian Gulf countries	1984-1990	Discretionary accruals

DeFond, M. L. and Subramanyam, K. R.	Auditor changes and discretionary accruals	1998	n/a	n/a	n/a	Discretionary accruals
Becker, C. L., DeFond, M. L., Jiambalvo, J. and Subramanyam, K. R.	The effect of audit quality on earnings management	1998	12.576 firm year observations	USA	1989-1992	Discretionary accruals, absolute value of discretionary accruals
Francis, J. R., Maydew, E. L. and Sparks, H. C.	The role of Big 6 auditors in the credible reporting of accruals	1999	74.390 firm year observations	NASDAQ firms	1975-1994	Discretionary accruals, absolute value of discretionary accruals
Francis, J. R. and Krishnan, J.	Do accounting accruals lead to auditor reporting conservatism?	1999	2.792 firm year observations	USA	n/a	Accruals quality
Graham, R. and King, R. D.	Accounting practices and the market valuation of accounting numbers: Evidences from Indonesia, Korea, Malaysia, the Philippines, Taiwan and Thailand	2000	n/a	Indonesia, South Korea, Malaysia, the Philippines, Taiwan and Thailand	n/a	Value relevance of earnings and value relevance of the book value
Beaver, W. and Ryan, S.	Biases and lags in book value and their effects on the ability of the book-to-market ratio to predict book return on equity	2000	37.599 firm year observations	n/a	1974-1993	Ex ante conservatism
Graham, R., King, R. and Bailes, J.	The value relevance of accounting information during a financial crisis: Thailand and the 1997 decline in the value of the Baht	2000	n/a	Thailand	1997	Value relevance
Guenther, D. A. and Young, D.	The association between financial accounting measures and real economic activity: A multinational study	2000	n/a	UK, USA, France and Germany	n/a	Value relevance
Hung, M.	Accounting standards and value relevance of financial statements: An international analysis	2000	17.743 firm year observations	21 countries	1991-1997	Value relevance and accruals quality
Morck, R., Yeung, B. and Yu, W.	The information content of stock markets: Why do emerging markets have synchronous stock price movements?	2000	3.752 firm year observations	7 countries	1991-1995	Value relevance

Ali, A. and Hwang, L. - S.	Country-specific factors related to financial reporting and the value relevance of accounting data	2000	6.410 firm-year observations	16 countries	1986-1995	Value relevance by Alford et al (1993)
Ball, R., Kothari, S. P. and Robin, A.	The effect of international institutional factors on properties of accounting earnings	2000	40.359 observations	7 countries	1985-1995	Timeliness loss recognition and conservatism by Basu (1997)
Ho, L.-C. J., Liu C.-S. and Sohn, P. S.	The value relevance of accounting information around the 1997 Asian financial crisis - the case of South Korea	2001	n/a	Korea	1995-1998	Value relevance
Chen, C. J. P., Chen, S. and Su, X.	Profitability regulation, earnings management, and modified audit opinions: Evidence from China	2001	n/a	China	1997-1997	Discretionary accruals
Chan, K., Chan, L. K. C., Jegadeesh, N. and Lakonishok, J.	Earnings quality and stock returns: The evidence from accruals	2001	All firms listed on the NYSE, AMEX and NASDAQ	USA	1971 - 1995	Sloan's (1996) accrual model
Affleck-Graves, J., Callahan, C. and Chipalkatti, N.	Earnings predictability, information asymmetry, and market liquidity	2002	2.945 firm year observations	USA	1985-1990	Earnings predictability
McNichols, M. F.	Discussion of the quality of accruals and earnings: The role of accrual estimation errors	2002	15.015 firm year observations	n/a	1988-1998	Accruals quality
Johnson, E., Khurana, I. K. and Reynolds, J. K.	Audit-firm tenure and the quality of financial reports	2002	2.463 firm year observations (unexpected accruals tests), 2.280 firm year observations (persistence tests)	USA	1986-1995	Absolute value of unexpected accruals, persistence of accrual component of earnings (relationship between current accruals and future income)
Fan, J. P. H. and Wong, T. J.	Corporate ownership structure and the informativeness of accounting eanrings in East Asia	2002	3.572 firm-years observations	7 countries	1991-1995	Value relevance by Alford et al (1993)
Riahi-Belkaoui, A.	The effects of multinationality on earnings response coefficients	2002	500 firm-year observations	USA	1955-1999	Earnings response coefficients by Collins and Kothari (1989)

Dechow, P. M. and Dichev, I. D.	The quality of accruals and earnings: The role of accrual estimation errors	2002	15.234 firm-year observations	n/a	1987-1999	Accrual quality by Dechow and Dichev (2002)
Klein, A.	Audit committee, board of director characteristics and earnings statement	2002	687 firm year observations	n/a	1991-1993	Discretionary accruals
Frankel, R. M., Johnson, M. F. and Nelson, K. K.	The relation between auditors' fees for nonaudit services and earnings management	2002	3.074 firms	USA	2001	Absolute value of discretionary accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, likelihood of reporting a small earnings surprise, likelihood of reporting a small earnings increase, abnormal returns
Chung, R., Firth, M. and Kim, J.-B.	Auditor conservatism and reported earnings	2003	n/a	n/a	n/a	Earnings conservatism
Francis, J. R., Khurana, I. K. and Pereira, R.	Investor protection laws, accounting and auditing around the world	2003	n/a	31 countries	1990	Accruals quality
Bhattacharya, U., Daouk, H. and Welker, M.	The world price of earnings opacity	2003	58.653 firm year observations	34 countries	1984-1998	Earnings aggresiveness, loss avoidance and earnings smoothing
Asbaugh, H., LaFond, R. and Meyhew, B. W.	Do nonaudit services compromise auditor independence?	2003	3.170 firms	USA	2000	Performance-adjusted current accruals, absolute value of performance-adjusted discretionary current accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, likelihood of firms reporting small earnings increases, likelihood of firms meeting or beating analyst earnings forecasts, abnormal accruals
Chung, H. and Kallapur, S.	Client importance, nonaudit services, and abnormal accruals	2003	1.871 firms	USA	2001	Absolute value of abnormal accruals
Myers, J. N., Myers, L. A. and Omer, T. C.	Exploring the term of the auditor-client relationship and the quality of the quality of earnings: A case for mandatory auditor rotation?	2003	42.302 firm year observations	USA	1988-2000	Raw (umsigned) values of discretionary accruals, absolute values of discretionary and current accruals, signed values of discretionary and

						current accruals
Balsam, S., Krishnan, J. and Yang, J. S.	Auditor industry specialization and earnings quality	2003	50.116 firm year observations(discretionary accruals sample), 19.091 firm year obsrvations (earnings response coefficient sample)	USA	1991-1999	Absolute level of discretionary accruals, earnings response coefficients
Ball, R., Robin, A. and Wu J. S.	Incentives versus standards: Properties of accounting income in four East Asian countries	2003	2.726 observations	Hong Kong, Malaysia, Singapore and Thailand	1984-1996	Timeliness loss recognition by Basu (1997)
Mikhail, M. B., Walther, B. R. and Willis, R. H.	Reactions to dividend changes conditional on earnings quality	2003	5838 firm-year observations	n/a	1980-1997	Earnings response coefficients by Collins and Kothari (1989)
Leuz, C., Nanda, D. and Wysocki, P. D.	Earnings management and investor protection: An international comparison	2003	70.955 firm-year observations	31 countries	1990-1999	Earnings smoothness, eanrings discretion, loss avoidance and aggregate measure
Krishnan, G. V.	Audit quality and the pricing of discretionary accruals	2003	18.658 firm year observations	USA	1989-1198	Non-discretionary accruals, discretionary accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, absolute value of discretionary accruals
Mitchell, J. W., Zahn, V. D. and Tower, G.	Audit committee features and earnings statement: Further evidence from Singapore	2003	485 firm year observations	Singapore	2000-2001	Abnormal accruals
Xie, B., Davidson III, W. N. and DaDalt, P. J.	Earnings management and corporate governance: The role of the board and the audit committee	2003	282 firm year observations	USA	1992, 1994 and 1996	Discretionary current accruals

Bauwhede, H. V., Willekens, m. and Gaeremynck, A.	Audit firm size, public ownership, and firms' discretionary accruals management	2003	136 firm year observations	Belgium	1991-1997	Discretionary accruals
Shrieves, R. E. and Dahl, D.	Discretionary accounting and the behavior of Japanese banks under financial distress	2003	607 pooled time series and cross-sectional observations	Japan	n/a	Discretionary accruals
Butler, M., Leone, A. J. and Willenborg, M.	An empirical analysis of auditor reporting and its association with abnormal accruals	2004	147.926 firm year observations	n/a	1980-1999	Abnormal accruals
Carcello, J. V. and Nagy, A. L.	Audit firm tenure and fraudulent financial reporting	2004	109 firms	USA	1990-2001	Accounting and auditing enforcement release
Kang, T.	Quality of earnings inferred from the profitability of EP trading rules	2004	24.260 firm-year observations	n/a	1981-1996	Profitability of EP trading rules by Kang (2004)
Wysocki, P.	Discussion of ultimate ownership, income management, and legal and extra-legal institutions	2004	28 observations	28 countries	n/a	Aggregate earnings management score from Leuz et al (2003)
Francis, J., LaFond, R., Olsson, P. and Schipper, K.	Costs of capital and earnings attributes	2004	3.917 firms	n/a	1975-2001	Accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism
Choi, J., Jeon, K. and Park, J.	The role of audit committees in decreasing earnings management: Korean evidence	2004	n/a	Korea	2000-2001	Discretionary accruals
Ferguson, M. J., Seow, G. S. and Young, D.	Nonaudit services and earnings management: UK evidence	2004	610 firms	UK	1996-1998	The likelihood that the client firm's accounting practices are subject to public criticism or regulatory investigation, the likelihood that firms restated prior financial statements or adjusted current-period results upon adoption of Financial Reporting Standard 12, the absolute value of discretionary working capital accruals scaled by lagged assets
Zhou, J. and Elder, R.	Audit quality and earnings management by seasoned equity offering firms	2004	2.453 firm year observations	n/a	1991-1999	Discretionary current accruals

Haw, I.-M., Hu, B., Hwang, L.-S., Wu, W.	Ultimate ownership, income management, and legal and extralegal institutions	2004	25.210 firm year observations	9 East Asian (Hong Kong, Indonesia,Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand) and 13 Western European (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom) countries	1996-1999	Discretionary accruals
Van Der Zahn, J.-L. W. M. and Tower G.	Audit committee features and earnings management: Further evidence from Singapore	2004	485 firm year observations	Singapore	2000-2001	Discretionary accruals
Khurana, I. K. and Raman, K. K.	Litigation risk and the financial reporting credibility of Big 4 versus non-Big 4 audits: Evidence from Aglo-American countries	2004	19.517 firm year observations	USA, Australia, Canada and UK	1990-1999	Discretionary accruals
Gosh, A. and Moon, D.	Auditor tenure and perceptions of audit quality	2005	38.794 firm year observations	USA	1990-2000	Earnings response coefficients

Eng, L. L., Nabar S., Chang, C. K.	The predictive value of earnings, cash flows and accruals in the period surrounding the Asian financial crisis: Evidence from Hong Kong, Malaysia, Singapore and Thailand	2005	n/a	Hong Kong, Malaysia, Singapore and Thailand	1994-2001	Predictive value of earnings
Davis-Friday, P. Y. and Gordon, E. A.	Relative valuation roles of equity book value, net income, and cash flows during a macroeconomic shock: The case of Mexico and the 1994 currency crisis	2005	n/a	Mexico	1992-1997	Value relevance
Aboody, D., Hughes, J. and Liu, J.	Earnings quality, insider trading and cost of capital	2005	989.530 observations	n/a	1985-2003	Abnormal accruals by Dechow et al (1995) and abnormal current accruals by Dechow and Dichev (2002)
Saleh, N. M. and Ahmed, K.	Earnings management of distressed firms during debt renegotiations	2005	n/a	n/a	n/a	Discretionary accruals
Abdelghany, K. E.	Measuring the quality of earnings	2005	90 firms	USA	1999-2003	Leuz et al (2003) approach, Barton and Simko (2002) approach and Penman (2001) approach
Shen, C.-H. and Chih, H.-L.	Investor protection, prospect theory, and earnings management: An international comparison of the banking industry	2005	70.955 observations	48 countries	1993-1999	Burgstahler and Dichev (1997), Degeorge et al (1999) and Leuz et al (2003) accrual models
Li, J. and Lin, J. W.	The relation between earnings management and audit quality	2005	351 firms	n/a	2000	Earnings restatements
Chen, K. Y., Lin, K.-L. and Zhou, J.	Audit quality and earnings management for Taiwan IPO firms	2005	367 firm-year observations	Taiwan	1999-2002	Accrual quality by Dechow et al (1995)
Yang, J. S. and Krishnan, J.	Audit committees and quarterly earnings management	2005	896 firm year observations	n/a	1996-2000	Discretionary accruals
Vafeas, N.	Audit committees, boards, and the quality of reported earnings	2005	252 firms	USA	1994-2000	Discretionary accruals
Koh, P.-S.	Institutional ownership and income smoothing: Australian evidence	2005	107 firm year observations	Australia	1993-1997	Income smoothing

Francis, J., LaFond, R., Olsson, P. and Schipper, K.	The market pricing of earnings quality	2005	33.770 observations	n/a	1988-1999	Eight proxies for earnings quality (EQ1=unsigned abnormal accruals estimated from the Dechow and Dichev (2002), EQ2=unsigned abnormal current accruals estimated following Teoh et al (1998), EQ3=performance-matched of EQ1, EQ4=performance-matched of EQ2, EQ5=absolute residuals from cross-sectional estimations of Dechow and Dichev (2002) model, EQ6=standard deviation of residuals from cross-sectional estimations of Dechow and Dichev (2002) model, EQ7=standard deviation od residulas of firm-specific time series estimations of Dechow and Dichev (2002) model, EQ8=the common factor identified from principal factor analysis of EQ1-EQ7)
Kothari, S. P., Leone, A. J. and Wasley, C. E.	Performance matched discretionary accrual measures	2005	94.045 observations	n/a	1959-1998	Accruals quality
Lin, J. W., Li, J. F. and Yang, J. S.	The effect of audit committee performance on earnings quality	2006	212 firms	USA	2000	Earnings restatement by Lin et al (2006)
Boonlert-U-Thai, K., Meek, G. K. and Nabar, S.	Earnings attributes and investor-protection: International evidence	2006	57.610 firm-year observations	31 countries	1994-2003	Accruals quality by McNichols (2002), Eanrings persistence by Kormedi and Lipe (1987), earnings predictability by Lipe (1990), Earnings smoothness by Bowen et al (2003)
Burgstahler, D. C., Hail, L. and Leuz, C.	The importance of reporting incentives: Earnings management in European private and public firms	2006	378.122 firm year observations	13 European countries	1997-2003	(1) loss avoidance analysis, (2) the magnitude of total accruals, (3) the smoothness of earnings relative to cash flows and (4) the correlation of accounting accruals and operating cash flows

Davidson III, W. N., Jiraporn, P. and DaDalt, P.	Causes and consequences of audit shopping: An analysis of auditor opinions, earnings management, and auditor changes	2006	n/a	n/a	1993-1997	Discretionary accruals
Ecker, F., Francis, J., Kim, I., Olsson, P. and Schipper, K.	A returns-based representation of earnings quality	2006	72.992 observations	n/a	1970-2003	E-loadings by Ecker et al (2006)
Antle, R., Gordon, E., Narayanamoorthy, G, and Zhou, L.	The joint determination of audit fees, non-audit fees, and abnormal accruals	2006	2.294 firm year observations	UK	1994-2000	Abnormal accruals
			1.570 firms	USA	2000	
Lee, P., Taylor, S. J. and Taylor, S. L.	Auditor conservatism and audit quality: Evidence from IPO earnings forecasts	2006	220 firms	Australia	1991-1998	Earnings forecasts
Maijoor, S. J. and Vanstraelen, A.	Earnings management within Europe: The effects of member state audit environment, audit firm quality and international capital markets	2006	17.394 firm year observations	France, Germany and UK	1992-2000	Abnormal working capital accruals
Davis-Friday, P. Y., Eng, L. L. and Liu, C.-S.	The effects of the Asian crisis, corporate governance and accounting system on the valuation of book value and earnings	2006	158 firms form Indonesia, 217 firms from Korea, 271 firms from Malaysia and 389 firms Thailand	Indonesia, Korea, Malaysia and Thailand	1996-1197	Value relevance
Chia, Y. M., Lapsley, I. and Lee, H.-W. L.	Choice of auditors and earnings management during the Asian financial crisis	2007	383 firm year observations	Indonesia	1976-1998	Discretionary accruals
Srinidhi, B. N. and Gul, F. A.	The differential effects of auditors' nonaudit and audit fees on accrual quality	2007	4.282 firm year observations	US	2000-2001	Accrual quality
Johl, S., Jubb, C. A. and Houghton, K. A.	Earnings management the audit opinion: Evidence from Malaysia	2007	1.512 firm year observations	Malaysia	1994-1999	Abnormal accruals
DeFond, M., Hung, M. and Trezevant, R.	Investor protection and the information content of annual earnings announcements: International evidence	2007	53.197 observations	26 countries	1995-2002	Aggregate earnings management score from Leuz et al (2003) multiplied by -1

Piot, C. and Janin, R.	External auditors, audit committees and earnings management in France	2007	102 firms	France	1999-2001	Signed discretionary accruals, absolute value of discretionary accruals
Doyle, J., Ge, W. and McVay, S.	Accruals quality and internal control over financial reporting	2007	3.588 firm-year observations	n/a	2002-2005	Accrual quality by Dechow and Dichev (2002), modified McNichols (2002) and Francis et al (2005)
Jaggi, B. and Leung, S.	Impact of family dominance on monitoring of earnings management by audit committees: Evidence from Hong Kong	2007	253 firm year observations	Hong Kong	1999-2000	Discretionary accruals
Nabar, S. and Boonlert-U-Thai, K. K.	Earnings management, investor protection, and national culture	2007	n/a	30 countries	n/a	Earnings smoothness, eanrings discretion, loss avoidance and aggregate measure
Qin, B.	The influence of audit committee financial expertise on earnings quality: U.S. evidence	2007	460 observations	USA	1998-2002	Earnings response coefficients by Collins and Kothari (1989)
Roychowdhury, S. and Watts, R. L.	Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting	2007	45.664 firm-years observations	n/a	1972-1999	Conservatism by Basu (1997)
Cahan, S. F., Liu, G. and Sun, J.	Investor protection, income smoothing, and earnings informativeness	2008	n/a	44 countries	1993-2002	Earnings informativeness
Cheng, F.-F., Shamsher, M. and Annuar, N.	Earnings announcements: The impact of firm size on share prices	2008	430 firm-year observations	Firms from Kuala Lumpur Stock Exchange	1988-1997	Earnings response coefficients by Collins and Kothari (1989)
Chen, C.-Y., Lin, C.-J. and Lin, Y.-C.	Audit partner tenure, audit firm tenure, and discretionary accruals: Does long auditor tenure impair earnings quality?	2008	5.213 firm year observations	Taiwan	1990-2001	Absolute performance-adjusted discretionary accruals, positive performance-adjusted discretionary accruals, negative performance-adjusted discretionary accruals
Herrmann, D. R., Pornupatham, S. and Vichitsarawong, T.	The impact of the Asian financial crisis on auditors' conservatism	2008	n/a	Thailand	n/a	Conservatism

Ahmed, K., Godfrey, J. M. and Saleh, N. M.	Market perceptions of discretionary accruals by debt renegotiating firms during economic downturn	2008	139 firms	Malaysia	1998-1999	Discretionary accruals
Jayaraman, S.	Earnings volatility, cash flow volatility, and informed trading	2008	69.518 firm year observations	n/a	1988-2005	Earnings smoothness
Chih, H. - L., Shen, C. - H. and Kang, F.-C.	Corporate social responsibility, investor protection, and earnings management: Some international evidence	2008	1.653 firms	46 countries	1993-2002	Earnings smoothing, earnings aggressiveness and loss avoidance by Leuz et al (2003), Bhattacharya et al (2003) and Burgstahler and Dichev (1997)
Francis, J. R. and Wang, D.	The joint effect of investor protection and Big 4 audits on earnings quality around the world	2008	57.966 observations	42 countries	1996-2004	Abnormal accruals by DeFond and Park (2001)
			85.193 observations		1995-2004	Loss avoidance analysis by Burgstahler and Dichev (1997), Degeorge et al (1999) and Brown and Caylor (2005)
			68.167 observations		1995-2004	Earnings conservatism by Ball et al (2000)
Van Tendeloo, B. and Vanstraelen, A.	Earnings management and audit quality in Europe: Evidence from the private client segment market	2008	64.353 firm year observations	Belgium, Finland, France, Netherlands, Spain, and UK	1998-2002	Aggregate earnings management measure based on the magnitude of total accruals relative to operational cash flow, the tendency of firms to avoid small losses, the smoothness of earnings relative to cash flows, and the correlation of accounting accruals and operating cash flows
Baxter, P. and Cotter, J.	Audit committees and earnings quality	2009	500 firms	Australia	2001	Discretionary accruals estimated by Jones (1991) and Dechow and Dichev (2002)
Gul, F. A., Fung, S. Y. K. and Jaggi, B.	Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise	2009	32.777 firm year observations	USA	1993-2004	Absolute value of discretionary accruals, positive discretionary accruals, negative discretionary accruals
Hussainey, K.	The impact of audit quality on earnings predictability	2009	4.417 firm year observations	UK	1996-2002	Earnigs predictability

Lin, Z. J., Liu, M. and Wang, Z.	Market implications of the audit quality and auditor switches: Evidence from China	2009	1.284 firm year observations	China	2001-2004	Earnings response coefficients
Chang, H., Ferando, G. D. and Liao, W.	Sarbanes-Oxley Act, perceived earnings quality and cost of capital	2009	8.480 firm year observations	USA	1999-2005	E-loadings by Ecker et al (2006)
Cahan, S. F., Emanuel, D. and Sun, J.	The effect of earnings quality and country-level institutions on the value relevance of earnings	2009	4.238 observations	13 countries	1993-2003	Value relevance by Alford et al (1993)
Mitra, S., Deis, D. R. and Hossain, M.	The association between audit fees and reported earnings quality in pre- and post-Sarbanes-Oxley regimes	2009	6.852 firm year observations	n/a	2000-2005	Performance-adjusted discretionary accruals
Jiang, W. and Anandarajan, A.	Shareholder rights, corporate governance and earnings quality: The influence of institutional investors	2009	5.658 firm-year observations	n/a	1998-2002	Accruals quality by Dechow et al (2003)
Chan, A. L.-C., Lin, S. W. J. and Strong, N.	Accounting conservatism and the cost of equity capital: UK evidence	2009	5.403 firm-year observations	UK	1987-1999	Ex ante and ex post conservatism
Lara, J. M. G., Osma, B. G. and Neophytou, E.	Earnings quality in ex-post failed firms	2009	9.152 firm year observations	UK	1992-2003	Accounting conservatism
Prawitt, D. F., Smith, J. L. and Wood, D. A.	Internal audit quality and earnings management	2009	528 firm-year observations	n/a	2000-2005	Accrual quality by Kothari et al (2005)
Guan, L. and Pourjalali, H.	Effect of cultural environmental and accounting regulation on earnings management: A multiple year-country analysis	2010	66.847 firm year observations	27 countries	1987-2001	Discretionary accruals
Liu, Y., Ning, Y. and Davidson, W.	Earnings management surrounding new debt issues	2010	2.839 firm year observations	USA	1970-2004	Discretionary accruals
Gosh, A. and Moon, D.	Corporate debt financing and earnings quality	2010	8.240 firm year observations	n/a	1992-2004	Accruals quality
Rodriguez-Perez, G. and Van Hemmen, S.	Debt, diversification and earnings management	2010	n/a	n/a	n/a	Discretionary accruals

McInnis, J.	Earnings smoothness, average returns, and implied cost of equity capital	2010	682.435 firm year observations	n/a	1975-2006	Earnings smoothness
Han, S., Kang, T., Salter, S. and Yoo, Y. K.	A cross-country study on the effects of national culture on earnings management	2010	96.409 firm year observations	32 countries	1992-2003	Magnitude of earnings discretion, discretionary accruals
Gaio, C.	The relative importance of firm and country characteristics for earnings quality around the world	2010	7.215 firm-year observations	38 countries	1990-2003	Aggregate earnings quality which is based on seven earnings attributes (accrual, quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism)
Kim, D. and Qi, Y.	Accruals quality, stock returns, and macroeconomic conditions	2010	n/a	n/a	1970-2006	Accruals quality by Dechow and Dichev (2002) and modified by McNichols (2002)
Yunos, R. M., Smith, M. and Ismail, Z.	Accounting conservatism and ownership concentration: Evidence from Malaysia	2010	2.100 firm-year observations	Malaysia	2001-2007	Conservatism by Basu (1997)
Wanrganegara, D. L. and Vionita, V.	The effects of the Asian financial crisis on accounting conservatism in Indonesia	2010	250 firm year observations	Indonesia	1996 and 2001	Conservatism
Jordan, C. E., Clark, S. J. and Hames, C. C.	The impact of audit quality on earnings management to achieve user reference points in EPS	2010	1.251 firms	USA	2007	Earnings per share
Vichitsarawong, T., Eng, L. L. and Meek, G.	The impact of the Asian financial crisis on conservatism and timeliness of earnings: Evidence from Hong Kong, Malaysia, Singapore and Thailand	2010	1.500 firms	Hong Kong, Malaysia, Singapore and Thailand	1995-2004	Conservatism by Basu (1997)
Rusmin, R.	Auditor quality and earnings management: Singaporean evidence	2010	301 firms	Singapore	2003	Absolute value of discretionary accruals
Gerayli, M. S., Yanesari, A. M. and Ma'atoofi, A. R.	Impact of audit quality on earnings management: Evidence from Iran	2011	90 firms	Iran	2004-2009	Discretionary accruals
Kabir, M. H., Sharma, D., Islam, M. A. and Salat, A.	Big 4 auditor affiliation and accruals quality in Bangladesh	2011	382 firm year observations	Bangladesh	2000-2003	Accruals quality

Alali, F.	Audit fees and discretionary accruals: compensation structure effect	2011	36.218 firm year observations	n/a	2000-2006	Discretionary accruals
Kanagaretnam, K., Lim, C. Y. and Lobo, G. J.	Effects of national culture on earnings quality of banks	2011	6.072 bank year observations (earnings benchmark analysis) and 4.232 bank year observations (abnormal loan loss provisions' analysis)	29 countries	1993-2006	Earnings benchmark indicators (loss avoidance, just-meeting-or-beating prior year's earnings), abnormal loan loss provisions
Sun, J. and Liu, G.	The effect of analyst coverage on accounting conservatism	2011	81.901 firm year observations	USA	1988-2006	Absolute value of performance-matched discretionary accruals
Chen, H., Chen, J. Z., Lobo, G. and Wang, Y.	Effects of audit quality on earnings management and cost of equity capital: Evidence from China	2011	3.310 firm year observations	China	2001 - 2004	The absolute and signed performance-matched modified Jones model discretionary accruals by Dechow et al (1995) and Kothari et al (2005)
Lee, N. and Swenson, C.	Earnings management through discretionary expenditures in the U.S., Canada, and Asia	2011	77.995 firm-year observations	USA, Canada and Asia	1990-2007	Accrual quality by Kothari et al (2005)
Kramer, S. T., Georgakopoulos, G., Sotiropoulos, I. and Vasileiou, K. Z.	Audit firm rotation, audit firm tenure and earnings management	2011	11.643 firm year observations	USA	1980-2006	Earnings conservatism
Panahian, H. and Aminossadati, A.	The relationship between capital structure effect on earnings response coefficient for in Tehran Stock Exchange	2011	3.234 firm-year observations	Tehran Stock Exchange	2002-2008	Earnings response coefficients by Collins and Kothari (1989)
Skinner, D. and Soltes, E.	What do dividends tell us about earnings quality?	2011	n/a	n/a	1980-2010	Accrual quality by Kothari et al (2005)
Choi, T. H. and Pae, J.	Business ethics and financial reporting quality: Evidence from Korea	2011	10.406 firm year observations	Korea	1995-2000	Discretionary accruals, accounting conservatism and the accuracy in prediciting future cash flows (quality of accruals)

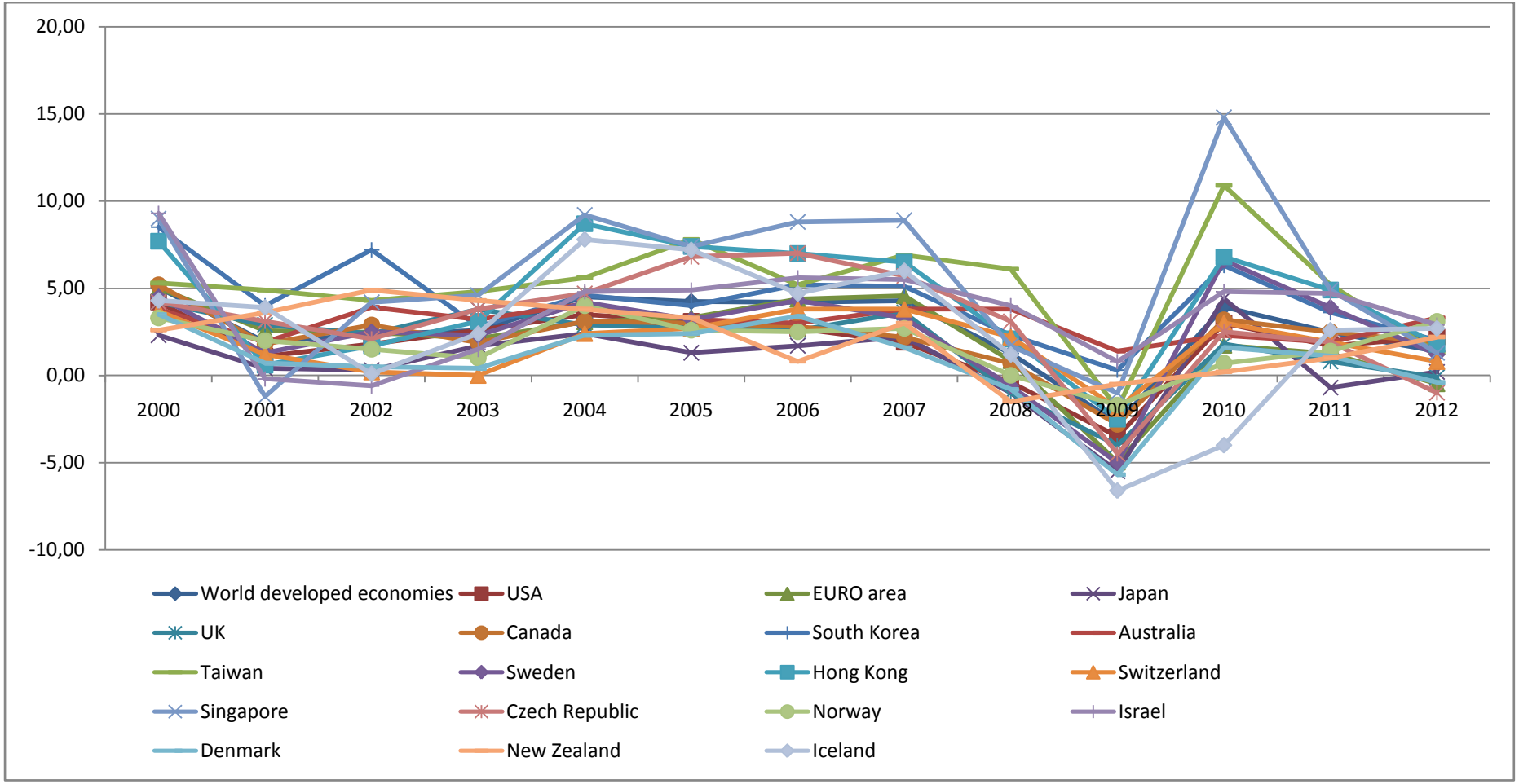
Valipour, H. and Moradbeygi, M.	Corporate debt financing and earnings quality	2011	81 firms	Tehran Stock Exchange	2005-2009	Accrual quality by Kothari et al (2005)
Ahmad-Zaluki, N. A., Campbell, K. and Goodacre, A.	Earnings management in Malaysian IPOs: The east Asian crisis, ownership control, and post-IP performance	2011	254 IPO companies	Malaysia	1990-2000	Discretionary current accruals
Hajizadeh, S. and Rahimi, M.	Audit firm size and information content of earnings: New evidences from Iran	2012	n/a	Iran	2005-2009	Discretionary accruals
Hamdan, A. M. M., Kukreja, G., Awwad, B. S. A. and Dergham, M. M.	The auditing quality and accounting conservatism	2012	39 firms	Jordan	2001-2006	Accounting conservatism
Filip, A. and Raffournier, B.	The impact of the 2008-2009 financial crisis on earnings management: The European evidence	2012	8.266 firm year observations	16 EU countries	2006-2009	Accruals quality and earnings smoothness
Lu, C.-W.	Earnings quality, risk-taking and firm value: Evidence from Taiwan	2012	5.655 firm year observations	Taiwan	2001-2010	Accruals quality estimated by Dechow and Dichev (2002) and modified by Francis et al (2005)
Iatridis, G. E.	Audit quality in common-law and code-law emerging markets: Evidence on earnings conservatism, agency costs and cost of equity	2012	873 firms	Emerging common-law South Africa and code-law Brazil	2005-2010	Discretionary accruals and conservatism
Moraes da Costa, F., Santana dos Reis, D. J. and Teixeira, A. M. C.	Implications of economic crisis on the value relevance of accounting information in Brazilian companies	2012	3.849 firm year observations	Brazil	1997-2010	Value relevance
Gorgan, C., Gorgan, V., Dumitru, V. F. and Pitulice, I. C.	The evolution of the accounting practices during the recent economic crisis: Empirical survey regarding the earnings management	2012	90 firm year observations	Big European companies	2007-2009	Discretionary accruals
Jungeun, C., Jaimin, G. and Jaehong, L.	Chaebol firms' real and accrual-based earnings management in the pre- and post-Asian financial crisis periods	2012	5.963 firm year observations	Korea	1992-2009	Discretionary accruals

Houque, M. N., Van Zijl, T., Dunstan, K. and Karim, W.	The effect of IFRS adoption and investor protection on earnings quality around the world	2012	104.348 observations	46 countries	1998-2007	De Fond and Park (2001) discretionary accrual model
Vladu, A. B.	Smoothing behavior of firms in times of crisis: Empirical evidence from the Spanish economic environment	2013	1.044 firm year observations	Spain	2005-2012	Earnings smoothness
Bepari, M. K., Rahman, S. F. and Mollik, A. B.	Value relevance of earnings and cash flows during the global financial crisis	2013	4.885 firm year observations	Australia	2004-2009	Value relevance
Iatridis, G. and Dimitras, A. I.	Financial crisis and accounting quality: Evidence from five European countries	2013	66 Portuguese, 48 Irish, 273 Italian, 245 Greek and 157 Spanish non-financial firms	Portugal, Ireland, Italy, Greece and Spain	2005-2011	Value relevance
Francis, B., Hasan, I. and Wu, Q.	The benefits of conservative accounting to shareholders: Evidence from the financial crisis	2013	6.326 firm year observations	n/a	2007-2009	Conservatism
Kousenidis, D. V., Ladas, A. C. and Negakis, C. I.	The effects of the European debt crisis on earnings quality	2013	n/a	Spain, Greece, Ireland, Italy and Portugal	n/a	Value relevance, timeliness, conditional conservatism, smoothing, management, persistence and predictability
Habib, A., Bhuiyan, M. B. U. and Islam, A.	Financial distress, earnings management and market pricing of accruals during the global financial crisis	2013	767 firm year observations	New Zealand	1999-2001	Discretionary accruals
Lee, H.-L. and Lee, H.	Do Big 4 audit firms improve the value relevance of earnings and equity?	2013	5.589 firm year observations	Taiwan	1996-2000	Valu relevance
Yasar, A.	Big Four auditors' audit quality and earnings management: Evidence from Turkish Stock Market	2013	290 firm year observations	Turkey	2003-2007	Discretionary accruals
Alves, S.	The impact of audit committee existence and external audit on earnings management: Evidence from Portugal	2013	33 firms	Portugal	2003-2009	Discretionary accruals

Hamdan, A. M. M., Mushtaha, S. M. S. and Al-Sartawi, A. A. M.	The audit committee characteristics and earnings quality: Evidence from Jordan	2013	50 firms	Jordan	2004-2009	Absolute value of discretionary accruals and earnings continuity
Chandrasegaram, R., Razee f Rahimansa, M., Rahman, S. K. A., Abdullah, S. and Nik Mat, N.	Impact of audit committee characteristics on earnings management in Malaysian public listed companies	2013	153 firms	Malaysia	2011	Discretionary accruals
Soliman, M. M. and Ragab, A. A.	Audit committee effectiveness, audit quality and earnings management: An empirical study of the listed companies in Egypt	2014	50 firms	Egypt	2007-2010	Discretionary accruals
Badolato, P., Donelson, D. C. and Ege, M.	Audit committee financial expertise and earnings management: The role of status	2014	29.074 firm year observations	n/a	2001-2008	Abnormal accruals
Gajevszky, A.	The impact of auditor's opinion on earnings management: Evidence from Romania	2014	60 firms	Romania	2012	Discretionary accruals
Artiach, T. and Clarkson, P. M.	Conservatism, disclosure and the cost of equity capital	2014	3.138 firm year observations	USA	1985-2000	Accounting conservatism
Salleh, N. M. Z. and Haat, M. H. C.	Audit committee and earnings management: Pre and post MCCG	2014	280 firms	Malaysia	2009	Discretionary accruals
Khalifa, M. and Othman, H. B.	The Effect of conservatism on cost of capital: MENA evidence	2015	1.287 firm year observations	MENA emerging markets	2004-2007	Conservatism
Lee, H. S., Li, X. and Sami, H.	Conditional conservatism and audit fees	2015	16.455 firm year observations	n/a	2004-2009	Earnings conservatism
Ayemere, I. L. and Elijah, A.	Audit committee attributes and earnings management: Evidence from Nigeria	2015	453 firm year observations	Nigeria	2006-2013	Accruals quality
Li, X.	Accounting conservatism and the cost of capital: An international analysis	2015	140.774 firm year observations	31 countries	1991-2006	Accounting conservatism

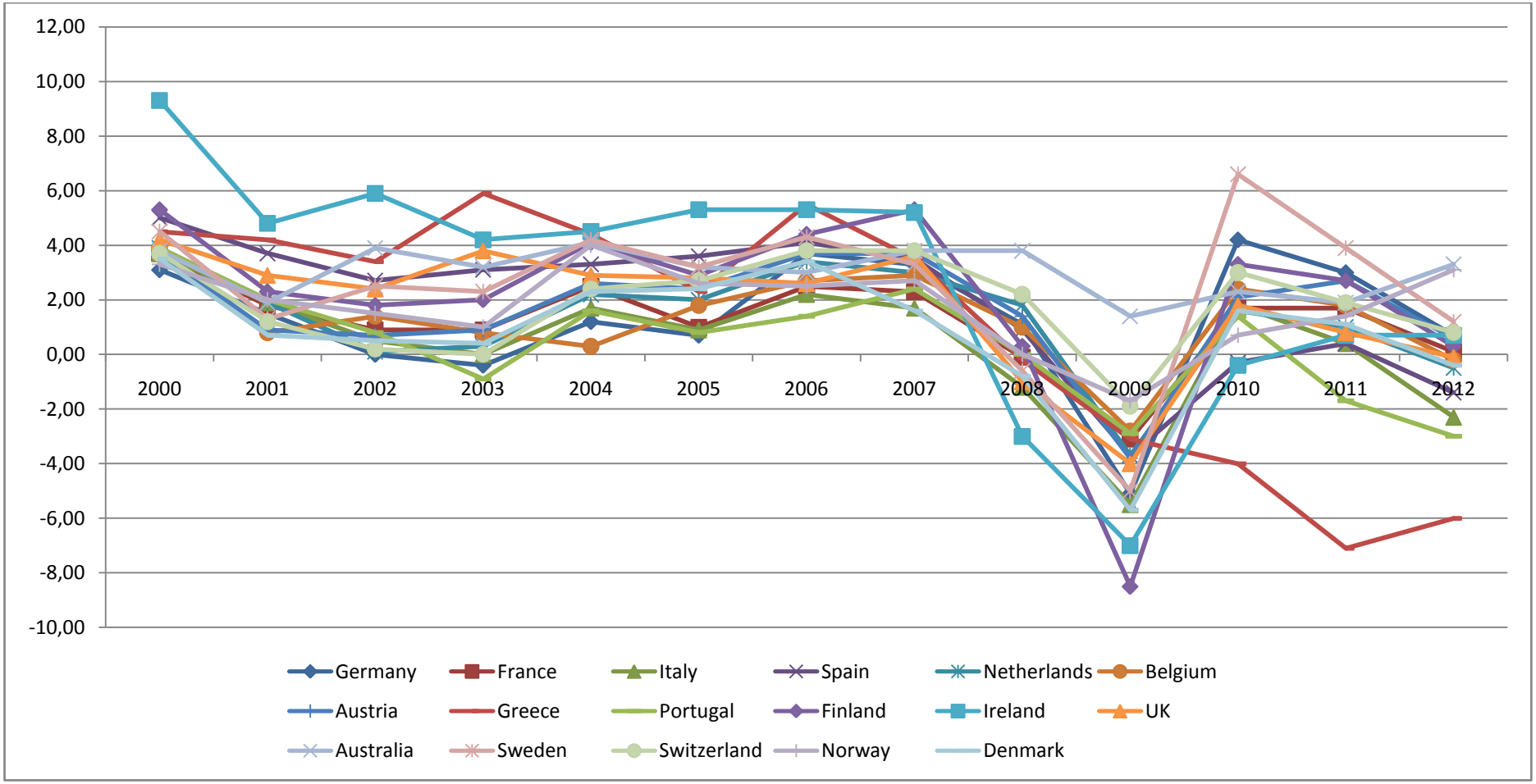
Vichitsarawong, T. and Pornupatham, S.	Do audit opinions reflect earnings persistence?	2015	1.791 firm year observations	Thailand	2004-2008	Earnings persistence

Fig. 1. Real GDP (%) of developed countries worldwide.



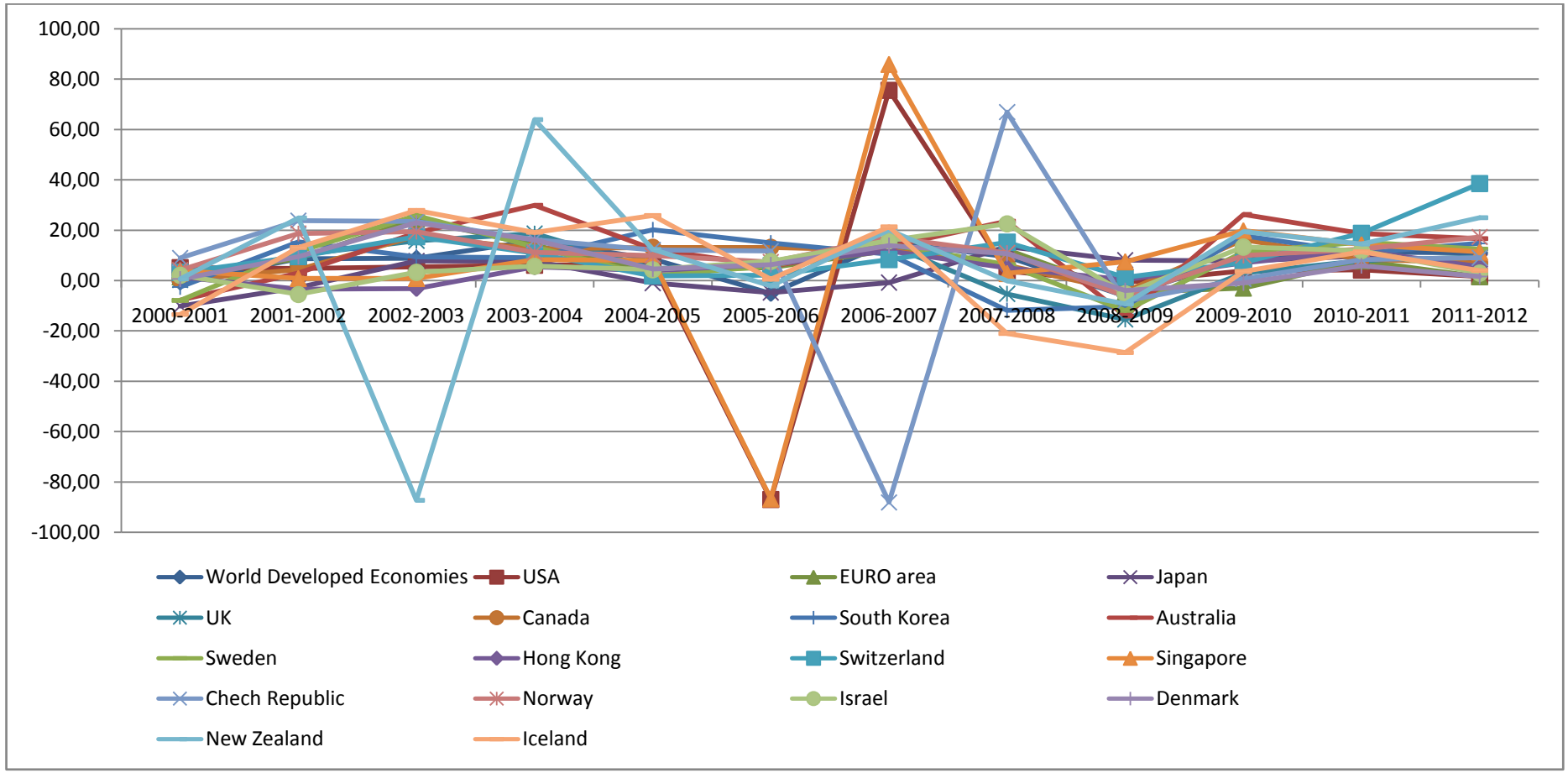
Note: This figure shows the annual percentage growth rate of GDP at market prices based on constant local currency of developed countries worldwide.
Source: Worldbank

Fig. 2. Real GDP (%) of examining developed countries.



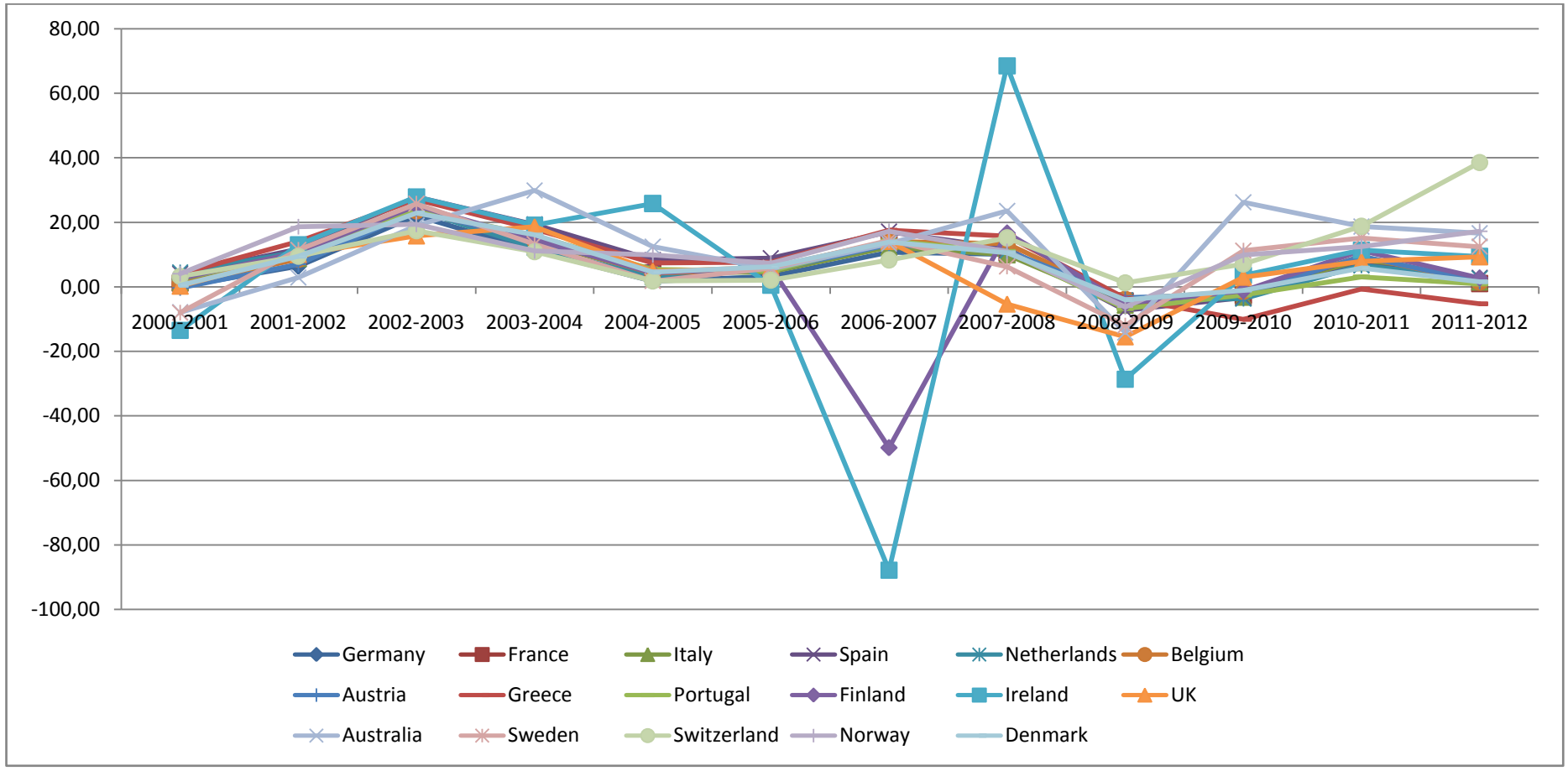
Note: This figure shows the annual percentage growth rate of GDP at market prices based on constant local currency of developed countries in our dataset.
Source: Worldbank

Fig. 3. Total consumption (%) of developed countries worldwide.



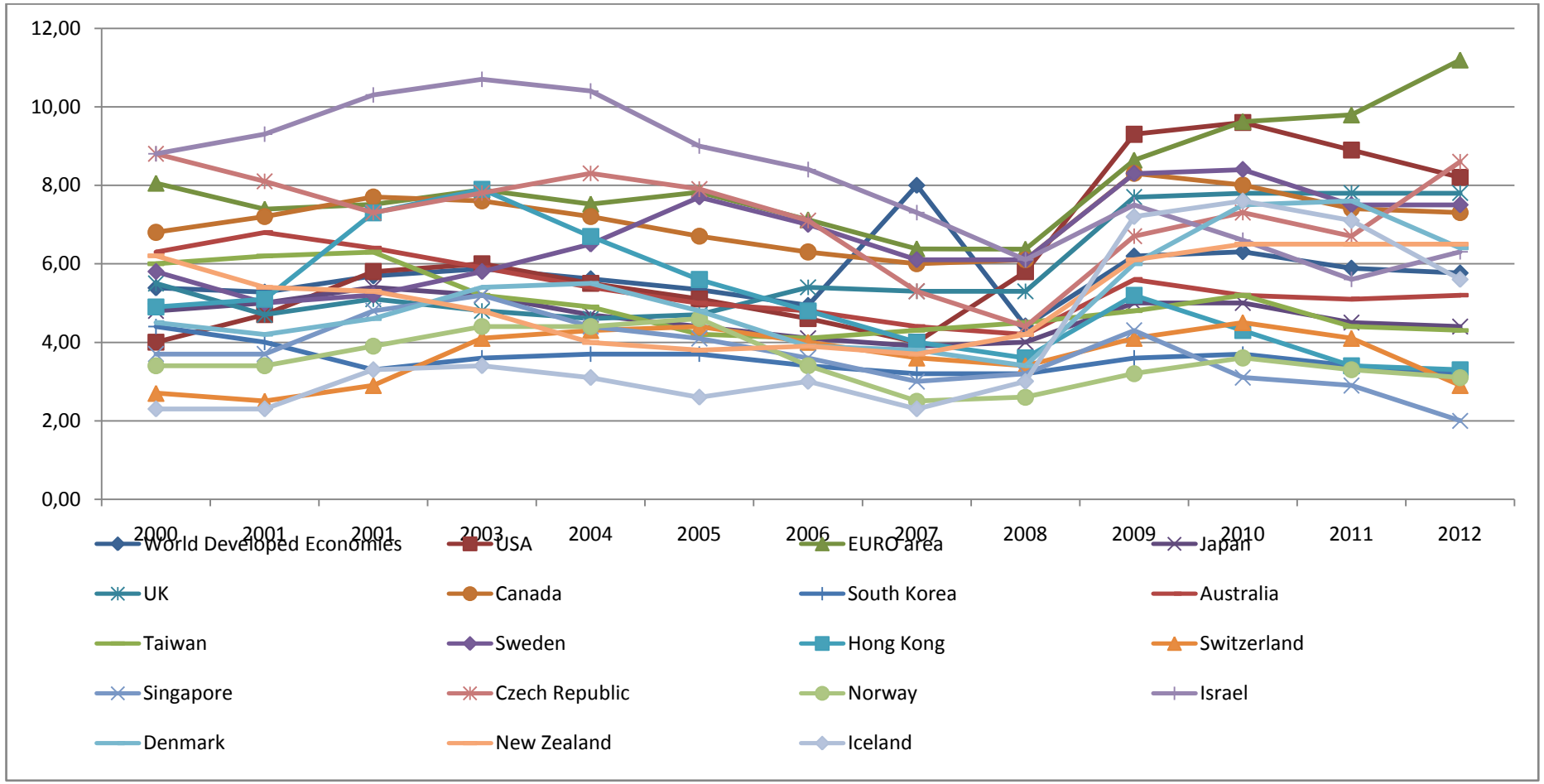
Note: This figure shows the annual change of total consumption (the sum of household final consumption expenditure (private consumption) and general government final consumption expenditure (general government consumption)) of developed countries worldwide.
Source: Worldbank

Fig. 4. Total consumption (%) of examining developed countries.



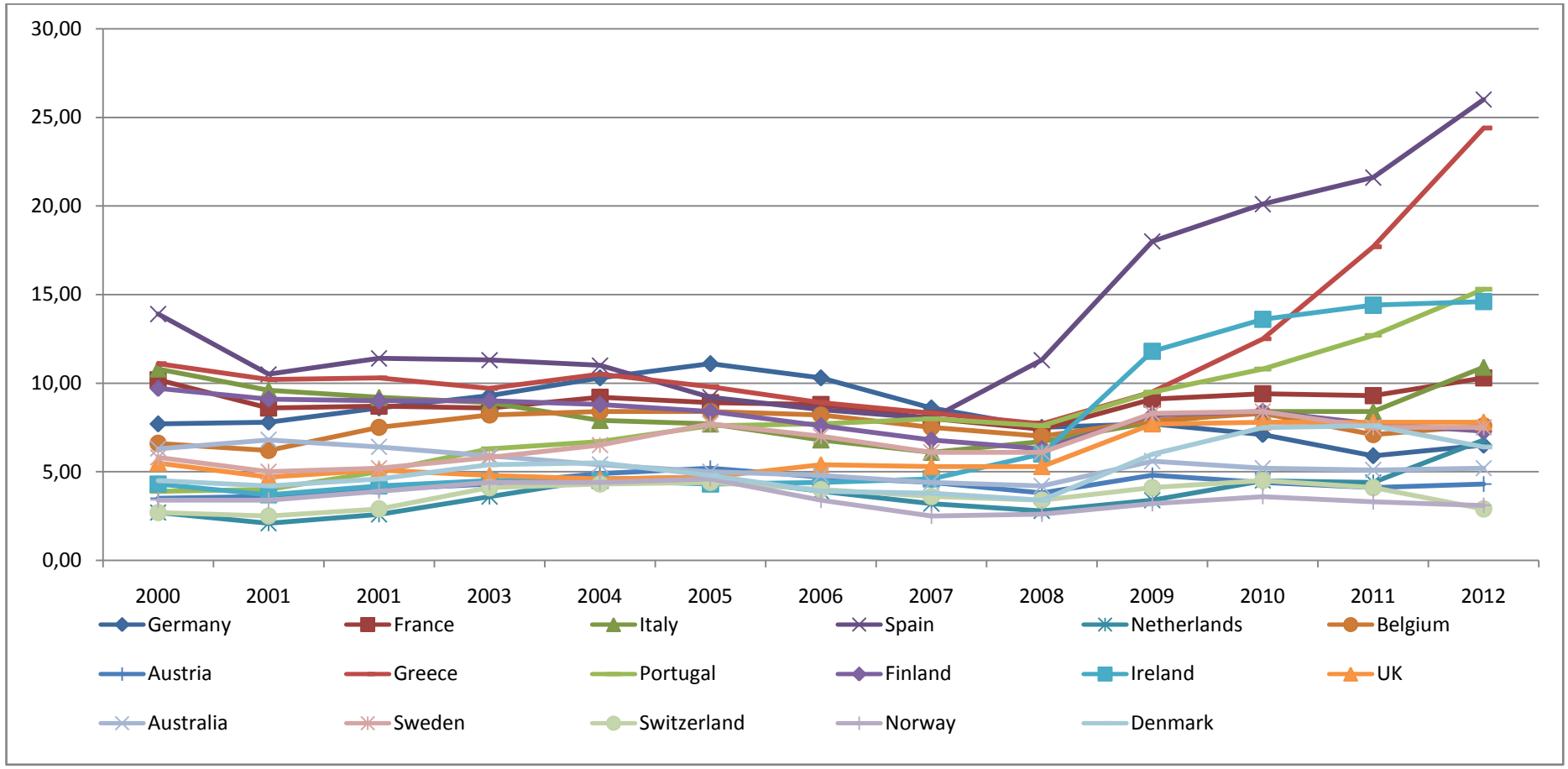
Note: This figure shows the annual change of total consumption (the sum of household final consumption expenditure (private consumption) and general government final consumption expenditure (general government consumption)) of developed countries in our dataset.
Source: Worldbank

Fig. 5. Unemployment (% of total labour force) of developed countries worldwide.



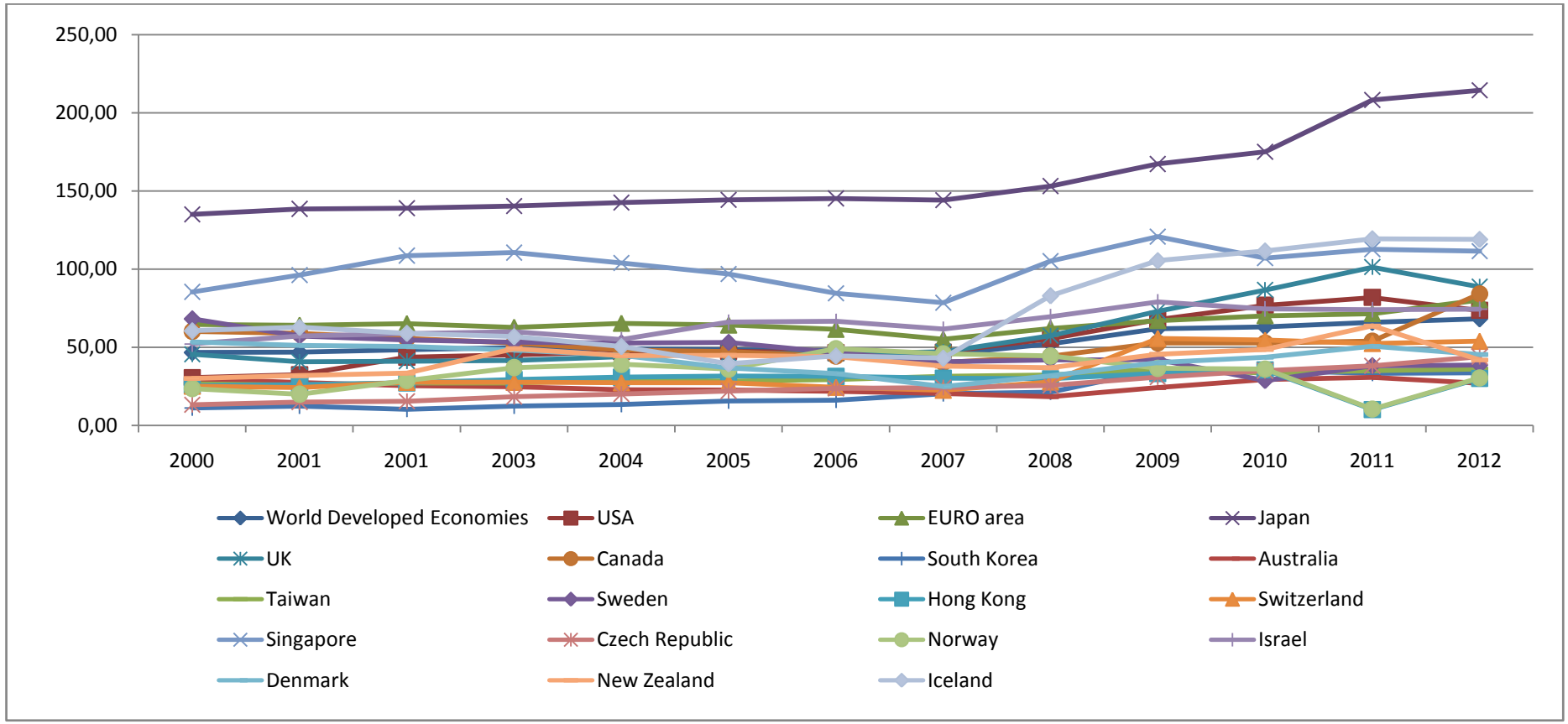
Note: This figure shows the uneployment rate (the share of the labor force that is without work but available for and seeking employment) of developed countries worldwide.
Source: Worldbank

Fig. 6. Unemployment (% of total labour force) of examining developed countries.



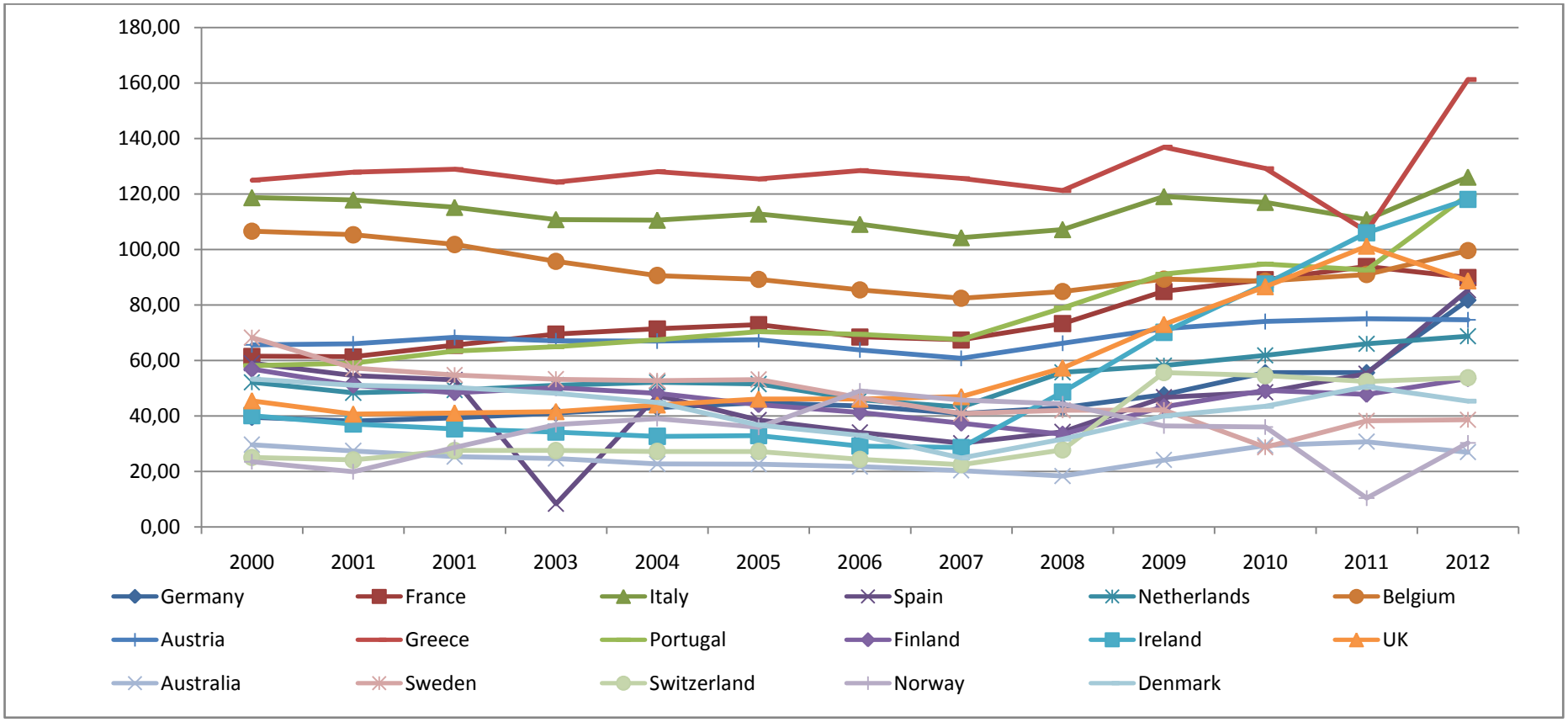
Note: This figure shows the uneployment rate (the share of the labor force that is without work but available for and seeking employment) of developed countries in our dataset.
Source: Worldbank

Fig. 7. Central government debt (% of GDP) of developed countries worldwide.



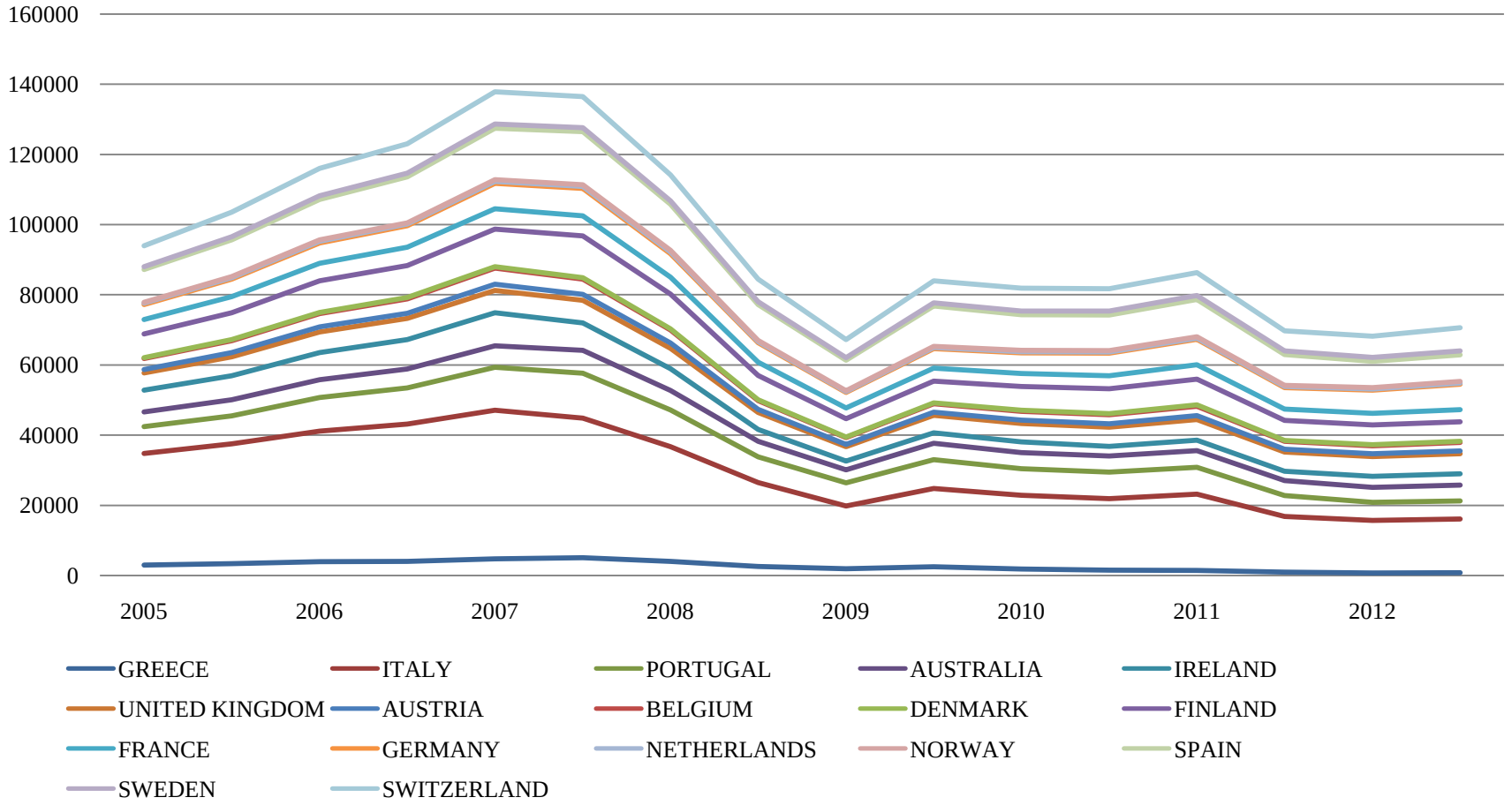
Note: This figure shows the central government debt (the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. Because debt is a stock rather than a flow, it is measured as of a given date, usually the last day of the fiscal year) of developed countries worldwide.
Source: Worldbank

Fig. 8. Central government debt (% of GDP) of examining developed countries.



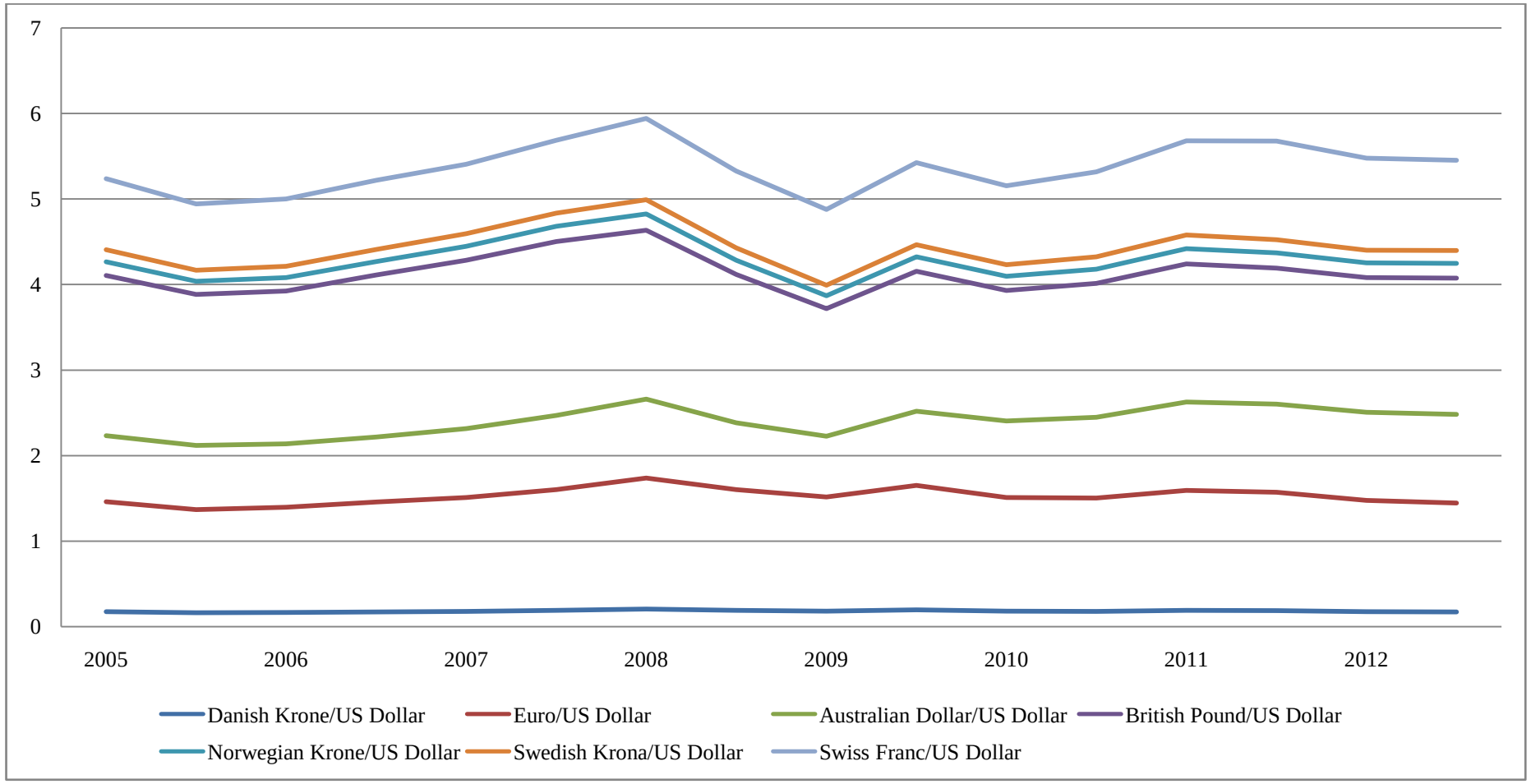
Note: This figure shows the central government debt (the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. Because debt is a stock rather than a flow, it is measured as of a given date, usually the last day of the fiscal year) of developed countries in our dataset.
Source: Worldbank

Fig. 9. Stock Exchange Indexes of examining developed countries.



Note: This figure shows the annual change of stock exchange indexes of examining developed countries in our dataset.
Source: www.worldtrading.com

Fig. 10. Foreign currencies of examining developed countries.



Note: This figure shows the annual change of foreign currencies of examining developed countries in our dataset.
Source: www.worldtrading.com

Table 1: Descriptions of variables

Panel A: Regression equation 40 (Earnings quality under financial crisis of 2008)

Variable	Measure	Description	Data Source
Dependent variables			
Earnings quality	Ex post conservatism (EQ_1)	Basu (1997) model	DataStream (2005-2012)
	Ex ante conservatism (EQ_2)	Beaver and Ryan (2000) model	DataStream (2005-2012)
	Value relevance (EQ_3)	Ohlson (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_4)	Dechow et al (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_5)	McNichols (2002) model	DataStream (2005-2012)
	Accruals quality (EQ_6)	Kothari et al (2005) model	DataStream (2005-2012)
	Earnings persistence (EQ_7)	Kormedi and Lipe (1987) model	DataStream (2005-2012)
	Earnings predictability (EQ_8)	Francis et al (2004) model	DataStream (2005-2012)
	Loss avoidance analysis (EQ_9)	Burgstahler et al (2006) model	DataStream (2005-2012)
	Earnings smoothness (EQ_{10})	Leuz et al (2003) model	DataStream (2005-2012)
Independent variables			
Crisis period	Crisis period (CRISIS)	Dummy variable takes 0 if an observation falls in the pre crisis period (2005-2007) and 1 if it falls in crisis period (2008-2012)	
Control variables			
Financial leverage	Financial leverage (LEVER)	Percentage of long term debt divided by percentage of common equity	DataStream (2005-2012)
TOBIN's Q	TOBIN's Q (TOBINQ)	Market capitalization plus total debt scaled by total assets (McConnel and Servaes, 1990)	DataStream (2005-2012)
Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Sales volatility	Sales volatility (SV)	Standard deviation of sales revenues scaled by total assets	DataStream (2005-2012)
Cash flow from operations volatility	Cash flow from operations volatility (CFOV)	Standard deviation of cash flow from operations scaled by total assets	DataStream (2005-2012)
Length of operating cycle	Length of operating cycle (LOC)	The sum of days inventory outstanding plus days sales outstanding minus days payable outstanding	DataStream (2005-2012)

Corporate profitability	Corporate profitability (CORPROFIT)	Net income before extraordinary items divided by total assets	DataStream (2005-2012)
Corporate performance	Corporate performance (CORPERFOR)	Operating cash flow divided by total assets	DataStream (2005-2012)
Financial distress	Financial distress (LAGLOSS)	Dummy variable that takes 1 if firm reports negative income before extraordinary items and 0 otherwise	DataStream (2005-2012)
Market share	Market share (MASH)	Sales divided by total industry sales	DataStream (2005-2012)
Capital intensity	Capital intensity (CAPINT)	Depreciation, depletion and amortization expenses divided by sales	DataStream (2005-2012)
Corporate efficiency	Corporate efficiency (CORPEFFIC)	Sales divided by total assets	DataStream (2005-2012)
Marginal corporate tax rate	Marginal corporate tax rate (MCTR)	Corporate receipts minus deductions for labor costs, materials and depreciation of capital assets (called income taxes). MCTR is multiplied by 0 if the firm has neither current income tax expense nor positive pre-tax income; 0.5 if the firm has either current income tax expense or positive pre-tax income; and 1 if the firm has current income tax expense and positive pre-tax income	DataStream (2005-2012)
Corporate multinationality	Corporate multinationality (MULTIN)	Foreign profits divided by total profits	DataStream (2005-2012)
Dividend yield	Dividend yield (DIVIDYIELD)	Dividend yield obtained from DataStream	DataStream (2005-2012)
Total debt	Total debt (DEBT)	Total debt divided by total assets	DataStream (2005-2012)
Annual stock return	Annual stock return (R)	Annual stock return	DataStream (2005-2012)
Proxy for a bad news	Proxy for a bad news (DR)	Dummy variable that takes 1 for negative returns and 0 otherwise	DataStream (2005-2012)
The product of annual stock return and the proxy of bad news	The product of annual stock return and the proxy of bad news (R*DR)	The product of annual stock return and the proxy of bad news	DataStream (2005-2012)
The market beta coefficient	The market beta coefficient (BETA)	The market beta coefficient obtained from DataStream	DataStream (2005-2012)
The change in net income	The change in net income (ΔNI)	Change in net income before extraordinary items	DataStream (2005-2012)

Industrial classification	Industrial classification (SICODE)	Dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)
Economic development	Economic development (GDP)	Natural logarithm of gross domestic product per capita	Eurostat, WorldBank, World Economic Forum (2005-2012)
Financial development	Financial development (MCAP)	Stock market capitalization divided by gross domestic product	Eurostat, WorldBank, World Economic Forum (2005-2012)
Market concentration using Herfindahl – Hirschman index	Market concentration using Herfindahl – Hirschman index (HERF)	Squaring the industry share of each firm competing in a market, and then summing the resulting numbers for each country	Eurostat, WorldBank, World Economic Forum (2005-2012)

Panel B: Regression equation 41 (The joint effect of global financial crisis of 2008 and investor protection on audit quality)

Variable	Measure	Description	Data Source
Dependent variables			
Audit quality	Audit fees (AQ_1)	The amount of audit fees	DataStream (2005-2012)
	Modified audit report opinion (AQ_2)	Dummy variable takes 1 if the audit opinion is qualified and 0 otherwise	DataStream (2005-2012)
	Auditor switch (AQ_3)	Dummy variable takes 1 if firm switch auditor and 0 otherwise	DataStream (2005-2012)
	Status of audit firm (AQ_4)	Dummy variable takes 1 if the firm is a Big Four (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise	DataStream (2005-2012)
	Existence of audit committee (AQ_5)	Dummy variable takes 1 if the firm has an audit committee and 0 otherwise	DataStream (2005-2012)
	Demand for auditing (AQ_6)	Sum of square root of total assets of each Big Four and non-Big Four audit client, divided by the sum of square root of total assets of all firms. A higher Big Four or non-Big Four market share indicates greater demand for high quality auditing within a country (Francis et al, 2003)	DataStream (2005-2012)

Independent variables

Crisis period	Crisis period (CRISIS)	Dummy variable takes 0 if an observation falls in the pre crisis period (2005-2007) and 1 if it falls in crisis period (2008-2012)	
Investor protection	Property rights ($INVPR_1$)	Measure of how strong is the protection of property rights and ranges from 1 to 7, where 1 signifies poorly defined and not protected by law and 7 signifies clearly defined and well protected by law	World Economic Forum (2005-2012)
	Judicial independence ($INVPR_2$)	Measure to what extent is the judiciary independent from influences of members of government, citizens, or firms and ranges from 1 to 7, where 1 signifies heavily influenced and 7 signifies entirely independent	World Economic Forum (2005-2012)
	Transparency of government policymaking ($INVPR_3$)	Measure to what extent firms are clearly informed by the government of changes in policies and regulations and ranges from 1 to 7, where 1 signifies never informed and 7 signifies always informed	World Economic Forum (2005-2012)
	Strength of auditing and reporting standards ($INVPR_4$)	Measure how strong is financial auditing and reporting standards regarding financial performance and ranges from 1 to 7, where 1 signifies extremely weak and 7 signifies extremely strong	World Economic Forum (2005-2012)
	Efficacy of corporate boards ($INVPR_5$)	Measure who strong is the supervision of investors and boards on management decisions and ranges from 1 to 7, where 1 signifies that management has little accountability and 7 signifies that investors and boards exert strong supervision of management decisions	World Economic Forum (2005-2012)
	Protection of minority shareholders' interests ($INVPR_6$)	Measure how strong is the protection of interests of minority shareholders and ranges from 1 to 7, where 1 signifies not protected by law and 7 signifies protected by law and actively enforced	World Economic Forum (2005-2012)
	Strength of investor protection ($INVPR_7$)	Measure how strong is the investor protection and ranges from 1 to 10, where 1 signifies that investor protection is weak and 10 signifies that investor protection is high	World Economic Forum (2005-2012)

	Legal rights index ($INVPR_8$)	Measure how strong is the legal rights of investors and ranges from 1 to 10, where 1 signifies that the legal rights of investors is low protected and 10 signifies that the legal rights of investors is highly protected	World Economic Forum (2005-2012)
The interaction effect of financial crisis of 2008 and investor protection on audit quality	The interaction effect of financial crisis of 2008 and investor protection on audit quality (CRISIS*INVPR)		
Control variables			
Corporate size	Corporate size (CORPSIZE)	Natural of logarithm of total assets	DataStream (2005-2012)
Risk	Risk (RISK)	Total liabilities divided by total assets	DataStream (2005-2012)
Industrial classification	Industrial classification (SICODE)	Dummy variable takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)
Profitability	Profitability (PROFIT)	Net income divided by sales	DataStream (2005-2012)
Solvency	Solvency (SOLV)	Equity divided by total liabilities	DataStream (2005-2012)
Corporate complexity	Corporate complexity (COMPLEX)	Sum of inventory and accounts receivable divided by total assets	DataStream (2005-2012)
Accruals	Accruals (ACCRUAL)	Change in non-assets less the change in non-debt liabilities where non-assets is defined as total assets less cash and short time investments and non-debt liabilities is defined as total liabilities less debt	DataStream (2005-2012)
Free cash flow	Free cash flow (FCF)	Income less total accruals divided by total assets	DataStream (2005-2012)
Inherent risk	Inherent risk (IRISK)	Receivables divided by total assets	DataStream (2005-2012)
Financial leverage	Financial leverage (LEVERAGE)	Total debt divided by total assets	DataStream (2005-2012)
Book-to-market ratio	Book-to-market ratio (BM)	Book value of equity divided by market value of equity	DataStream (2005-2012)
Losses	Losses (LOSSES)	Dummy variable that takes the value 1 when net earnings are negative and 0 otherwise	DataStream (2005-2012)

Panel C: Regression equation 42 (The joint effect of audit quality and investor protection on earnings quality)			
Variable	**Measure**	**Description**	**Data Source**
Dependent variables			
Earnings quality	Ex post conservatism (EQ_1)	Basu (1997) model	DataStream (2005-2012)
	Ex ante conservatism (EQ_2)	Beaver and Ryan (2000) model	DataStream (2005-2012)
	Value relevance (EQ_3)	Ohlson (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_4)	Dechow et al (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_5)	McNichols (2002) model	DataStream (2005-2012)
	Accruals quality (EQ_6)	Kothari et al (2005) model	DataStream (2005-2012)
	Earnings persistence (EQ_7)	Kormedi and Lipe (1987) model	DataStream (2005-2012)
	Earnings predictability (EQ_8)	Francis et al (2004) model	DataStream (2005-2012)
	Loss avoidance analysis (EQ_9)	Burgstahler et al (2006) model	DataStream (2005-2012)
	Earnings smoothness (EQ_{10})	Leuz et al (2003) model	DataStream (2005-2012)
Independent variables			
Audit quality	Audit fees (AQ_1)	The amount of audit fees	DataStream (2005-2012)
	Modified audit report opinion (AQ_2)	Dummy variable takes 1 if the audit opinion is qualified and 0 otherwise	DataStream (2005-2012)
	Auditor switch (AQ_3)	Dummy variable takes 1 if firm switch auditor and 0 otherwise	DataStream (2005-2012)
	Status of audit firm (AQ_4)	Dummy variable takes 1 if the firm is a Big Four (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise	DataStream (2005-2012)
	Existence of audit committee (AQ_5)	Dummy variable takes 1 if the firm has an audit committee and 0 otherwise	DataStream (2005-2012)
	Demand for auditing (AQ_6)	Sum of square root of total assets of each Big Four and non-Big Four audit client, divided by the sum of square root of total assets of all firms. A higher Big Four or non-Big Four market share indicates greater demand for high quality auditing within a country (Francis et al, 2003)	DataStream (2005-2012)

Investor protection	Property rights ($INVPR_1$)	Measure of how strong is the protection of property rights and ranges from 1 to 7, where 1 signifies poorly defined and not protected by law and 7 signifies clearly defined and well protected by law	World Economic Forum (2005-2012)
	Judicial independence ($INVPR_2$)	Measure to what extent is the judiciary independent from influences of members of government, citizens, or firms and ranges from 1 to 7, where 1 signifies heavily influenced and 7 signifies entirely independent	World Economic Forum (2005-2012)
	Transparency of government policymaking ($INVPR_3$)	Measure to what extent firms are clearly informed by the government of changes in policies and regulations and ranges from 1 to 7, where 1 signifies never informed and 7 signifies always informed	World Economic Forum (2005-2012)
	Strength of auditing and reporting standards ($INVPR_4$)	Measure how strong is financial auditing and reporting standards regarding financial performance and ranges from 1 to 7, where 1 signifies extremely weak and 7 signifies extremely strong	World Economic Forum (2005-2012)
	Efficacy of corporate boards ($INVPR_5$)	Measure who strong is the supervision of investors and boards on management decisions and ranges from 1 to 7, where 1 signifies that management has little accountability and 7 signifies that investors and boards exert strong supervision of management decisions	World Economic Forum (2005-2012)
	Protection of minority shareholders' interests ($INVPR_6$)	Measure how strong is the protection of interests of minority shareholders and ranges from 1 to 7, where 1 signifies not protected by law and 7 signifies protected by law and actively enforced	World Economic Forum (2005-2012)
	Strength of investor protection ($INVPR_7$)	Measure how strong is the investor protection and ranges from 1 to 10, where 1 signifies that investor protection is weak and 10 signifies that investor protection is high	World Economic Forum (2005-2012)

	Legal rights index ($INVPR_8$)	Measure how strong is the legal rights of investors and ranges from 1 to 10, where 1 signifies that the legal rights of investors is low protected and 10 signifies that the legal rights of investors is highly protected	World Economic Forum (2005-2012)
The interaction effect of audit quality and investor protection on earnings quality	The interaction effect of audit quality and investor protection on earnings quality (AQ*INVPR)		

Control variables

Change in receivables	Change in receivables (ΔRAV)	Change in receivables scaled by total assets in previous year	DataStream (2005-2012)
Property, plant, and equipment	Property, plant, and equipment (PPE)	Gross property, plant, and equipment scaled by total assets in previous year	DataStream (2005-2012)
Net income	Net income (NI)	Net income	DataStream (2005-2012)
Total accruals	Total accruals (TA)	Income before extraordinary items minus operating cash flows	DataStream (2005-2012)
Current assets	Current assets (Current)	Current assets divided by current liabilities	DataStream (2005-2012)
Small profits	Small profits (SP)	Dummy variable takes 1 if net profit scaled by total assets is between 0 and 0.01 and 0 otherwise	DataStream (2005-2012)
Timely loss recognition	Timely loss recognition (LL)	Dummy variable takes 1 if net profit scaled by total assets is less than -0.20 and 0 otherwise	DataStream (2005-2012)
Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Cash flow from operations volatility	Cash flow from operations volatility (CFOV)	Standard deviation of cash flow from operations scaled by total assets	DataStream (2005-2012)
Total debt	Total debt (DEBT)	Total debt divided by total assets	DataStream (2005-2012)
The market beta coefficient	The market beta coefficient (BETA)	The market beta coefficient obtained from DataStream	DataStream (2005-2012)
Industrial classification	Industrial classification (SICODE)	Dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)
Leverage	Leverage (LEVER)	Total liabilities divided by total assets	DataStream (2005-2012)
Return on assets	Return on assets (ROA)	Net income divided by total assets	DataStream (2005-2012)

Change in revenue	Change in revenue (ΔREV)	Change in revenue (sale) scaled by total assets in previous year	DataStream (2005-2012)

Panel D: Regression equation 43 (Cost of equity capital and audit quality under financial crisis of 2008)

Variable	Measure	Description	Data Source
Dependent variables			
Cost of equity capital	Cost of equity capital ($COSTOFEQUITY_1$)	Constant growth Gordon model introduced by Palea (2007)	DataStream (2005-2012)
	Cost of equity capital ($COSTOFEQUITY_2$)	PEG approach introduced by Easton (2004)	DataStream (2005-2012)
Independent variables			
Audit quality	Audit fees (AQ_1)	The amount of audit fees	DataStream (2005-2012)
	Modified audit report opinion (AQ_2)	Dummy variable takes 1 if the audit opinion is qualified and 0 otherwise	DataStream (2005-2012)
	Auditor switch (AQ_3)	Dummy variable takes 1 if firm switch auditor and 0 otherwise	DataStream (2005-2012)
	Status of audit firm (AQ_4)	Dummy variable takes 1 if the firm is a Big Four (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise	DataStream (2005-2012)
	Existence of audit committee (AQ_5)	Dummy variable takes 1 if the firm has an audit committee and 0 otherwise	DataStream (2005-2012)
Crisis period	Crisis period (CRISIS)	Dummy variable takes 0 if an observation falls in the pre crisis period (2005-2007) and 1 if it falls in crisis period (2008-2012)	
Control variables			
Corporate annual earnings growth per share	Corporate annual earnings growth per share (EG)	Corporate annual earnings growth per share	DataStream (2005-2012)
Corporate dividends	Corporate dividends (DPO)	Corporate dividends announced for the year scaled by earnings for the year available for dividends	DataStream (2005-2012)
Total debt	Total debt (DEBT)	Total debt divided by total assets	DataStream (2005-2012)

Corporate natural log of market value of equity	Corporate natural log of market value of equity (LNMV)	Corporate natural log of market value of equity	DataStream (2005-2012)
Book-to-market ratio	Book-to-market ratio (BM)	Book value of equity divided by market value of equity	DataStream (2005-2012)
Trading volume	Trading volume (VOLUME)	Trading volume divided by total shares outstanding	DataStream (2005-2012)
The market beta coefficient	The market beta coefficient (BETA)	The market beta coefficient obtained from DataStream	DataStream (2005-2012)
Cash flow from operations	Cash flow from operations (CFO)	Cash flow from operations divided by total assets	DataStream (2005-2012)
Natural log of debt to assets ratio	Natural log of debt to assets ratio (LNLEV)	Natural log of debt to assets ratio	DataStream (2005-2012)
Natural log of book to market ratio	Natural log of book to market ratio (LNBM)	Natural log of book to market ratio	DataStream (2005-2012)
Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Classification of firm by market capitalization	Classification of firm by market capitalization (FIRM)	Dummy variable takes 1 if the firm is classified as small (market value of equity of firm is lower than the median market value of equity) and 0 if the firm is classified as large (market value of equity of firm is larger than the median market value of equity)	DataStream (2005-2012)
Industrial classification	Industrial classification (SICODE)	Dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)

Panel E: Regression equation 44 (Cost of equity capital and earnings quality under financial crisis of 2008)

Variable	Measure	Description	Data Source
Dependent variables			
Cost of equity capital	Cost of equity capital ($COSTOFEQUITY_1$)	Constant growth Gordon model introduced by Palea (2007)	DataStream (2005-2012)
	Cost of equity capital ($COSTOFEQUITY_2$)	PEG approach introduced by Easton (2004)	DataStream (2005-2012)
Independent variables			
Earnings quality	Ex post conservatism (EQ_1)	Basu (1997) model	DataStream (2005-2012)
	Ex ante conservatism (EQ_2)	Beaver and Ryan (2000) model	DataStream (2005-2012)

	Value relevance (EQ_3)	Ohlson (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_4)	Dechow et al (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_5)	McNichols (2002) model	DataStream (2005-2012)
	Accruals quality (EQ_6)	Kothari et al (2005) model	DataStream (2005-2012)
	Earnings persistence (EQ_7)	Kormedi and Lipe (1987) model	DataStream (2005-2012)
	Earnings predictability (EQ_8)	Francis et al (2004) model	DataStream (2005-2012)
	Loss avoidance analysis (EQ_9)	Burgstahler et al (2006) model	DataStream (2005-2012)
	Earnings smoothness (EQ_{10})	Leuz et al (2003) model	DataStream (2005-2012)

Control variables

The market beta coefficient	The market beta coefficient (BETA)	The market beta coefficient obtained from DataStream	DataStream (2005-2012)
Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Book-to-market ratio	Book-to-market ratio (BM)	Book value of equity divided by market value of equity	DataStream (2005-2012)
Financial leverage	Financial leverage (LEVERAGE)	Total debt divided by total assets	DataStream (2005-2012)
Cash flow from operations volatility	Cash flow from operations volatility (CFOV)	Standard deviation of cash flow from operations scaled by total assets	DataStream (2005-2012)
Sales volatility	Sales volatility (SV)	Standard deviation of sales revenues scaled by total assets	DataStream (2005-2012)
Negative earnings realization	Negative earnings realization (NER)	Dummy variable that takes 1 if firm reports negative income before extraordinary items and 0 otherwise	DataStream (2005-2012)
Collateral value or asset structure of assets	Collateral value or asset structure of assets (COLLATERAL)	Ratio of intangible assets divided by total assets	DataStream (2005-2012)
Non-debt tax shields	Non-debt tax shields (NON-DEBT)	Ratio of depreciation divided by total assets	DataStream (2005-2012)
Growth	Growth (GROWTH)	Ratio of capital expenditures divided by total assets	DataStream (2005-2012)
Uniqueness	Uniqueness (UNIQUENESS)	Ratio of R&D divided by sales	DataStream (2005-2012)
Industrial classification	Industrial classification (SICODE)	Dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)
Profitability	Profitability (PROFITABILITY)	Return on assets	DataStream (2005-2012)
Liquidity	Liquidity (LIQUIDITY)	Quick ratio	DataStream (2005-2012)

Panel F: Regression equation 45 (Cost of debt and audit quality under financial crisis of 2008)

Variable	Measure	Description	Data Source
Dependent variables			
Cost of debt	Cost of debt (COSTOFDEBT)	Ratio of interest expense in year t+1 to average interest bearing debt outstanding during years t and t+1	DataStream (2005-2012)
Independent variables			
Audit quality	Audit fees (AQ_1)	The amount of audit fees	DataStream (2005-2012)
	Modified audit report opinion (AQ_2)	Dummy variable takes 1 if the audit opinion is qualified and 0 otherwise	DataStream (2005-2012)
	Auditor switch (AQ_3)	Dummy variable takes 1 if firm switch auditor and 0 otherwise	DataStream (2005-2012)
	Status of audit firm (AQ_4)	Dummy variable takes 1 if the firm is a Big Four (Deloitte Touche Tohmatsu, PriceWaterHouseCooper, Ernst & Young, KPMG) and 0 otherwise	DataStream (2005-2012)
	Existence of audit committee (AQ_5)	Dummy variable takes 1 if the firm has an audit committee and 0 otherwise	DataStream (2005-2012)
Crisis period	Crisis period (CRISIS)	Dummy variable takes 0 if an observation falls in the pre crisis period (2005-2007) and 1 if it falls in crisis period (2008-2012)	
Control variables			
Profitability	Profitability (PROFITABILITY)	Return on assets	DataStream (2005-2012)
Book-to-market ratio	Book-to-market ratio (BM)	Book value of equity divided by market value of equity	DataStream (2005-2012)
Financial leverage	Financial leverage (LEVERAGE)	Total debt divided by total assets	DataStream (2005-2012)
Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Interest coverage	Interest coverage (INTCOV)	Ratio of earnings before interest and taxes (EBIT) divided by the interest expenses	DataStream (2005-2012)
Natural log of net income before extraordinary items	Natural log of net income before extraordinary items (LNNIBE)	Natural log of net income before extraordinary items	DataStream (2005-2012)

Natural log of market value of equity	Natural log of market value of equity (LNMVE)	Natural log of market value of equity	DataStream (2005-2012)
Collateral value or asset structure of assets	Collateral value or asset structure of assets (COLLATERAL)	Ratio of intangible assets divided by total assets	DataStream (2005-2012)
Negative book equity	Negative book equity (NEGEQ)	Dummy variable that takes the value of 1 if the book value of equity is negative and 0 otherwise	DataStream (2005-2012)
Industrial classification	Industrial classification (SICODE)	Dummy variable that takes 1 for the most frequent four digit SIC industrial code for each cluster and 0 otherwise	DataStream (2005-2012)
Credit risk	Credit risk (CRISK)	Ratio of standard deviation of cash flow from operations to average of total assets during years t-1 and t	DataStream (2005-2012)

Panel G: Regression equation 46 (Cost of debt and earnings quality under financial crisis of 2008)

Variable	Measure	Description	Data Source
Dependent variables			
Cost of debt	Cost of debt (COSTOFDEBT)	Ratio of interest expense in year t+1 to average interest bearing debt outstanding during years t and t+1	DataStream (2005-2012)
Independent variables			
Earnings quality	Ex post conservatism (EQ_1)	Basu (1997) model	DataStream (2005-2012)
	Ex ante conservatism (EQ_2)	Beaver and Ryan (2000) model	DataStream (2005-2012)
	Value relevance (EQ_3)	Ohlson (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_4)	Dechow et al (1995) model	DataStream (2005-2012)
	Accruals quality (EQ_5)	McNichols (2002) model	DataStream (2005-2012)
	Accruals quality (EQ_6)	Kothari et al (2005) model	DataStream (2005-2012)
	Earnings persistence (EQ_7)	Kormedi and Lipe (1987) model	DataStream (2005-2012)
	Earnings predictability (EQ_8)	Francis et al (2004) model	DataStream (2005-2012)
	Loss avoidance analysis (EQ_9)	Burgstahler et al (2006) model	DataStream (2005-2012)
	Earnings smoothness (EQ_{10})	Leuz et al (2003) model	DataStream (2005-2012)
Control variables			
Financial leverage	Financial leverage (LEVERAGE)	Total debt divided by total assets	DataStream (2005-2012)

Corporate size	Corporate size (CORPSIZE)	Natural logarithm of total assets	DataStream (2005-2012)
Profitability	Profitability (PROFITABILITY)	Return on assets	DataStream (2005-2012)
Interest coverage	Interest coverage (INTCOV)	Ratio of earnings before interest and taxes (EBIT) divided by the interest expenses	DataStream (2005-2012)
Natural log of net income before extraordinary items	Natural log of net income before extraordinary items (LNNIBE)	Natural log of net income before extraordinary items	DataStream (2005-2012)
Earnings per share	Earnings per share (EPS)	Earnings per share before extraordinary items	DataStream (2005-2012)
Change in earnings per share	Change in earnings per share (ΔEPS)	Change in earnings per share before extraordinary items between year t and t-1	DataStream (2005-2012)
Profitability	Profitability (PROFIT)	Dummy variable that takes 1 if firm's earnings per share before extraordinary items is greater than or equal to 0 and 0 otherwise	DataStream (2005-2012)
Profitability	Profitability (INCR)	Dummy variable that takes 1 if firm's earnings per share before extraordinary items in year t is greater than or equal to that of year t-1 and 0 otherwise	DataStream (2005-2012)
Cash flow from operations	Cash flow from operations (CFO)	Cash flow from operations divided by total assets	DataStream (2005-2012)
R&D expense	R&D expense (RND)	R&D expense deflated by total assets	DataStream (2005-2012)

Note: This table gives a full description of all the variables that are used in the examining empirical models.

Table 2: The sample

Panel A: Data collection process

		Firm - year observations
	Listed firms in advanced countries for the fiscal years 2005-2012	652.512
minus	Firms that has no applied International Accounting Standards	260.936
minus	Banks and financial institutions	108.800
minus	Observations with missing data	136.380
minus	Countries that are not classified in clusters defined by Leuz (2010)	9.305
	Final number of firm-year observations	**137.091**

Panel B: Firm-year observations per cluster and per country

	Cluster 1	
	Pre-crisis period	**Crisis period**
Australia	3.927	8.040
Ireland	264	395
UK	8.199	12.975
Final number of observations	**12.390**	**21.410**

	Cluster 2	
	Pre-crisis period	**Crisis period**
Austria	294	475
Belgium	594	920
Denmark	588	1.015
Finland	576	905
France	2.925	4.740
Germany	24.207	44.085
Netherlands	879	1.295
Norway	723	1.390
Spain	789	1.315
Sweden	1.938	4.160
Switzerland	1.491	2.295
Final number of observations	**35.004**	**62.595**

	Cluster 3	
	Pre-crisis period	**Crisis period**
Greece	972	1.495
Italy	1.008	1.605
Portugal	252	360
Final number of observations	**2.232**	**3.460**

Final firms - observations included in the sample	**137.091**

Panel C: Firm-year observations per SIC industrial code

	CLUSTER 1		CLUSTER 2		CLUSTER 3		
	Pre-crisis period	**Crisis period**	**Pre-crisis period**	**Crisis period**	**Pre-crisis period**	**Crisis period**	**TOTAL**
SIC INDUSTRIAL CODE	**FREQUENCY**						
1300	42	80	164	264	0	0	550
1600	84	125	287	450	78	95	1.119
1900	129	200	509	870	57	95	1.860
2200	165	245	388	630	15	25	1.468
2500	303	465	1.212	2.070	99	140	4.289
2800	570	905	1.412	2.380	234	335	5.836
3100	210	345	662	1.070	45	70	2.402
3400	705	1.160	2.799	4.535	66	105	9.370
3700	156	290	737	1.330	57	70	2.640
4000	1.650	2.540	5.755	8.820	201	330	19.296
4600	282	465	878	1.580	138	205	3.548
4900	300	500	1.722	2.985	75	130	5.712
5200	1.389	2.515	2.213	3.720	57	85	9.979
5500	120	180	535	910	69	105	1.919
5800	1.338	3.715	2.529	5.446	30	50	13.108
6100	105	155	486	825	54	90	1.715
6400	207	275	440	680	72	120	1.794
6700	717	1.000	1.356	2.155	99	160	5.487
7000	504	735	1.272	1.960	81	115	4.667
7300	72	110	273	445	120	170	1.190
7600	24	35	84	140	9	5	297
7900	240	350	1.061	1.780	57	105	3.593
8200	597	930	1.924	3.175	177	270	7.073
8500	2.481	4.090	6.306	14.375	342	585	28.179
TOTAL	**12.390**	**21.410**	**35.004**	**62.595**	**2.232**	**3.460**	**137.091**

Note: This table presents the sample and data collection process.

Table 3: Tests for normal distribution for the continuous variables by using Kolmogorov-Smirnov Test

Panel A: Regression equation 40 (Earnings earnings under financial crisis of 2008)

	Cluster 1		Cluster 2		Cluster 3	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
EQ_1	0,324	0,000	0,448	0,063	0,381	0,693
EQ_2	0,499	0,000	0,502	0,000	0,486	0,000
EQ_3	0,223	0,053	0,298	0,325	0,189	0,000
EQ_4	0,232	0,000	0,335	0,000	0,172	0,037
EQ_5	0,293	0,000	0,416	0,000	0,171	0,000
EQ_6	0,155	0,000	0,276	0,000	0,243	0,000
EQ_7	0,323	0,000	0,495	0,000	0,296	0,890
EQ_8	0,407	0,000	0,412	0,369	0,470	0,000
EQ_9	0,481	0,063	0,493	0,000	0,468	0,000
EQ_{10}	0,341	0,000	0,230	0,000	0,157	0,982
LEVER	0,462	0,000	0,487	0,000	0,382	0,000
TOBINQ	0,487	0,062	0,496	0,035	0,237	0,000
CORPSIZE	0,131	0,000	0,115	0,000	0,209	0,000
SV	0,451	0,000	0,437	0,000	0,232	0,000
CFOV	0,520	0,098	0,511	0,037	0,231	0,693
LOC	0,474	0,000	0,467	0,000	0,397	0,000
CORPROFIT	0,495	0,000	0,493	0,000	0,468	0,000
CORPERFOR	0,495	0,000	0,496	0,000	0,168	0,000
MASH	0,465	0,087	0,476	0,000	0,373	0,085
CAPINT	0,496	0,000	0,489	0,000	0,469	0,000
CORPEFFIC	0,481	0,000	0,468	0,000	0,161	0,000
MCTR	0,473	0,063	0,476	0,037	0,419	0,962
MULTIN	0,466	0,000	0,481	0,000	0,494	0,000
DIVIDYIELD	0,493	0,000	0,488	0,000	0,504	0,000
DEBT	0,494	0,000	0,489	0,000	0,361	0,000
R	0,247	0,000	0,485	0,000	0,168	0,000
R*DR	0,335	0,000	0,490	0,000	0,300	0,036
BETA	0,149	0,000	0,392	0,318	0,061	0,000
ΔNI	0,472	0,000	0,468	0,000	0,387	0,000
GDP	0,182	0,036	0,209	0,000	0,138	0,000
MCAP	0,214	0,000	0,275	0,000	0,231	0,000
HERF	0,231	0,000	0,450	0,369	0,234	0,368

Panel B: Regression equation 41 (The joint effect of global financial crisis of 2008 and investor protection on audit quality)

	Cluster 1		Cluster 2		Cluster 3	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
AQ_1	0,492	0,000	0,495	0,697	0,481	0,587
AQ_6	0,425	0,000	0,394	0,000	0,295	0,000
$INVPR_1$	0,207	0,037	0,166	0,000	0,143	0,000
$INVPR_2$	0,212	0,000	0,282	0,000	0,150	0,000
$INVPR_3$	0,231	0,000	0,334	0,364	0,156	0,000
$INVPR_4$	0,187	0,000	0,196	0,000	0,191	0,654
$INVPR_5$	0,203	0,000	0,211	0,000	0,240	0,000
$INVPR_6$	0,272	0,000	0,196	0,325	0,204	0,000
$INVPR_7$	0,414	0,000	0,373	0,000	0,346	0,000
$INVPR_8$	0,350	0,000	0,283	0,000	0,513	0,258
$CRISIS*INVPR_1$	0,334	0,367	0,362	0,000	0,318	0,000

CRISIS*INVPR$_2$	0,362	0,000	0,325	0,036	0,306	0,000
CRISIS*INVPR$_3$	0,325	0,000	0,330	0,000	0,282	0,000
CRISIS*INVPR$_4$	0,377	0,000	0,364	0,000	0,342	0,035
CRISIS*INVPR$_5$	0,367	0,000	0,368	0,058	0,356	0,000
CRISIS*INVPR$_6$	0,370	0,000	0,325	0,069	0,279	0,000
CRISIS*INVPR$_7$	0,265	0,000	0,356	0,000	0,270	0,037
CRISIS*INVPR$_8$	0,381	0,697	0,359	0,000	0,359	0,000
CORPSIZE	0,131	0,000	0,115	0,000	0,209	0,000
RISK	0,491	0,000	0,498	0,000	0,487	0,000
PROFIT	0,455	0,000	0,479	0,000	0,474	0,059
SOLV	0,488	0,000	0,497	0,257	0,507	0,000
COMPLEX	0,499	0,000	0,498	0,000	0,434	0,000
ACCRUAL	0,490	0,038	0,469	0,000	0,410	0,000
FCF	0,490	0,000	0,500	0,367	0,421	0,000
IRISK	0,201	0,000	0,470	0,000	0,086	0,257
LEVERAGE	0,494	0,000	0,494	0,000	0,361	0,000
BM	0,456	0,369	0,502	0,357	0,400	0,000

Panel C: Regression equation 42 (The joint effect of audit quality and investor protection on earnings quality)

	Pre crisis period					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
EQ_1	0,207	0,000	0,377	0,065	0,286	0,325
EQ_2	0,501	0,000	0,501	0,000	0,494	0,000
EQ_3	0,172	0,000	0,347	0,000	0,247	0,000
EQ_4	0,328	0,000	0,408	0,000	0,190	0,000
EQ_5	0,324	0,035	0,408	0,000	0,193	0,000
EQ_6	0,237	0,000	0,239	0,000	0,198	0,000
EQ_7	0,343	0,000	0,455	0,257	0,248	0,000
EQ_8	0,321	0,000	0,411	0,000	0,246	0,000
EQ_9	0,447	0,000	0,491	0,000	0,298	0,000
EQ_{10}	0,228	0,000	0,227	0,037	0,211	0,033
AQ_1	0,493	0,326	0,497	0,000	0,482	0,000
AQ_3	0,431	0,000	0,385	0,000	0,289	0,000
$INVPR_1$	0,424	0,000	0,449	0,000	0,263	0,000
$INVPR_2$	0,423	0,000	0,488	0,000	0,305	0,000
$INVPR_3$	0,424	0,000	0,386	0,000	0,324	0,000
$INVPR_4$	0,422	0,000	0,455	0,036	0,308	0,000
$INVPR_5$	0,420	0,327	0,373	0,000	0,526	0,000
$INVPR_6$	0,424	0,000	0,434	0,000	0,366	0,328
$INVPR_7$	0,432	0,000	0,382	0,000	0,362	0,000
$INVPR_8$	0,416	0,000	0,442	0,033	0,526	0,000
AQ_1*$INVPR_1$	0,493	0,000	0,497	0,000	0,482	0,000
AQ_1*$INVPR_2$	0,493	0,000	0,497	0,000	0,482	0,000
AQ_1*$INVPR_3$	0,493	0,387	0,497	0,033	0,482	0,265
AQ_1*$INVPR_4$	0,493	0,000	0,497	0,000	0,482	0,000
AQ_1*$INVPR_5$	0,493	0,000	0,497	0,000	0,482	0,000
AQ_1*$INVPR_6$	0,493	0,000	0,497	0,000	0,482	0,000

AQ_1*$INVPR_7$	0,493	0,025	0,497	0,000	0,482	0,000
AQ_1*$INVPR_8$	0,493	0,000	0,497	0,000	0,482	0,000
AQ_2*$INVPR_1$	0,540	0,000	0,540	0,033	0,528	0,000
AQ_2*$INVPR_2$	0,540	0,068	0,540	0,000	0,528	0,268
AQ_2*$INVPR_3$	0,540	0,000	0,540	0,000	0,528	0,328
AQ_2*$INVPR_4$	0,540	0,000	0,540	0,000	0,528	0,000
AQ_2*$INVPR_5$	0,540	0,000	0,540	0,000	0,528	0,000
AQ_2*$INVPR_6$	0,540	0,980	0,540	0,159	0,528	0,000
AQ_2*$INVPR_7$	0,539	0,000	0,540	0,000	0,528	0,000
AQ_2*$INVPR_8$	0,540	0,000	0,540	0,000	0,528	0,000
AQ_3*$INVPR_1$	0,541	0,000	0,537	0,000	0,478	0,000
AQ_3*$INVPR_2$	0,541	0,000	0,537	0,000	0,477	0,000
AQ_3*$INVPR_3$	0,541	0,069	0,537	0,022	0,478	0,000
AQ_3*$INVPR_4$	0,541	0,000	0,537	0,000	0,478	0,000
AQ_3*$INVPR_5$	0,541	0,000	0,537	0,000	0,478	0,000
AQ_3*$INVPR_6$	0,541	0,000	0,537	0,000	0,477	0,000
AQ_3*$INVPR_7$	0,540	0,000	0,537	0,000	0,466	0,000
AQ_3*$INVPR_8$	0,541	0,000	0,537	0,260	0,477	0,000
AQ_4*$INVPR_1$	0,387	0,066	0,396	0,000	0,349	0,000
AQ_4*$INVPR_2$	0,396	0,000	0,382	0,000	0,321	0,258
AQ_4*$INVPR_3$	0,383	0,000	0,394	0,000	0,346	0,000
AQ_4*$INVPR_4$	0,409	0,000	0,431	0,000	0,340	0,000
AQ_4*$INVPR_5$	0,406	0,066	0,409	0,000	0,355	0,000
AQ_4*$INVPR_6$	0,412	0,000	0,374	0,000	0,312	0,000
AQ_4*$INVPR_7$	0,286	0,000	0,386	0,059	0,308	0,000
AQ_4*$INVPR_8$	0,350	0,000	0,293	0,000	0,341	0,323
AQ_5*$INVPR_1$	0,492	0,000	0,487	0,000	0,524	0,000
AQ_5*$INVPR_2$	0,492	0,258	0,487	0,000	0,522	0,000
AQ_5*$INVPR_3$	0,492	0,000	0,487	0,000	0,523	0,000
AQ_5*$INVPR_4$	0,492	0,000	0,487	0,327	0,523	0,000
AQ_5*$INVPR_5$	0,492	0,000	0,487	0,000	0,524	0,000
AQ_5*$INVPR_6$	0,492	0,000	0,487	0,000	0,523	0,000
AQ_5*$INVPR_7$	0,491	0,698	0,485	0,000	0,522	0,265
AQ_5*$INVPR_8$	0,492	0,000	0,486	0,000	0,523	0,000
AQ_6*$INVPR_1$	0,429	0,000	0,385	0,000	0,285	0,000
AQ_6*$INVPR_2$	0,430	0,000	0,386	0,000	0,284	0,000
AQ_6*$INVPR_3$	0,429	0,000	0,384	0,000	0,285	0,000
AQ_6*$INVPR_4$	0,430	0,587	0,385	0,000	0,284	0,000
AQ_6*$INVPR_5$	0,430	0,000	0,385	0,259	0,286	0,000
AQ_6*$INVPR_6$	0,430	0,000	0,385	0,000	0,280	0,000
AQ_6*$INVPR_7$	0,432	0,000	0,384	0,000	0,302	0,027
AQ_6*$INVPR_8$	0,431	0,000	0,388	0,000	0,285	0,000
ΔRAV	0,469	0,000	0,500	0,000	0,260	0,000
PPE	0,494	0,070	0,496	0,000	0,429	0,000
NI	0,397	0,000	0,382	0,000	0,404	0,000
TA	0,485	0,000	0,470	0,000	0,409	0,000
CURRENT	0,408	0,000	0,374	0,258	0,359	0,000
CORPSIZE	0,122	0,000	0,116	0,000	0,205	0,000
CFOV	0,427	0,068	0,292	0,000	0,360	0,255

DEBT	0,350	0,000	0,495	0,000	0,172	0,000
BETA	0,165	0,000	0,387	0,000	0,058	0,000
LEVER	0,492	0,000	0,498	0,056	0,152	0,000
ROA	0,501	0,000	0,488	0,000	0,217	0,000
ΔREV	0,475	0,000	0,454	0,000	0,390	0,000

	Crisis period					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
EQ_1	0,338	0,000	0,347	0,266	0,469	0,089
EQ_2	0,488	0,265	0,502	0,000	0,492	0,000
EQ_3	0,326	0,000	0,242	0,000	0,198	0,000
EQ_4	0,166	0,000	0,418	0,000	0,317	0,000
EQ_5	0,243	0,000	0,216	0,000	0,311	0,000
EQ_6	0,130	0,000	0,464	0,000	0,317	0,000
EQ_7	0,393	0,000	0,335	0,000	0,323	0,000
EQ_8	0,461	0,063	0,364	0,000	0,428	0,000
EQ_9	0,482	0,000	0,494	0,000	0,470	0,000
EQ_{10}	0,344	0,000	0,255	0,000	0,222	0,000
AQ_1	0,477	0,000	0,489	0,000	0,480	0,000
AQ_3	0,393	0,000	0,397	0,000	0,293	0,000
$INVPR_1$	0,186	0,000	0,215	0,000	0,207	0,000
$INVPR_2$	0,262	0,000	0,303	0,000	0,127	0,000
$INVPR_3$	0,246	0,000	0,304	0,000	0,201	0,000
$INVPR_4$	0,251	0,000	0,190	0,000	0,166	0,000
$INVPR_5$	0,218	0,000	0,324	0,000	0,216	0,000
$INVPR_6$	0,278	0,000	0,235	0,000	0,193	0,000
$INVPR_7$	0,403	0,000	0,369	0,000	0,337	0,000
$INVPR_8$	0,419	0,000	0,439	0,000	0,503	0,000
AQ_1*$INVPR_1$	0,477	0,000	0,489	0,027	0,480	0,000
AQ_1*$INVPR_2$	0,477	0,000	0,489	0,000	0,481	0,263
AQ_1*$INVPR_3$	0,477	0,000	0,489	0,000	0,480	0,000
AQ_1*$INVPR_4$	0,477	0,000	0,489	0,000	0,480	0,000
AQ_1*$INVPR_5$	0,477	0,000	0,489	0,000	0,480	0,000
AQ_1*$INVPR_6$	0,477	0,065	0,489	0,000	0,481	0,000
AQ_1*$INVPR_7$	0,477	0,000	0,489	0,000	0,480	0,000
AQ_1*$INVPR_8$	0,478	0,000	0,489	0,000	0,480	0,000
AQ_2*$INVPR_1$	0,457	0,000	0,540	0,000	0,530	0,000
AQ_2*$INVPR_2$	0,458	0,000	0,540	0,000	0,530	0,000
AQ_2*$INVPR_3$	0,457	0,000	0,540	0,000	0,530	0,000
AQ_2*$INVPR_4$	0,458	0,000	0,540	0,000	0,530	0,000
AQ_2*$INVPR_5$	0,458	0,000	0,540	0,000	0,530	0,000
AQ_2*$INVPR_6$	0,458	0,000	0,540	0,030	0,529	0,000
AQ_2*$INVPR_7$	0,455	0,000	0,540	0,000	0,529	0,000
AQ_2*$INVPR_8$	0,457	0,000	0,540	0,000	0,530	0,000
AQ_3*$INVPR_1$	0,536	0,000	0,517	0,000	0,496	0,000
AQ_3*$INVPR_2$	0,536	0,000	0,517	0,000	0,496	0,000
AQ_3*$INVPR_3$	0,536	0,616	0,517	0,000	0,496	0,067

AQ_3*$INVPR_4$	0,536	0,000	0,517	0,000	0,496	0,000
AQ_3*$INVPR_5$	0,536	0,000	0,517	0,000	0,497	0,000
AQ_3*$INVPR_6$	0,536	0,000	0,517	0,000	0,496	0,000
AQ_3*$INVPR_7$	0,534	0,000	0,517	0,000	0,490	0,000
AQ_3*$INVPR_8$	0,536	0,000	0,517	0,000	0,495	0,000
AQ_4*$INVPR_1$	0,313	0,000	0,388	0,000	0,330	0,000
AQ_4*$INVPR_2$	0,340	0,000	0,357	0,000	0,305	0,000
AQ_4*$INVPR_3$	0,306	0,000	0,356	0,000	0,304	0,000
AQ_4*$INVPR_4$	0,350	0,000	0,390	0,000	0,339	0,000
AQ_4*$INVPR_5$	0,344	0,000	0,396	0,000	0,339	0,000
AQ_4*$INVPR_6$	0,344	0,000	0,347	0,000	0,303	0,000
AQ_4*$INVPR_7$	0,292	0,000	0,371	0,000	0,305	0,000
AQ_4*$INVPR_8$	0,355	0,000	0,377	0,096	0,362	0,000
AQ_5*$INVPR_1$	0,480	0,285	0,465	0,696	0,511	0,000
AQ_5*$INVPR_2$	0,480	0,000	0,464	0,000	0,510	0,000
AQ_5*$INVPR_3$	0,480	0,000	0,464	0,000	0,510	0,000
AQ_5*$INVPR_4$	0,480	0,000	0,465	0,000	0,510	0,000
AQ_5*$INVPR_5$	0,480	0,000	0,465	0,000	0,511	0,000
AQ_5*$INVPR_6$	0,480	0,000	0,464	0,000	0,509	0,460
AQ_5*$INVPR_7$	0,479	0,000	0,463	0,000	0,509	0,000
AQ_5*$INVPR_8$	0,480	0,000	0,464	0,000	0,510	0,000
AQ_6*$INVPR_1$	0,394	0,000	0,397	0,000	0,290	0,000
AQ_6*$INVPR_2$	0,393	0,000	0,398	0,000	0,294	0,000
AQ_6*$INVPR_3$	0,393	0,000	0,396	0,000	0,285	0,000
AQ_6*$INVPR_4$	0,393	0,297	0,396	0,000	0,287	0,000
AQ_6*$INVPR_5$	0,392	0,000	0,396	0,000	0,291	0,000
AQ_6*$INVPR_6$	0,393	0,000	0,396	0,000	0,280	0,000
AQ_6*$INVPR_7$	0,396	0,000	0,396	0,000	0,304	0,000
AQ_6*$INVPR_8$	0,394	0,000	0,397	0,000	0,289	0,000
ΔRAV	0,448	0,000	0,478	0,000	0,308	0,000
PPE	0,494	0,000	0,497	0,000	0,289	0,000
NI	0,400	0,000	0,417	0,000	0,407	0,000
TA	0,467	0,000	0,473	0,562	0,398	0,263
CURRENT	0,386	0,000	0,437	0,000	0,400	0,000
CORPSIZE	0,141	0,000	0,125	0,000	0,210	0,000
CFOV	0,522	0,000	0,500	0,000	0,207	0,000
DEBT	0,493	0,000	0,488	0,000	0,380	0,000
BETA	0,140	0,862	0,399	0,000	0,064	0,000
LEVER	0,492	0,000	0,492	0,000	0,488	0,000
ROA	0,424	0,000	0,501	0,000	0,213	0,000
ΔREV	0,418	0,000	0,459	0,000	0,396	0,000

Panel D: Regression equation 43 (Cost of equity capital and audit quality under financial crisis of 2008)

	Cluster 1		Cluster 2		Cluster 3	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
$COSTOFEQUITY_1$	0,484	0,066	0,492	0,000	0,494	0,000
$COSTOFEQUITY_2$	0,383	0,000	0,432	0,596	0,334	0,000
EG	0,498	0,000	0,498	0,000	0,410	0,099
DPO	0,501	0,055	0,491	0,000	0,488	0,000

DEBT	0,494	0,000	0,489	0,000	0,361	0,000
LNMV	0,145	0,000	0,133	0,000	0,172	0,000
BM	0,456	0,369	0,502	0,357	0,400	0,000
VOLUME	0,482	0,000	0,481	0,070	0,440	0,000
BETA	0,149	0,000	0,392	0,318	0,061	0,000
CFO	0,495	0,000	0,496	0,000	0,168	0,263
LNLEV	0,208	0,000	0,176	0,000	0,134	0,000
LNBM	0,115	0,295	0,106	0,293	0,091	0,000
CORPSIZE	0,131	0,000	0,115	0,000	0,209	0,000
AQ_1	0,324	0,000	0,448	0,063	0,381	0,693

Panel E: Regression equation 44 (Cost of equity capital and earnings quality under financial crisis of 2008)

	Pre crisis period					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
$COSTOFEQUITY_1$	0,489	0,061	0,493	0,562	0,480	0,000
$COSTOFEQUITY_2$	0,371	0,000	0,414	0,000	0,331	0,000
BETA	0,165	0,000	0,387	0,000	0,058	0,000
CORPSIZE	0,122	0,000	0,116	0,000	0,205	0,082
BM	0,440	0,000	0,465	0,000	0,312	0,000
LEVERAGE	0,350	0,000	0,495	0,000	0,172	0,000
CFOV	0,427	0,000	0,292	0,052	0,360	0,000
SV	0,521	0,063	0,449	0,000	0,263	0,000
COLLATERAL	0,073	0,000	0,046	0,000	0,062	0,000
NON-DEBT	0,377	0,000	0,314	0,000	0,145	0,018
GROWTH	0,292	0,000	0,487	0,000	0,229	0,000
UNIQUENESS	0,479	0,000	0,489	0,055	0,387	0,000
PROFITABILITY	0,501	0,000	0,488	0,000	0,217	0,000
LIQUIDITY	0,410	0,000	0,493	0,000	0,383	0,000
EQ_1	0,207	0,000	0,377	0,000	0,286	0,000
EQ_2	0,501	0,000	0,501	0,000	0,494	0,000
EQ_3	0,172	0,000	0,347	0,000	0,247	0,058
EQ_4	0,328	0,066	0,408	0,000	0,190	0,000
EQ_5	0,324	0,000	0,408	0,000	0,193	0,000
EQ_6	0,237	0,000	0,239	0,000	0,198	0,000
EQ_7	0,343	0,000	0,455	0,000	0,248	0,000
EQ_8	0,321	0,184	0,411	0,000	0,246	0,000
EQ_9	0,447	0,000	0,491	0,000	0,298	0,000
EQ_{10}	0,228	0,000	0,227	0,000	0,211	0,051

	Crisis period					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
$COSTOFEQUITY_1$	0,474	0,066	0,494	0,000	0,495	0,085
$COSTOFEQUITY_2$	0,388	0,000	0,439	0,000	0,333	0,000
BETA	0,140	0,000	0,399	0,000	0,064	0,000
CORPSIZE	0,141	0,000	0,125	0,000	0,210	0,000
BM	0,458	0,000	0,502	0,000	0,392	0,000
LEVERAGE	0,493	0,000	0,493	0,052	0,380	0,000

CFOV	0,522	0,015	0,500	0,000	0,207	0,085
SV	0,416	0,000	0,418	0,000	0,236	0,000
COLLATERAL	0,108	0,000	0,463	0,000	0,076	0,000
NON-DEBT	0,464	0,000	0,447	0,000	0,154	0,000
GROWTH	0,493	0,000	0,493	0,012	0,254	0,000
UNIQUENESS	0,480	0,000	0,489	0,000	0,477	0,000
PROFITABILITY	0,424	0,000	0,501	0,000	0,213	0,000
LIQUIDITY	0,400	0,000	0,488	0,000	0,506	0,000
EQ_1	0,338	0,065	0,347	0,000	0,469	0,146
EQ_2	0,488	0,000	0,502	0,000	0,492	0,000
EQ_3	0,326	0,000	0,242	0,015	0,198	0,000
EQ_4	0,166	0,000	0,418	0,000	0,317	0,000
EQ_5	0,243	0,000	0,216	0,000	0,311	0,000
EQ_6	0,130	0,000	0,464	0,000	0,317	0,000
EQ_7	0,393	0,000	0,335	0,000	0,323	0,000
EQ_8	0,461	0,000	0,364	0,000	0,428	0,000
EQ_9	0,482	0,000	0,494	0,085	0,470	0,086
EQ_{10}	0,344	0,000	0,255	0,000	0,222	0,000

Panel F: Regression equation 45 (Cost of debt and audit quality under financial crisis of 2008)

	Cluster 1		Cluster 2		Cluster 3	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
COSTOFDEBT	0,500	0,000	0,498	0,000	0,516	0,000
PROFITABILITY	0,498	0,000	0,500	0,217	0,215	0,066
BM	0,456	0,815	0,502	0,000	0,400	0,000
LEVERAGE	0,494	0,000	0,494	0,000	0,361	0,000
CORPSIZE	0,131	0,000	0,123	0,000	0,209	0,000
INTCOV	0,501	0,000	0,498	0,058	0,498	0,015
LNNIBE	0,346	0,096	0,283	0,000	0,291	0,000
LNMVE	0,100	0,000	0,075	0,000	0,076	0,000
COLLATERAL	0,095	0,000	0,453	0,000	0,071	0,000
CRISK	0,298	0,085	0,467	0,058	0,142	0,418
AQ_1	0,492	0,000	0,495	0,000	0,481	0,000

Panel G: Regression equation 46 (Cost of debt and earnings quality under financial crisis of 2008)

	Pre crisis period					
	Cluster 1		Cluster 2		Cluster 3	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
COSTOFDEBT	0,502	0,000	0,497	0,098	0,520	0,000
LEVERAGE	0,350	0,000	0,495	0,000	0,172	0,966
CORPSIZE	0,122	0,000	0,116	0,000	0,205	0,513
PROFITABILITY	0,501	0,000	0,488	0,515	0,217	0,000
INTCOV	0,502	0,000	0,498	0,000	0,497	0,000
LNNIBE	0,311	0,000	0,241	0,000	0,225	0,000
EPS	0,485	0,081	0,494	0,616	0,486	0,000
ΔEPS	0,172	0,000	0,408	0,000	0,247	0,051
CFO	0,449	0,000	0,458	0,000	0,146	0,000

RND	0,175	0,000	0,377	0,000	0,088	0,000
EQ_1	0,100	0,000	0,495	0,000	0,076	0,000
EQ_2	0,207	0,049	0,501	0,058	0,286	0,085
EQ_3	0,501	0,000	0,347	0,000	0,494	0,000
EQ_4	0,328	0,000	0,408	0,000	0,190	0,000
EQ_5	0,324	0,000	0,408	0,000	0,193	0,084
EQ_6	0,237	0,000	0,239	0,000	0,198	0,000
EQ_7	0,343	0,000	0,455	0,051	0,248	0,000
EQ_8	0,321	0,585	0,411	0,000	0,246	0,086
EQ_9	0,447	0,000	0,491	0,000	0,298	0,000
EQ_{10}	0,228	0,000	0,227	0,000	0,211	0,000

	Crisis period					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Variables	**KS Test**	**Prob.**	**KS Test**	**Prob.**	**KS Test**	**Prob.**
COSTOFDEBT	0,513	0,000	0,499	0,000	0,514	0,000
LEVERAGE	0,493	0,000	0,493	0,000	0,380	0,000
CORPSIZE	0,141	0,048	0,125	0,000	0,210	0,000
PROFITABILITY	0,424	0,000	0,501	0,000	0,213	0,095
INTCOV	0,504	0,054	0,501	0,000	0,497	0,000
LNNIBE	0,367	0,000	0,307	0,092	0,334	0,000
EPS	0,487	0,000	0,472	0,000	0,499	0,000
ΔEPS	0,326	0,000	0,242	0,000	0,198	0,000
CFO	0,495	0,084	0,496	0,052	0,185	0,051
RND	0,195	0,058	0,272	0,000	0,113	0,000
EQ_1	0,411	0,000	0,228	0,000	0,246	0,000
EQ_2	0,338	0,000	0,347	0,000	0,469	0,000
EQ_3	0,488	0,000	0,502	0,000	0,492	0,000
EQ_4	0,166	0,000	0,418	0,000	0,317	0,052
EQ_5	0,243	0,000	0,216	0,016	0,311	0,000
EQ_6	0,130	0,000	0,464	0,000	0,317	0,000
EQ_7	0,393	0,000	0,335	0,000	0,323	0,051
EQ_8	0,461	0,081	0,364	0,000	0,428	0,000
EQ_9	0,482	0,912	0,494	0,058	0,470	0,000
EQ_{10}	0,344	0,000	0,255	0,000	0,222	0,000

Note: This table presents the normal distribution test of all examining continous variables in pre and crisis period for all clusters. For variable definitions, see Table 1.

Table 4: Tests for homodcedasticity in all regression models

Panel A: Regression equation 40 (Earnings earnings under financial crisis of 2008)

Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Ex post conservatism (EQ_1)	0,894	0,201	0,015	0,266	0,159	0,056
Ex ante conservatism (EQ_2)	0,968	0,157	0,265	0,219	0,198	0,159
Value relevance (EQ_3)	0,152	0,299	0,089	0,166	0,190	0,166
Accruals quality (EQ_4)	0,198	0,517	0,065	0,189	0,097	0,119
Accruals quality (EQ_5)	0,165	0,189	0,270	0,490	0,159	0,197
Accruals quality (EQ_6)	0,165	0,169	0,220	0,499	0,122	0,895
Earnings persistence (EQ_7)	0,165	0,197	0,127	0,995	0,892	0,559
Earnings predictability (EQ8)	0,016	0,165	0,165	0,165	0,166	0,189
Loss avoidance analysis (EQ_9)	0,017	0,212	0,057	0,168	0,686	0,160
Earnings smoothness (EQ_{10})	0,199	0,490	0,009	0,157	0,166	0,196

Panel B: Regression equation 41 (The joint effect of global financial crisis of 2008 and investor protection on audit quality)

Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Audit fees (AQ_1)	0,159	0,166	0,894	0,918	0,885	0,165
Modified audit report opinion (AQ_2)	0,894	0,162	0,157	0,166	0,117	0,152
Auditor switch (AQ_3)	0,891	0,116	0,942	0,166	0,166	0,169
Status of audit firm (AQ_4)	0,190	0,817	0,156	0,152	0,166	0,895
Existence of audit committee (AQ_5)	0,166	0,559	0,126	0,122	0,126	0,684
Demand for auditing (AQ_6)	0,162	0,894	0,512	0,127	0,017	0,162

Panel C: Regression equation 42 (The joint effect of audit quality and investor protection on earnings quality)

	Pre crisis period					
Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Ex post conservatism (EQ_1)	0,166	0,166	0,842	0,842	0,198	0,981
Ex ante conservatism (EQ_2)	0,066	0,166	0,162	0,882	0,159	0,218
Value relevance (EQ_3)	0,199	0,156	0,166	0,168	0,157	0,187
Accruals quality (EQ_4)	0,227	0,157	0,155	0,659	0,159	0,166
Accruals quality (EQ_5)	0,166	0,166	0,166	0,148	0,321	0,168
Accruals quality (EQ_6)	0,159	0,166	0,157	0,842	0,214	0,169
Earnings persistence (EQ_7)	0,190	0,165	0,156	0,156	0,217	0,169
Earnings predictability (EQ8)	0,156	0,165	0,152	0,157	0,642	0,187
Loss avoidance analysis (EQ_9)	0,199	0,165	0,682	0,188	0,190	0,816
Earnings smoothness (EQ_{10})	0,189	0,157	0,152	0,152	0,842	0,156

	Crisis period					
Dependent variable	**Cluster 1**		**Cluster 2**		**Cluster 3**	
	Levene Statistic	**Sig.**	**Levene Statistic**	**Sig.**	**Levene Statistic**	**Sig.**
Ex post conservatism (EQ_1)	0,894	0,190	0,159	0,092	0,489	0,185
Ex ante conservatism (EQ_2)	0,189	0,159	0,159	0,197	0,984	0,166
Value relevance (EQ_3)	0,166	0,190	0,552	0,982	0,146	0,157
Accruals quality (EQ_4)	0,220	0,816	0,657	0,849	0,982	0,217
Accruals quality (EQ_5)	0,199	0,198	0,198	0,892	0,157	0,220
Accruals quality (EQ_6)	0,189	0,452	0,159	0,127	0,168	0,157
Earnings persistence (EQ_7)	0,915	0,227	0,815	0,126	0,159	0,168
Earnings predictability (EQ8)	0,813	0,156	0,915	0,157	0,117	0,166
Loss avoidance analysis (EQ_9)	0,190	0,121	0,889	0,157	0,159	0,166
Earnings smoothness (EQ_{10})	0,189	0,156	0,849	0,851	0,166	0,815

Panel D: Regression equation 43 (Cost of equity capital and audit quality under financial crisis of 2008)

Dependent variable	**Cluster 1**		**Cluster 2**		**Cluster 3**	
	Levene Statistic	**Sig.**	**Levene Statistic**	**Sig.**	**Levene Statistic**	**Sig.**
Cost of equity ($COSTOFEQUITY_1$)	0,198	0,151	0,216	0,660	0,519	0,486
Cost of equity ($COSTOFEQUITY_2$)	0,013	0,166	0,159	0,152	0,190	0,159

Panel E: Regression equation 44 (Cost of equity capital and earnings quality under financial crisis of 2008)

	Pre crisis period					
Dependent variable	**Cluster 1**		**Cluster 2**		**Cluster 3**	
	Levene Statistic	**Sig.**	**Levene Statistic**	**Sig.**	**Levene Statistic**	**Sig.**
Cost of equity ($COSTOFEQUITY_1$)	0,019	0,982	0,842	0,520	0,892	0,190
Cost of equity ($COSTOFEQUITY_2$)	0,490	0,951	0,166	0,166	0,198	0,082

	Crisis period					
Dependent variable	**Cluster 1**		**Cluster 2**		**Cluster 3**	
	Levene Statistic	**Sig.**	**Levene Statistic**	**Sig.**	**Levene Statistic**	**Sig.**
Cost of equity ($COSTOFEQUITY_1$)	0,189	0,152	0,157	0,219	0,189	0,013
Cost of equity ($COSTOFEQUITY_2$)	0,190	0,127	0,892	0,812	0,189	0,825

Panel F: Regression equation 45 (Cost of debt and audit quality under financial crisis of 2008)

Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Cost of debt (COSTOFDEBT)	0,199	0,126	0,815	0,482	0,415	0,416

Panel G: Regression equation 46 (Cost of debt and earnings quality under financial crisis of 2008)

	Pre crisis period					
Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Cost of debt (COSTOFDEBT)	0,017	0,162	0,128	0,182	0,186	0,816

	Crisis period					
Dependent variable	Cluster 1		Cluster 2		Cluster 3	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Cost of debt (COSTOFDEBT)	0,198	0,199	0,190	0,785	0,952	0,150

Note: This table presents the test of homogeneity of variances in all regression equations in pre and crisis period for all clusters. For variable definitions, see Table 1.

Table 5: Tests for multicollinearity in all regression models

Panel A: Regression equation 40 (Earnings earnings under financial crisis of 2008)

	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
LEVER	0,996	1,004	1,000	1,000	0,052	61,043
TOBINQ	0,065	82,053	0,981	1,019	0,642	22,651
CORPSIZE	0,872	1,147	0,017	111,144	0,082	21,609
SV	0,090	91,185	0,717	1,395	0,065	42,373
CFOV	0,656	1,523	0,747	1,338	0,087	21,406
LOC	0,492	2,031	0,065	63,144	0,368	2,716
CORPROFIT	0,013	79,084	0,428	2,339	0,350	2,854
CORPERFOR	0,012	82,892	0,433	2,311	0,089	31,180
LAGLOSS	0,804	1,243	0,953	1,049	0,792	1,263
MASH	0,787	1,270	0,099	631,066	0,620	1,613
CAPINT	0,986	21,000	0,998	1,002	0,064	61,061
CORPEFFIC	0,253	3,945	0,941	1,062	0,872	1,147
MCTR	0,417	2,396	0,426	2,349	0,480	2,083
MULTIN	0,033	11,001	0,947	1,056	0,996	1,004
DIVIDYIELD	0,998	1,002	0,939	1,065	0,069	71,020
DEBT	0,351	2,845	0,559	1,789	0,219	4,568
R	0,007	11,165	0,130	7,682	0,069	91,524
DR	0,069	12,632	0,062	31,717	0,424	2,357
R*DR	0,365	2,738	0,082	77,714	0,373	2,684
BETA	0,065	211,132	0,069	91,130	0,890	1,124
ΔNI	0,760	1,316	0,098	31,064	0,097	111,020
SICODE	0,979	1,021	0,085	21,028	0,971	1,030
GDP	0,062	11,691	0,097	31,740	0,161	6,195
MCAP	0,380	2,630	0,619	1,615	0,062	26,014
HERF	0,089	11,833	0,905	1,106	0,214	4,664
CRISIS	0,657	1,523	0,427	2,344	0,065	36,875

Panel B: Regression equation 41 (The joint effect of global financial crisis of 2008 and investor protection on audit quality)

	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
CRISIS	0,012	82,892	0,000	5.963,780	0,001	1.084,040
$INVPR_1$	0,015	67,521	0,046	21,552	0,040	24,826
$INVPR_2$	0,034	29,268	0,015	64,542	0,050	19,906
$INVPR_3$	0,019	53,496	0,064	15,681	0,166	6,012
$INVPR_4$	0,092	10,861	0,011	87,976	0,012	80,731
$INVPR_5$	0,025	39,341	0,017	58,823	0,078	12,778
$INVPR_6$	0,026	38,793	0,005	209,334	0,008	129,677

$INVPR_7$	0,042	23,921	0,125	7,972	0,021	47,423
$INVPR_8$	0,150	6,673	0,173	5,771	0,128	7,817
$CRISIS*INVPR_1$	0,575	1,740	0,996	1,004	0,166	6,014
$CRISIS*INVPR_2$	0,844	1,185	0,000	2.265,545	0,959	1,043
$CRISIS*INVPR_3$	0,003	372,236	0,001	1.051,008	0,844	1,185
$CRISIS*INVPR_4$	0,657	1,523	0,000	7.768,391	0,575	1,740
$CRISIS*INVPR_5$	0,166	6,014	0,000	6.625,547	0,941	1,062
$CRISIS*INVPR_6$	0,996	1,004	0,000	6.244,057	0,002	510,519
$CRISIS*INVPR_7$	0,003	299,330	0,005	216,199	0,007	146,312
$CRISIS*INVPR_8$	0,001	1.008,149	0,005	197,113	0,657	1,523
CORPSIZE	0,904	1,107	0,968	1,033	0,804	1,244
RISK	0,458	2,184	0,876	1,142	0,039	25,583
SICODE	0,906	1,104	0,991	1,009	0,936	1,069
PROFIT	0,983	1,018	0,997	1,003	0,985	1,016
SOLV	0,999	1,001	1,000	1,000	0,960	1,042
COMPLEX	0,999	1,001	1,000	1,000	0,944	1,059
ACCRUAL	0,016	31,001	0,065	621,015	0,931	1,074
FCF	0,087	62,050	0,873	1,145	0,044	22,578
IRISK	0,892	1,121	0,007	65,052	0,810	1,235
LEVERAGE	0,883	1,132	0,999	1,001	0,495	2,021
BM	0,069	61,001	0,085	25,054	0,967	1,034
LOSSES	0,898	1,113	0,964	1,037	0,893	1,120

Panel C: Regression equation 42 (The joint effect of audit quality and investor protection on earnings quality)

	Pre crisis period					
	Collinearity Statistics					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Independent variables/Control variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
AQ_1	0,047	21,142	0,000	4.501,855	0,978	1,023
AQ_2	0,042	23,664	0,000	4.375,075	0,003	350,245
AQ_3	0,066	15,236	0,000	2.700,400	0,002	576,731
AQ_4	0,004	238,023	0,000	2.438,403	0,002	646,866
AQ_5	0,005	202,173	0,000	5.589,920	0,003	353,721
AQ_6	0,001	784,437	0,018	56,948	0,002	564,319
$INVPR_1$	0,054	18,680	0,020	49,870	0,074	13,485
$INVPR_2$	0,054	18,488	0,025	39,734	0,124	8,069
$INVPR_3$	0,004	285,111	0,130	7,698	0,003	289,070
$INVPR_4$	0,002	455,504	0,017	58,439	0,014	73,257
$INVPR_5$	0,001	1.311,050	0,018	56,019	0,003	399,150
$INVPR_6$	0,559	1,789	0,068	14,658	0,027	36,731
$INVPR_7$	0,006	176,765	0,058	17,292	0,003	317,708
$INVPR_8$	0,003	300,355	0,000	2.842,617	0,011	92,119

AQ_1*$INVPR_1$	0,747	1,338	0,000	2.842,542	0,007	141,088
AQ_1*$INVPR_2$	0,318	3,144	0,000	6.330,162	0,011	91,814
AQ_1*$INVPR_3$	0,002	608,685	0,000	5.505,461	0,004	250,326
AQ_1*$INVPR_4$	0,885	1,130	0,001	802,427	0,003	319,755
AQ_1*$INVPR_5$	0,940	1,064	0,001	1.133,412	0,492	2,031
AQ_1*$INVPR_6$	0,972	1,028	0,000	2.937,950	0,013	79,084
AQ_1*$INVPR_7$	0,575	1,740	0,000	2.960,369	0,012	82,892
AQ_1*$INVPR_8$	0,619	1,615	0,002	427,578	0,804	1,243
AQ_2*$INVPR_1$	0,905	1,106	0,002	554,366	0,787	1,270
AQ_2*$INVPR_2$	0,747	1,338	0,001	1.385,854	0,065	11,000
AQ_2*$INVPR_3$	0,001	1.522,695	0,001	1.294,059	0,253	3,945
AQ_2*$INVPR_4$	0,980	1,020	0,000	7.761,217	0,417	2,396
AQ_2*$INVPR_5$	0,971	1,030	0,006	173,550	0,999	2,000
AQ_2*$INVPR_6$	0,161	6,195	0,004	271,617	0,998	1,002
AQ_2*$INVPR_7$	0,166	6,014	0,000	2.778,849	0,351	2,845
AQ_2*$INVPR_8$	0,046	21,663	0,001	1.555,901	0,065	31,165
AQ_3*$INVPR_1$	1,000	1,000	0,000	9.805,800	0,380	2,632
AQ_3*$INVPR_2$	0,985	1,015	0,000	9.074,706	0,365	2,738
AQ_3*$INVPR_3$	0,021	47,081	0,006	166,087	0,883	1,132
AQ_3*$INVPR_4$	0,999	1,001	0,004	258,612	0,065	61,316
AQ_3*$INVPR_5$	1,000	1,000	0,000	2.808,705	0,979	1,021
AQ_3*$INVPR_6$	0,964	1,037	0,000	5.600,733	0,592	1,691
AQ_3*$INVPR_7$	0,831	1,203	0,002	432,273	0,065	42,630
AQ_3*$INVPR_8$	0,005	197,113	0,001	686,503	0,065	61,144
AQ_4*$INVPR_1$	0,968	1,033	1,000	1,000	0,717	1,395
AQ_4*$INVPR_2$	0,876	1,142	0,981	1,019	0,747	1,338
AQ_4*$INVPR_3$	0,967	1,034	0,874	1,144	0,318	3,144
AQ_4*$INVPR_4$	0,999	1,001	0,717	1,395	0,065	52,339
AQ_4*$INVPR_5$	1,000	1,000	0,747	1,338	0,433	2,311
AQ_4*$INVPR_6$	0,964	1,037	0,318	3,144	0,953	1,049
AQ_4*$INVPR_7$	0,956	1,046	0,428	2,339	0,065	91,066
AQ_4*$INVPR_8$	0,756	1,323	0,051	22,311	0,065	81,002
AQ_5*$INVPR_1$	0,089	65,065	0,953	1,049	0,941	1,062
AQ_5*$INVPR_2$	0,082	95,157	0,938	1,066	0,426	2,349
AQ_5*$INVPR_3$	0,084	15,652	0,064	31,002	0,947	1,056
AQ_5*$INVPR_4$	0,999	1,001	0,941	1,062	0,065	81,065
AQ_5*$INVPR_5$	1,000	1,000	0,426	2,349	0,559	1,789
AQ_5*$INVPR_6$	0,964	1,037	0,086	61,056	0,130	7,682
AQ_5*$INVPR_7$	0,082	15,132	0,939	1,065	0,065	91,717
AQ_5*$INVPR_8$	0,964	1,037	0,559	1,789	0,130	7,714
AQ_6*$INVPR_1$	0,082	32,165	0,069	87,682	0,885	1,130
AQ_6*$INVPR_2$	0,941	1,062	0,582	1,717	0,940	1,064

AQ_6*$INVPR_3$	0,906	1,103	0,130	7,714	0,065	71,028
AQ_6*$INVPR_4$	0,089	65,137	0,001	1.555,901	0,575	1,740
AQ_6*$INVPR_5$	1,000	1,000	0,000	9.805,800	0,619	1,615
AQ_6*$INVPR_6$	0,090	652,159	0,000	9.074,706	0,065	81,106
AQ_6*$INVPR_7$	0,974	1,027	1,000	1,000	0,130	7,682
AQ_6*$INVPR_8$	0,087	3.658,146	0,082	11,037	0,582	1,717
ΔRAV	0,998	1,002	0,105	9,551	0,310	3,228
PPE	0,997	1,003	0,108	9,264	0,065	91,058
NI	0,993	1,007	0,069	11,186	0,351	2,850
TA	0,066	365,157	0,740	1,351	0,968	1,034
CURRENT	0,318	3,144	0,965	1,036	0,874	1,144
SP	0,090	955,159	0,069	11,096	0,065	81,618
LL	0,433	2,311	0,062	31,287	0,040	32,603
CORPSIZE	0,953	1,049	0,634	1,578	0,084	21,339
CFOV	0,089	328,166	0,602	1,661	0,021	64,163
DEBT	0,998	1,002	0,726	1,378	0,017	91,147
BETA	0,941	1,062	0,782	1,279	0,037	21,056
SICODE	0,426	2,349	0,068	11,017	0,203	4,932
LEVER	0,085	3.265,497	0,999	1,001	0,610	1,640
ROA	0,166	6,014	0,724	1,381	0,941	1,063
ΔREV	0,996	1,004	0,062	11,188	0,082	11,339

	Crisis period					
	Collinearity Statistics					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Independent variables/Control variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
AQ_1	0,000	9.895,972	0,000	8.658,477	0,001	991,230
AQ_2	0,000	9.261,776	0,000	3.588,844	0,000	2.167,251
AQ_3	0,004	276,090	0,000	4.241,373	0,000	2.624,462
AQ_4	0,047	21,172	0,001	1.399,829	0,000	2.795,283
AQ_5	0,007	137,472	0,052	19,127	0,000	9.320,961
AQ_6	0,043	23,206	0,039	25,888	0,014	69,408
$INVPR_1$	0,012	82,625	0,028	36,081	0,015	65,790
$INVPR_2$	0,061	16,381	0,047	21,491	0,026	38,723
$INVPR_3$	0,039	25,406	0,023	43,689	0,006	154,250
$INVPR_4$	0,065	15,434	0,014	69,402	0,027	36,760
$INVPR_5$	0,000	3.655,018	0,032	31,199	0,006	165,448
$INVPR_6$	0,000	3.381,804	0,056	17,779	0,012	83,972
$INVPR_7$	0,000	5.322,799	0,000	5.714,904	0,030	33,837
$INVPR_8$	0,000	2.837,991	0,001	1.141,547	0,000	9.304,014
AQ_1*$INVPR_1$	0,000	2.651,163	0,000	6.109,487	0,001	1.877,538
AQ_1*$INVPR_2$	0,000	8.556,240	0,001	1.517,374	0,001	755,123
AQ_1*$INVPR_3$	0,000	2.029,985	0,001	953,983	0,000	4.876,808

AQ_1*$INVPR_4$	0,000	3.863,964	0,000	8.671,170	0,000	6.935,697
AQ_1*$INVPR_5$	0,000	8.539,430	0,001	838,545	0,000	3.860,216
AQ_1*$INVPR_6$	0,000	9.941,750	0,002	448,915	0,001	905,379
AQ_1*$INVPR_7$	0,002	460,712	0,001	1.582,172	0,001	683,834
AQ_1*$INVPR_8$	0,001	804,624	0,000	4.861,168	0,000	8.578,807
AQ_2*$INVPR_1$	0,000	3.217,799	0,001	721,108	0,000	5.446,400
AQ_2*$INVPR_2$	0,001	1.116,469	0,001	1.185,578	0,000	7.266,886
AQ_2*$INVPR_3$	0,000	5.115,925	0,000	5.739,043	0,001	756,206
AQ_2*$INVPR_4$	0,000	4.842,337	0,000	5.085,506	0,003	374,845
AQ_2*$INVPR_5$	0,005	191,867	0,000	3.853,259	0,000	2.943,527
AQ_2*$INVPR_6$	0,002	556,709	0,001	694,016	0,001	1.786,968
AQ_2*$INVPR_7$	0,000	3.917,574	0,001	696,293	0,001	818,551
AQ_2*$INVPR_8$	0,001	1.315,612	0,001	805,263	0,000	4.586,450
AQ_3*$INVPR_1$	0,000	5.391,353	0,001	1.339,231	0,001	1.614,420
AQ_3*$INVPR_2$	0,000	5.707,246	0,000	5.649,996	0,003	358,949
AQ_3*$INVPR_3$	0,004	273,510	0,001	1.441,843	0,001	712,402
AQ_3*$INVPR_4$	0,002	651,691	0,003	390,951	0,000	3.879,150
AQ_3*$INVPR_5$	0,000	9.456,282	0,002	592,478	0,001	1.984,110
AQ_3*$INVPR_6$	0,000	2.051,241	0,000	4.217,777	0,001	899,058
AQ_3*$INVPR_7$	0,000	4.691,123	0,002	498,049	0,000	9.190,822
AQ_3*$INVPR_8$	0,000	8.628,277	0,001	850,640	0,000	5.090,878
AQ_4*$INVPR_1$	0,002	506,308	0,000	5.376,920	0,000	3.300,098
AQ_4*$INVPR_2$	0,001	936,895	0,000	3.203,753	0,001	798,098
AQ_4*$INVPR_3$	0,001	1.844,547	0,000	3.373,184	0,001	767,591
AQ_4*$INVPR_4$	0,001	1.305,734	0,002	403,692	0,000	3.357,430
AQ_4*$INVPR_5$	0,002	590,184	0,003	380,254	0,001	1.417,943
AQ_4*$INVPR_6$	0,001	1.796,670	0,001	1.121,368	0,001	1.018,921
AQ_4*$INVPR_7$	0,000	5.589,920	0,001	1.165,337	0,000	7.611,651
AQ_4*$INVPR_8$	0,018	56,948	0,000	9.337,555	0,000	4.067,888
AQ_5*$INVPR_1$	0,020	49,870	0,000	7.389,681	0,000	4.282,376
AQ_5*$INVPR_2$	0,025	39,734	0,000	3.503,165	0,001	896,563
AQ_5*$INVPR_3$	0,130	7,698	0,003	339,923	0,001	871,400
AQ_5*$INVPR_4$	0,017	58,439	0,001	1.295,949	0,000	5.518,772
AQ_5*$INVPR_5$	0,018	56,019	0,747	1,338	0,001	1.637,434
AQ_5*$INVPR_6$	0,068	14,658	0,082	693,144	0,001	764,523
AQ_5*$INVPR_7$	0,058	17,292	0,428	2,339	0,000	3.389,156
AQ_5*$INVPR_8$	0,000	2.842,617	0,433	2,311	0,000	2.181,929
AQ_6*$INVPR_1$	0,000	2.842,542	0,098	621,049	0,000	3.168,232
AQ_6*$INVPR_2$	0,000	6.330,162	0,037	961,066	0,964	1,037
AQ_6*$INVPR_3$	0,000	5.505,461	0,998	1,002	0,674	1,483
AQ_6*$INVPR_4$	0,001	802,427	0,941	11,062	0,964	1,037
AQ_6*$INVPR_5$	0,001	1.133,412	0,426	2,349	0,575	1,740

AQ_6*$INVPR_6$	0,000	2.937,950	0,089	27,682	0,941	1,062
AQ_6*$INVPR_7$	0,000	2.960,369	0,582	1,717	0,906	1,103
AQ_6*$INVPR_8$	0,002	427,578	0,098	37,714	0,000	7.389,681
ΔRAV	0,778	1,286	0,440	2,273	0,370	2,702
PPE	0,777	1,286	0,440	42,272	0,347	2,884
NI	0,767	1,304	0,234	4,265	0,405	2,467
TA	0,296	3,377	0,089	51,247	0,382	2,618
CURRENT	0,928	1,078	0,990	1,010	0,976	1,025
SP	0,964	1,037	0,082	61,093	0,913	1,096
LL	0,696	1,436	0,798	1,253	0,571	1,750
CORPSIZE	0,224	4,460	0,098	71,703	0,446	2,242
CFOV	0,056	18,006	0,161	6,218	0,075	13,264
DEBT	0,904	1,106	0,098	81,641	0,517	1,933
BETA	0,801	1,248	0,813	1,230	0,799	1,252
SICODE	0,804	1,243	0,089	91,016	0,943	1,061
LEVER	0,896	1,116	0,994	1,006	0,513	1,949
ROA	0,974	1,027	0,098	14,102	0,574	1,743
ΔREV	0,996	1,004	0,999	1,001	0,988	1,012

Panel D: Regression equation 43 (Cost of equity capital and audit quality under financial crisis of 2008)

	Collinearity Statistics					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Independent variables/Control variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
EG	0,089	11,000	0,099	11,000	0,089	11,003
DPO	1,000	1,000	0,090	11,006	0,085	11,003
DEBT	0,351	2,850	0,087	11,008	0,984	11,113
LNMV	0,096	10,438	0,062	17,109	0,147	1,806
BM	0,069	11,008	0,062	11,029	0,929	1,077
VOLUME	0,992	1,008	0,065	11,006	0,940	1,064
BETA	0,958	1,044	0,977	1,023	0,932	1,072
CFO	0,061	12,842	0,999	1,001	0,881	1,135
LNLEV	0,873	1,146	0,891	1,122	0,098	11,290
LNBM	0,715	1,399	0,087	11,316	0,089	11,542
CORPSIZE	0,100	10,026	0,074	16,662	0,091	51,968
FIRM	0,090	12,042	0,085	11,677	0,607	1,647
SICODE	0,961	1,041	0,098	11,010	0,098	11,044
AQ_1	0,991	1,009	0,013	11,000	0,989	1,011
AQ_2	0,592	1,689	0,651	11,052	0,091	11,024
AQ_3	0,062	11,134	0,031	11,458	0,660	1,514
AQ_4	0,740	1,352	0,020	11,576	0,592	1,688
AQ_5	0,574	1,743	0,709	1,411	0,092	11,428
CRISIS	0,097	11,171	0,894	1,119	0,018	11,197

Panel E: Regression equation 44 (Cost of equity capital and earnings quality under financial crisis of 2008)

	Pre crisis period					
	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
BETA	0,098	11,089	0,089	31,246	0,099	11,100
CORPSIZE	0,090	11,196	0,894	1,119	0,550	1,818
BM	0,068	13,366	0,999	1,001	0,098	11,458
LEVERAGE	0,198	1,103	0,098	10,255	0,098	11,586
CFOV	0,893	1,120	0,128	7,835	0,053	18,748
SV	0,010	95,801	0,015	68,134	0,162	6,167
NER	0,089	11,166	0,897	1,115	0,017	11,396
COLLATERAL	0,066	11,158	0,089	31,115	0,016	11,365
NON-DEBT	0,068	11,221	0,874	1,144	0,082	11,293
GROWTH	0,069	11,091	0,893	1,120	0,088	11,178
UNIQUENESS	0,068	11,010	0,090	31,002	0,089	11,195
SICODE	0,012	11,026	0,068	31,009	0,098	11,065
PROFITABILITY	0,999	1,001	0,089	31,911	0,087	12,780
LIQUIDITY	0,956	1,046	0,999	1,001	0,017	11,034
EQ_1	0,093	10,737	0,019	53,938	0,123	8,114
EQ_2	0,298	3,352	0,999	1,001	0,995	1,005
EQ_3	0,022	46,414	0,805	1,243	0,235	4,248
EQ_4	0,088	11,293	0,000	5.033,707	0,012	80,701
EQ_5	0,078	11,178	0,098	37,644	0,312	3,208
EQ_6	0,686	1,458	0,999	1,001	0,056	13,084
EQ_7	0,012	80,701	0,001	1.672,155	0,089	13,515
EQ_8	0,008	127,031	0,000	5.991,103	0,078	11,103
EQ_9	0,884	1,132	0,123	8,146	0,481	2,077
EQ_{10}	0,007	149,214	0,336	2,972	0,096	10,471

	Crisis period					
	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
BETA	0,837	1,195	0,815	1,227	0,846	1,182
CORPSIZE	0,839	1,192	0,984	1,016	0,562	1,780
BM	0,952	1,050	0,000	5.581,553	0,921	1,086
LEVERAGE	0,858	1,166	0,908	1,101	0,509	1,965
CFOV	0,000	2.468,761	0,000	4.138,039	0,130	7,675
SV	0,006	174,184	0,356	2,809	0,078	12,876
NER	0,802	1,248	0,976	1,024	0,667	1,498

COLLATERAL	0,782	1,279	0,995	1,005	0,734	1,363
NON-DEBT	0,985	1,015	0,992	1,009	0,752	1,329
GROWTH	0,298	3,360	0,983	1,017	0,823	1,215
UNIQUENESS	0,989	1,011	0,999	1,001	0,992	1,008
SICODE	0,819	1,221	0,992	1,008	0,940	1,064
PROFITABILITY	0,946	1,057	0,001	1.997,833	0,605	1,652
LIQUIDITY	0,917	1,091	0,999	1,001	0,923	1,084
EQ_1	0,024	42,507	0,750	1,333	0,124	8,032
EQ_2	0,953	1,049	0,001	1.080,009	0,996	1,004
EQ_3	0,303	3,297	0,227	4,399	0,097	10,325
EQ_4	0,019	52,643	0,000	5.644,832	0,004	237,279
EQ_5	0,017	58,628	0,004	238,911	0,005	198,691
EQ_6	0,039	25,445	0,005	191,810	0,291	3,439
EQ_7	0,030	33,380	0,447	2,238	0,032	31,346
EQ_8	0,000	2.252,065	0,403	2,482	0,024	41,490
EQ_9	0,304	3,286	0,957	1,045	0,498	2,010
EQ_{10}	0,539	1,854	0,733	1,364	0,520	1,924

Panel F: Regression equation 45 (Cost of debt and audit quality under financial crisis of 2008)

	Collinearity Statistics					
	Cluster 1		**Cluster 2**		**Cluster 3**	
Independent variables/Control variables	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
PROFITABILITY	0,089	11,001	0,051	19,430	0,515	1,943
BM	0,050	11,018	0,051	19,438	0,089	11,121
LEVERAGE	0,069	11,035	0,604	1,657	0,089	11,129
CORPSIZE	0,075	12,968	0,440	2,274	0,050	12,193
INTCOV	0,082	11,000	1,000	1,000	0,062	11,003
LNNIBE	0,098	12,581	0,449	2,229	0,089	12,448
LNMVE	0,081	11,995	0,090	11,874	0,599	1,671
COLLATERAL	0,051	11,307	0,089	11,001	0,052	11,451
NEGEQ	0,051	11,095	0,065	11,118	0,089	11,355
SICODE	0,069	11,045	0,056	11,007	0,015	11,051
CRISK	0,052	11,130	0,053	11,659	0,069	11,337
AQ_1	0,996	1,004	0,082	11,000	0,092	11,012
AQ_2	0,573	1,745	0,065	11,132	0,019	11,033
AQ_3	0,882	1,133	0,017	11,459	0,075	11,500
AQ_4	0,709	1,410	0,089	11,585	0,098	11,691
AQ_5	0,495	2,019	0,068	11,435	0,634	1,577
CRISIS	0,873	1,146	0,097	11,083	0,886	1,129

Panel G: Regression equation 46 (Cost of debt and earnings quality under financial crisis of 2008)

	Pre crisis period					
	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
LEVERAGE	0,914	1,094	0,098	10,252	0,813	1,230
CORPSIZE	0,142	7,057	0,173	5,783	0,118	8,467
PROFITABILITY	0,997	1,003	0,523	1,913	0,336	2,976
INTCOV	0,999	1,001	1,000	1,000	0,992	1,009
LNNIBE	0,073	13,696	0,080	12,515	0,058	17,309
EPS	0,164	6,097	0,995	1,005	0,040	25,248
ΔEPS	0,035	28,368	0,089	11,039	0,064	15,566
PROFIT	0,143	6,993	0,099	16,358	0,104	9,643
INCR	0,912	11,096	0,072	11,078	0,910	1,099
CFO	0,090	11,102	0,989	1,011	0,754	1,326
RND	0,017	11,210	0,059	17,028	0,726	1,378
EQ_1	0,052	17,561	0,974	1,026	0,146	6,864
EQ_2	0,022	13,233	0,853	1,172	0,058	17,377
EQ_3	0,765	1,307	0,697	1,435	0,968	1,033
EQ_4	0,005	214,955	0,000	3.266,905	0,002	401,759
EQ_5	0,012	83,823	0,214	4,668	0,002	590,034
EQ_6	0,697	1,435	0,214	4,668	0,020	50,135
EQ_7	0,020	50,274	0,001	1.310,515	0,100	10,015
EQ_8	0,101	9,944	0,000	4.639,189	0,007	134,807
EQ_9	0,965	1,036	0,123	8,136	0,482	2,075
EQ_{10}	0,021	47,762	0,511	1,956	0,013	78,131

	Crisis period					
	Collinearity Statistics					
	Cluster 1		Cluster 2		Cluster 3	
Independent variables/Control variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
LEVERAGE	0,350	2,856	0,395	2,530	0,493	2,027
CORPSIZE	0,127	7,887	0,160	6,242	0,137	7,297
PROFITABILITY	0,967	1,034	0,266	3,762	0,589	1,697
INTCOV	0,999	1,001	0,998	1,002	0,990	1,010
LNNIBE	0,083	12,079	0,085	11,698	0,071	14,122
EPS	0,576	1,736	0,963	1,038	0,129	7,743
ΔEPS	0,098	12,663	0,234	4,272	0,158	6,321
PROFIT	0,092	16,879	0,154	6,507	0,095	10,482
INCR	0,072	11,246	0,833	1,201	0,770	1,298
CFO	0,099	12,846	0,059	17,062	0,804	1,243

RND	0,099	11,304	0,902	1,108	0,724	1,381
EQ_1	0,099	14,016	0,778	1,285	0,179	5,591
EQ_2	0,089	11,036	0,266	3,762	0,160	6,254
EQ_3	0,303	3,297	0,227	4,399	0,097	10,325
EQ_4	0,034	29,771	0,005	198,936	0,008	130,176
EQ_5	0,036	27,409	0,129	7,759	0,008	120,905
EQ_6	0,354	2,822	0,007	144,575	0,776	1,288
EQ_7	0,094	10,605	0,458	2,185	0,060	16,585
EQ_8	0,109	9,190	0,453	2,208	0,075	13,332
EQ_9	0,981	1,019	0,071	14,099	0,509	1,964
EQ_{10}	0,596	1,679	0,797	1,254	0,599	1,669

Note: This table presents multicollinearity of all regression equations in pre and crisis period for all clusters. For variable definitions, see Table 1.

Table 6: Descriptive statistics

Panel A: Continous variables

	CLUSTER 1		
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
EQ_1	0,06526 (0,27200)	1,52752 (2,03959)	40, 42, 44, 46
EQ_2	-0,00896 (0,78357)	-0,00027 (0,05346)	40, 42, 44, 46
EQ_3	0,98406 (0,27897)	0,93111 (0,36641)	40, 42, 44, 46
EQ_4	4,80592 (4,25499)	1,84581 (1,48268)	40, 42, 44, 46
EQ_5	4,05460 (3,16579)	1,76553 (1,32841)	40, 42, 44, 46
EQ_6	1,95610 (1,22312)	1,68369 (0,66995)	40, 42, 44, 46
EQ_7	0,13481 (0,73938)	0,07507 (1,19639)	40, 42, 44, 46
EQ_8	0,61437 (53,36920)	1,13903 (2,96714)	40, 42, 44, 46
EQ_9	-0,28699 (6,55433)	-0,71969 (45,98632)	40, 42, 44, 46
EQ_{10}	2,48379 (0,31461)	2,39597 (1,82404)	40, 42, 44, 46
$COSTOFEQUITY_1$	-1,87481 (162,56313)	-0,52436 (25,70534)	43, 44
$COSTOFEQUITY_2$	0,17239 (0,52555)	0,18398 (0,64631)	43, 44
COSTOFDEBT	0,47487 (49,74353)	0,50014 (0,00369)	45, 46
AQ_1	20.734,65916 (1.134.574,47745)	9.056,81467 (158.385,13877)	41, 42, 43, 45
AQ_6	0,00008 (0,00046)	0,00005 (0,00017)	41, 42
$INVPR_1$	5,77274 (0,38175)	5,85375 (0,30939)	41, 42
$INVPR_2$	5,99869 (0,27935)	6,15217 (0,17412)	41, 42
$INVPR_3$	4,86634 (0,37362)	5,02282 (0,29099)	41, 42
$INVPR_4$	6,06552 (0,09273)	5,79376 (0,20380)	41, 42
$INVPR_5$	5,59722 (0,13889)	5,35311 (0,22490)	41, 42
$INVPR_6$	5,63383 (0,04731)	5,14363 (0,11453)	41, 42
$INVPR_7$	7,27741 (1,07542)	7,14183 (1,11883)	41, 42
$INVPR_8$	9,64044 (0,52241)	9,30645 (0,48444)	41, 42
LEVER	42,09309 (615,17678)	38,46495 (410,05881)	40
TOBINQ	2,33488 (27,85506)	2,75565 (94,99301)	40
CORPSIZE	4,50698 (2,02029)	4,19305 (2,30732)	40, 41, 42, 43, 44, 45, 46
SV	4,78684 (10,48824)	8,54860 (19,60734)	40, 44
CFOV	2,07190 (4,19526)	97,49202 (326,29953)	40, 42, 44
LOC	36.903,83852 (992.453,04728)	37.734,37014 (665.388,52550)	40
CORPROFIT	-0,18699 (6,55434)	0,57275 (175,27637)	40
CORPERFOR	-0,08162 (4,67890)	-2,50837 (340,54630)	40
MASH	0,00073 (0,00776)	0,00070 (0,00846)	40
CAPINT	0,37131 (5,10564)	1,20159 (115,94725)	40
CORPEFFIC	0,90928 (11,53052)	0,81090 (21,38870)	40
MCTR	612.659,23261 (15.177.677,41001)	422.878,73774 (7.680.455,53939)	40
MULTIN	0,08909 (3,53596)	0,06129 (1,51956)	40
DIVIDYIELD	46,80134 (1.692,74809)	42,19289 (1.651,03265)	40
DEBT	0,18171 (0,47320)	0,88402 (50,39115)	40, 42, 43
R	0,21715 (1,68054)	0,05511 (1,06861)	40
R*DR	-0,09889 (0,19328)	-0,18510 (0,26446)	40
BETA	0,54720 (0,54062)	0,59177 (0,51268)	40, 42, 43, 44
ΔNI	223.373,30105 (47.792.740,61520)	-200.687,79622 (37.825.087,78012)	40
GDP	4,60721 (0,04682)	4,64491 (0,08531)	40
MCAP	1,38883 (0,16561)	1,08296 (0,28030)	40
HERF	0,06552 (0,01925)	0,06516 (0,01850)	40
CRISK	-0,03842 (0,40992)	-0,05879 (0,84259)	45
EG	10.567,40464 (1.137.686,16743)	55,22456 (2.261,58408)	43
DPO	-0,85418 (68,72426)	-5,92867 (870,63728)	43
LNMV	10,20606 (5,02279)	9,38127 (5,30120)	43
BM	0,30644 (5,55192)	0,38220 (14,41335)	41, 43, 44, 45
VOLUME	17,82673 (415,20934)	8,65882 (90,66876)	43

CFO	-0,08162 (4,67890)	-2,50837 (340,54630)	43, 46
LNLEV	-1,37359 (1,61861)	-1,16633 (1,61388)	43
LNBM	-0,76019 (0,86648)	-0,34815 (0,89073)	43
LEVERAGE	0,18171 (0,47320)	0,88402 (50,39115)	41, 44, 45, 46
COLLATERAL	0,42216 (0,28983)	0,36304 (0,29403)	44, 45
NON-DEBT	0,03910 (0,12552)	0,03627 (0,40570)	44
GROWTH	0,06271 (0,11428)	0,12942 (8,09853)	44
UNIQUENESS	11,27077 (215,33137)	23,51380 (465,81727)	44
PROFITABILITY	378,09607 (42.549,49852)	-12,54456 (293,28788)	44, 45, 46
LIQUIDITY	3,09581 (13,54184)	3,34898 (13,25813)	44
INTCOV	10,40589 (909,48639)	-0,14412 (11,68408)	45, 46
LNNIBE	5,29430 (5,53341)	4,34640 (5,49077)	45, 46
LNMVE	0,42885 (2,08088)	-0,23086 (2,28710)	45
EPS	-3,64029 (290,55099)	-3,42023 (278,40231)	46
ΔEPS	0,02480 (301,37957)	0,26804 (337,97890)	46
RND	0,24550 (0,26229)	0,23650 (0,27511)	46
ΔRAV	0,14416 (7,76057)	0,04673 (2,47664)	42
PPE	1,71540 (117,66985)	0,76659 (50,41140)	42
NI	318.484,39855 (1.871.971,96134)	298.114,78389 (1.832.782,36215)	42
TA	-1.495.648,80557 (91.894.390,89840)	-10.643.535,15483 (22.665.571,12842)	42
CURRENT	3,85572 (16,65469)	4,05507 (13,94852)	42
LEVER	3,34826 (185,60427)	4,77345 (204,59659)	42
ROA	378,09607 (42.549,49852)	-12,54456 (293,28788)	42
ΔREV	-45,99885 (5.415,40090)	0,35141 (1.362,87742)	42
RISK	0,37921 (185,60427)	0,25723 (204,59659)	41
PROFIT	0,00463 (128,56460)	0,00000 (149,49673)	41
SOLV	0,93292 (306,30066)	0,92237 (2.643,83442)	41
COMPLEX	0,00230 (7,90543)	0,00010 (2.947,32786)	41
ACCRUAL	883,00000 (2.785.058.240,00000)	0,00000 (17.299.709,39357)	41
FCF	-0,00843 (148,51485)	0,00000 (290,09445)	41
IRISK	0,09493 (0,14827)	0,05466 (0,13583)	41

		CLUSTER 2	
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
EQ_1	1,20480 (1,79400)	1,94221 (0,23383)	40, 42, 44, 46
EQ_2	1,98117 (366,13579)	2,15694 (3,62458)	40, 42, 44, 46
EQ_3	0,69830 (0,12550)	0,06288 (0,24588)	40, 42, 44, 46
EQ_4	189,04120 (294,67424)	37,06603 (63,75815)	40, 42, 44, 46
EQ_5	189,05010 (294,66818)	14,91213 (13,74274)	40, 42, 44, 46
EQ_6	42,72452 (34,18607)	11,56243 (19,58890)	40, 42, 44, 46
EQ_7	9,07381 (17,73054)	0,46587 (1,21752)	40, 42, 44, 46
EQ_8	0,72947 (362,15035)	1,64340 (0,12208)	40, 42, 44, 46
EQ_9	-0,19944 (107,55657)	-0,27808 (106,88760)	40, 42, 44, 46
EQ_{10}	0,57332 (0,46190)	0,56297 (0,76872)	40, 42, 44, 46
$COSTOFEQUITY_1$	-4,55275 (420,01292)	-1,94485 (372,23817)	43, 44
$COSTOFEQUITY_2$	0,18669 (0,86378)	0,19549 (1,14327)	43, 44
COSTOFDEBT	0,00070 (1,31658)	0,00094 (0,09459)	45, 46
AQ_1	50.931,66192 (5.893.825,16176)	37.331,20995 (1.399.095,20763)	41, 42, 43, 45
AQ_6	0,00030 (0,00010)	0,00002 (0,00006)	41, 42
$INVPR_1$	6,43725 (0,21004)	5,93722 (0,29381)	41, 42
$INVPR_2$	6,33212 (0,46634)	6,10527 (0,52468)	41, 42
$INVPR_3$	5,05533 (0,34729)	5,10790 (0,35794)	41, 42
$INVPR_4$	6,05250 (0,13471)	5,58823 (0,26966)	41, 42
$INVPR_5$	5,58364 (0,17132)	5,25543 (0,22122)	41, 42
$INVPR_6$	5,72227 (0,24405)	5,06205 (0,38223)	41, 42

$INVPR_7$	5,06511 (0,61277)	5,10590 (0,62295)	41, 42
$INVPR_8$	7,41644 (0,93680)	6,95934 (0,57230)	41, 42
LEVER	61,56498 (1.101,07909)	6.850,75093 (1.691.124,87449)	40
TOBINQ	12,27360 (1.085,26383)	5,12217 (378,05107)	40
CORPSIZE	5,36687 (2,03850)	5,06704 (2,37773)	40, 41, 42, 43, 44, 45, 46
SV	1,53326 (1,30569)	6,69628 (10,57870)	40, 44
CFOV	4,23362 (4,25239)	77,54710 (183,58835)	40, 42, 44
LOC	243.399,40388 (3.219.091,70690)	323.525,72515 (5.030.586,72545)	40
CORPROFIT	-0,99944 (107,55657)	-0,27808 (106,88760)	40
CORPERFOR	-0,09219 (6,00118)	-0,91617 (199,29393)	40
MASH	0,00094 (0,01284)	0,00115 (0,02453)	40
CAPINT	0,23810 (6,69032)	9,98219 (1,22128)	40
CORPEFFIC	0,87710 (2,01625)	0,83387 (12,52082)	40
MCTR	3.472.898,70392 (78.760.665,16869)	3.119.620,27412 (799.433.520,15184)	40
MULTIN	0,04741 (8,00300)	-4,45177 (982,79220)	40
DIVIDYIELD	5,63477 (496,20142)	-4,30224 (52,51090)	40
DEBT	0,81415 (65,93634)	8,04714 (4,85607)	40, 42, 43
R	0,37937 (14,30238)	-8,44943 (1.041,09472)	40
R*DR	0,37937 (14,30238)	-14,90653 (967,04341)	40
BETA	0,23106 (0,38718)	0,21583 (0,37301)	40, 42, 43, 44
ΔNI	-1.712.866,05359 (64.870.466,17031)	-95.775,13984 (130.953.771,72464)	40
GDP	4,58355 (0,07337)	4,64785 (0,07675)	40
MCAP	0,79482 (0,51034)	0,53039 (0,33485)	40
HERF	0,05411 (0,10086)	0,17966 (1,38968)	40
CRISK	-0,09076 (8,30296)	-0,05990 (7,10137)	45
EG	7815,38887 (958009,04701)	847,11731 (85266,61796)	43
DPO	0,96989 (77,76151)	0,99434 (101,03503)	43
LNMV	2,45912 (2,23901)	1,75475 (2,39302)	43
BM	0,27096 (13,12886)	3,61345 (6,28408)	41, 43, 44, 45
VOLUME	189,11333 (3969,28895)	90,59559 (1611,22006)	43
CFO	-0,09219 (6,00118)	-0,91617 (199,29393)	43, 46
LNLEV	-1,52023 (1,59706)	-1,31931 (1,57836)	43
LNBM	-0,81168 (0,88675)	-0,38547 (0,93312)	43
LEVERAGE	0,81415 (65,93634)	1,02373 (56,46808)	41, 44, 45, 46
COLLATERAL	0,46614 (0,27638)	0,42507 (4,60523)	44, 45
NON-DEBT	0,03989 (0,08246)	0,04249 (0,32194)	44
GROWTH	0,07533 (2,39147)	0,08396 (4,89553)	44
UNIQUENESS	3,78024 (136,49393)	8,01891 (312,65593)	44
PROFITABILITY	-82,74952 (7.062,06122)	2.291,75379 (508.111,82962)	44, 45, 46
LIQUIDITY	3,51975 (197,05728)	3,10182 (106,71092)	44
INTCOV	0,08296 (118,92356)	0,69796 (82,65696)	45, 46
LNNIBE	7,50321 (5,91370)	6,21970 (6,14999)	45, 46
LNMVE	2,45912 (2,23901)	1,75475 (2,39302)	45
EPS	-63,58824 (9.097,39406)	-0,78805 (745,29085)	46
ΔEPS	19,69606 (2.131,27075)	4,88898 (950,79099)	46
RND	0,25959 (2,44253)	0,25579 (0,42256)	46
ΔRAV	9,18127 (1.246,55057)	0,09685 (8,81249)	42
PPE	5,87031 (608,68144)	1,29075 (197,13450)	42
NI	360.613,64818 (1.885.365,53082)	324.663,38593 (3.710.861,84911)	42
TA	-5.495.254,64498 (164.735.339,42978)	-7.471.734,60252 (213.966.884,66862)	42
CURRENT	2,89389 (9,03515)	3,19339 (20,07915)	42
LEVER	387,46151 (48.937,03957)	2,20603 (130,19654)	42
ROA	-82,74952 (7.062,06122)	2.291,75379 (508.111,82962)	42
ΔREV	4,02684 (1.159,71836)	-17,35539 (3.513,85735)	42
RISK	0,47574 (48.937,03957)	0,44121 (130,19654)	41

PROFIT	0,01440 (216,09933)	0,00065 (110,52824)	41
SOLV	0,58580 (30.165,04422)	0,56141 (96,20383)	41
COMPLEX	0,00027 (3,37438)	0,00002 (355,05686)	41
ACCRUAL	0,00000 (637.289.664,38307)	0,00000 (325.557.758,16044)	41
FCF	0,00000 (100.115,43948)	0,00000 (73.174,05769)	41
IRISK	0,13316 (3,35895)	0,13870 (0,10033)	41

	CLUSTER 3		
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
EQ_1	1,00224 (0,86711)	1,81918 (1,22759)	40, 42, 44, 46
EQ_2	0,00124 (0,03245)	0,00141 (0,11605)	40, 42, 44, 46
EQ_3	0,79142 (0,25238)	0,71751 (0,24811)	40, 42, 44, 46
EQ_4	5,33738 (0,06318)	2,27862 (0,10122)	40, 42, 44, 46
EQ_5	5,33112 (0,06247)	2,27062 (0,09517)	40, 42, 44, 46
EQ_6	2,32850 (0,16726)	1,14606 (0,06326)	40, 42, 44, 46
EQ_7	1,35409 (0,30865)	1,17300 (1,42998)	40, 42, 44, 46
EQ_8	0,99962 (0,01807)	1,14289 (1,99891)	40, 42, 44, 46
EQ_9	0,01183 (0,30431)	-0,17650 (7,94656)	40, 42, 44, 46
EQ_{10}	1,19262 (0,27774)	1,09653 (0,52522)	40, 42, 44, 46
$COSTOFEQUITY_1$	-30,47627 (0,14711)	-15,72832 (887,71247)	43, 44
$COSTOFEQUITY_2$	24,50089 (0,33654)	30,18324 (0,42556)	43, 44
COSTOFDEBT	0,00039 (0,00552)	0,00047 (0,00549)	45, 46
AQ_1	16.334,14023 (35.857,68002)	14.963,75347 (305.149,25599)	41, 42, 43, 45
AQ_6	0,00045 (0,00079)	0,00029 (0,00053)	41, 42
$INVPR_1$	5,02097 (0,25031)	4,43364 (0,31781)	41, 42
$INVPR_2$	3,99839 (0,48918)	3,58529 (0,35299)	41, 42
$INVPR_3$	3,56613 (0,21252)	3,61896 (0,37379)	41, 42
$INVPR_4$	4,76290 (0,34144)	4,37064 (0,32898)	41, 42
$INVPR_5$	4,16774 (0,18993)	3,95827 (0,17632)	41, 42
$INVPR_6$	4,51290 (0,64709)	4,05246 (0,59754)	41, 42
$INVPR_7$	4,55806 (1,37174)	4,84303 (1,16669)	41, 42
$INVPR_8$	3,11290 (0,31655)	3,17283 (0,37816)	41, 42
LEVER	73,88291 (300,50875)	76,32135 (248,61250)	40
TOBINQ	0,94736 (0,94180)	0,68954 (1,18724)	40
CORPSIZE	5,03811 (1,77750)	4,90369 (2,02437)	40, 41, 42, 43, 44, 45, 46
SV	0,56908 (0,12963)	0,58360 (0,14247)	40, 44
CFOV	0,11181 (0,02848)	0,10970 (0,02679)	40, 42, 44
LOC	8.272,17401 (33.329,82779)	9.970,97227 (39.776,82193)	40
CORPROFIT	0,01183 (0,30431)	-0,17650 (7,94657)	40
CORPERFOR	0,03726 (0,11587)	0,03463 (0,12510)	40
MASH	0,00403 (0,01217)	0,00434 (0,01369)	40
CAPINT	0,11643 (1,89071)	0,10850 (1,05901)	40
CORPEFFIC	0,71368 (0,58293)	0,65166 (0,74279)	40
MCTR	98.838,26254 (656.244,24990)	99.405,45867 (660.839,54789)	40
MULTIN	0,02737 (0,48357)	-0,15411 (7,58280)	40
DIVIDYIELD	1,69409 (3,33794)	2,32957 (2,98451)	40
DEBT	0,28193 (0,29762)	0,34494 (1,12881)	40, 42, 43
R	0,18589 (0,69237)	-0,08001 (0,55785)	40
R*DR	-0,05561 (0,12083)	-0,19821 (0,25082)	40
BETA	0,62248 (0,39571)	0,59286 (0,38858)	40, 42, 43, 44
ΔNI	-37.885,00000 (375.331,28917)	20.946,95838 (600.017,45803)	40
GDP	4,43366 (0,08262)	4,46842 (0,08770)	40
MCAP	0,60887 (0,15448)	0,20808 (0,06182)	40
HERF	0,03373 (0,01053)	0,03929 (0,01422)	40
CRISK	0,03998 (0,10020)	0,03526 (0,10913)	45
EG	64,92345 (581,09952)	30,05844 (661,70716)	43

DPO	2,05389 (63,39625)	0,92619 (29,21749)	43
LNMV	10,59599 (4,58488)	10,00623 (4,42277)	43
BM	0,57091 (1,39613)	1,05934 (7,74974)	41, 43, 44, 45
VOLUME	5,23308 (36,63784)	2,49146 (6,20867)	43
CFO	0,03726 (0,11587)	0,03463 (0,12510)	43, 46
LNLEV	-1,28069 (1,01709)	-1,10143 (1,01078)	43
LNBM	-0,45312 (0,73443)	0,13996 (0,86856)	43
LEVERAGE	0,28193 (0,29762)	0,34494 (1,12881)	41, 44, 45, 46
COLLATERAL	0,45116 (0,24150)	0,40221 (0,24799)	44, 45
NON-DEBT	0,03377 (0,03185)	0,03456 (0,03385)	44
GROWTH	0,04285 (0,05771)	0,03371 (0,05092)	44
UNIQUENESS	0,79320 (2,75549)	1,55076 (27,45551)	44
PROFITABILITY	2,95363 (10,21219)	-0,36699 (11,91367)	44, 45, 46
LIQUIDITY	1,11804 (3,75996)	158,71792 (3.222,84557)	44
INTCOV	0,02327 (3,82871)	80,18846 (3.652,26538)	45, 46
LNNIBE	6,46701 (4,92801)	4,66094 (5,19500)	45, 46
LNMVE	1,21306 (1,32240)	0,44763 (1,47560)	45
EPS	3,67835 (163,62847)	-25,98813 (1.172,18447)	46
ΔEPS	-1,76424 (69,72024)	-0,49253 (1365,96069)	46
RND	0,29892 (0,22139)	0,27465 (0,22733)	46
ΔRAV	0,02892 (0,20384)	0,00095 (0,22252)	42
PPE	0,40022 (2,24288)	0,28940 (0,52068)	42
NI	271.202,89292 (1.238.356,55774)	208.223,32486 (1.331.052,24084)	42
TA	-213.761,82213 (1.106.417,82794)	-286.283,59538 (1.419.293,58157)	42
CURRENT	1,49938 (4,14564)	1,37697 (5,42298)	42
LEVER	0,57371 (0,40064)	1,36862 (43,10612)	42
ROA	2,95363 (10,21219)	-0,36699 (11,91367)	42
ΔREV	4,79854 (247,71507)	-16,16154 (511,46812)	42
RISK	0,60123 (0,40064)	0,60898 (43,10612)	41
PROFIT	0,03252 (42,67497)	0,00000 (21,17049)	41
SOLV	0,68552 (4,02143)	0,56600 (228.288,60771)	41
COMPLEX	0,00132 (0,15112)	0,00028 (0,31669)	41
ACCRUAL	95,50000 (5.001.435,91215)	0,00000 (2.281.300,22128)	41
FCF	0,00000 (0,44323)	0,00000 (2,66521)	41
IRISK	0,22495 (0,16460)	0,19561 (0,16206)	41

Note: This panel presents the means of examining continuous variables in pre and crisis period for all clusters. For variable definitions, see Table 1. Standard deviation appears in the parentheses.

Panel B: Discrete variables

	CLUSTER 1		
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
AQ_2 (=1)	665 (5,37%)	5.808 (27,13%)	41, 42, 43, 45
AQ_3 (=1)	534 (4,31%)	1.710 (7,99%)	41, 42, 43, 45
AQ_4 (=1)	7.980 (64,41%)	12.505 (58,41%)	41, 42, 43, 45
AQ_5 (=1)	2.463 (19,88%)	4.796 (22,40%)	41, 42, 43, 45
SICODE (=1)	1.314 (10,61%)	2.485 (11,61%)	40, 41, 42, 43, 44, 45
FIRM (=1)	6.199 (50,03%)	10.708 (50,01%)	43
NER (=1)	4.603 (37,15%)	8.687 (40,57%)	44
NEGEQ (=1)	605 (4,88%)	910 (4,25%)	45
INCR (=1)	8.296 (66,96%)	13.720 (64,08%)	46
PROFIT (=1)	7862 (63,45%)	12.906 (60,28%)	46
SP (=1)	179 (1,44%)	286 (1,34%)	42
LL (=1)	4.853 (36,99%)	8.607 (40,20%)	42
LOSSES (=1)	4.589 (37,04%)	8.625 (40,28%)	41

LAGLOSS (=1)	4.603 (37,15%)	8.687 (40,57%)	40
DR (=1)	3.922 (31,65%)	9.589 (44,79%)	40

	CLUSTER 2		
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
AQ_2 (=1)	1.130 (3,23%)	1.832 (2,93%)	41, 42, 43, 45
AQ_3 (=1)	693 (1,98%)	8.610 (13,76%)	41, 42, 43, 45
AQ_4 (=1)	26.307 (75,15%)	44.564 (71,19%)	41, 42, 43, 45
AQ_5 (=1)	7.314 (20,89%)	16.067 (25,67%)	41, 42, 43, 45
SICODE (=1)	2.931 (8,37%)	4.985 (7,96%)	40, 41, 42, 43, 44, 45
FIRM (=1)	17.503 (50,01%)	31.300 (50,01%)	43
NER (=1)	9.278 (26,51%)	20.826 (33,27%)	44
NEGEQ (=1)	1.459 (4,17%)	2.577 (4,12%)	45
INCR (=1)	23.543 (67,26%)	37.844 (60,46%)	46
PROFIT (=1)	25.879 (73,93%)	42.055 (67,19%)	46
SP (=1)	805 (2,30%)	1.867 (2,98%)	42
LL (=1)	9.174 (26,21%)	20.625 (32,95%)	42
LOSSES (=1)	9.202 (26,29%)	20.694 (33,06%)	41
LAGLOSS (=1)	9.278 (26,51%)	20.826 (33,27%)	40
DR (=1)	35.003 (99,99%)	29.514 (47,15%)	40

	CLUSTER 3		
Variable (s)	**Pre crisis period**	**Crisis period**	**Regression Equation**
AQ_2 (=1)	18 (0,81%)	34 (0,98%)	41, 42, 43, 45
AQ_3 (=1)	510 (22,85%)	650 (18,79%)	41, 42, 43, 45
AQ_4 (=1)	1.221 (54,70%)	1.955 (56,50%)	41, 42, 43, 45
AQ_5 (=1)	269 (12,05%)	535 (15,46%)	41, 42, 43, 45
SICODE (=1)	108 (4,84%)	175 (5,06%)	40, 41, 42, 43, 44, 45
FIRM (=1)	1.116 (50,00%)	1.730 (50,00%)	43
NER (=1)	520 (23,30%)	1.388 (40,12%)	44
NEGEQ (=1)	67 (3%)	188 (5,43%)	45
INCR (=1)	1.496 (67,03%)	1.714 (49,54%)	46
PROFIT (=1)	1.712 (76,70%)	2.076 (60,00%)	46
SP (=1)	62 (2,78%)	97 (2,80%)	42
LL (=1)	509 (22,80%)	1.381 (39,91%)	42
LOSSES (=1)	509 (22,80%)	1.383 (39,97%)	41
LAGLOSS (=1)	520 (23,30%)	1.388 (40,12%)	40
DR (=1)	653 (29,26%)	1.851 (53,50%)	40

Note: This panel presents the firm-year observations of each examining discrete variable that takes 1 in pre and crisis period for all clusters. For variable definitions, see Table 1.

Table 7: Regression analysis

Panel A: Ex post conservatism (EQ_1) under financial crisis of 2008 (H_1)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
SV	-0,017**	**TOBINQ**	0,0000**	**CORPSIZE**	-0,018**
	(0,000)		(0,000)		(0,005)
CFOV	0,0000**	**CORPSIZE**	0,014**	**SV**	2,911**
	(0,000)		(0,002)		(0,077)
LAGLOSS	-0,047**	**SV**	0,004**	**CFOV**	-4,100**
	(0,017)		(0,000)		(0,298)
MASH	0,302*	**CFOV**	0,0000**	**CORPERFOR**	-0,142**
	(0,992)		(0,000)		(0,062)
CORPEFFIC	0,001*	**LAGLOSS**	0,069**	**DIVIDYIELD**	-0,0000**
	(0,001)		(0,009)		(0,000)
MULTIN	0,001*	**DR**	0,063**	**DR**	-0,067**
	(0,003)		(0,012)		(0,021)
R	-0,005*	**BETA**	-0,082**	**R*DR**	-0,422**
	(0,006)		(0,011)		(0,051)
R*DR	0,397**	**SICODE**	-0,029**	**ΔNI**	0,0000**
	(0,049)		(0,010)		(0,000)
BETA	0,091**	**GDP**	-4,144**	**GDP**	-8,663**
	(0,015)		(0,068)		(0,197)
GDP	-6,597**	**MCAP**	-0,459**	**MCAP**	-4,386**
	(0,124)		(0,011)		(0,076)
MCAP	2,939**	**HERF**	0,108**	**HERF**	-110,854**
	(0,041)		(0,007)		(1,131)
HERF	18,225**	**CRISIS**	-0,851**	**CRISIS**	-1,818**
	(0,521)		(0,012)		(0,037)

CRISIS	-2,081**	**R²**	0,254	**R²**	0,807
	(0,019)	**F test**	1.055,388**	**F test**	909,955**
R²	0,178				
F test	791,28**				

Note: This panel shows the reults of OLS regression analysis to explain the change in ex post conservatism (EQ_1) for all clusters in pre and crisis period. For variable definitions, see Table 1. **, * indicate statistical significance at 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel B: Ex ante conservatism (EQ_2) under financial crisis of 2008 (H_1)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,004**	**LEVER**	0,009***	**TOBINQ**	0,001*
	(0,001)		(0,437)		(0,002)
LAGLOSS	0,003*	**TOBINQ**	0,111**	**CORPSIZE**	0,001**
	(0,006)		(2,895)		(0,001)
MASH	-0,201*	**CORPSIZE**	2,039**	**CFOV**	0,026**
	(0,354)		(11,586)		(0,053)
MCTR	0,0000**	**SV**	-41,126*	**LAGLOSS**	-0,004**
	(0,000)		(2,760)		(0,003)
R	-0,043**	**CAPINT**	0,0000**	**MASH**	-0,022**
	(0,002)		(0,000)		(0,119)
DR	-0,021**	**CORPEFFIC**	-13,637**	**CORPEFFIC**	-0,004**
	(0,009)		(21,871)		(0,002)
R*DR	0,047**	**DIVIDYIELD**	0,0000**	**DEBT**	-0,002**
	(0,017)		(0,000)		(0,003)
BETA	0,003*	**R**	-0,601**	**DR**	-0,001**
	(0,005)		(6,825)		(0,004)
ΔNI	-0,0000**	**GDP**	-8,396**	**BETA**	0,001**
	(0,000)		(3,841)		(0,003)
SICODE	0,005**	**MCAP**	10,648**	**ΔNI**	0,0000**

	(0,007)		(6,461)		(0,000)
CRISIS	0,011	**CRISIS**	-16,020	**GDP**	0,045*
	(0,007)		(7,083)		(0,035)
R^2	0,012	**R^2**	0,035	**CRISIS**	-0,005
F test	16,161**	**F test**	0,631**		(0,007)
				R^2	0,020
				F test	0,458**

Note: This panel shows the reults of OLS regression analysis to explain the change in ex ante conservatism (EQ_2) for all clusters in pre and crisis period. For variable definitions, see Table 1. ***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel C: Value relevance (EQ_3) under financial crisis of 2008 (H_2)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	-0,006**	**SV**	-0,003**	**SV**	0,183**
	(0,001)		(0,000)		(0,022)
SV	0,001**	**CFOV**	-0,001**	**CFOV**	-0,998**
	(0,000)		(0,000)		(0,084)
CFOV	0,0000**	**LOC**	0,0000**	**LOC**	0,0000**
	(0,000)		(0,000)		(0,000)
LAGLOSS	0,028**	**LAGLOSS**	-0,009**	**CORPROFIT**	-0,001**
	(0,004)		(0,001)		(0,001)
MASH	3,816**	**MASH**	0,181**	**LAGLOSS**	0,030**
	(0,221)		(0,027)		(0,005)
MCTR	-0,0000**	**CAPINT**	0,0000**	**MASH**	-0,958**
	(0,000)		(0,000)		(0,189)
R	-0,004**	**MCTR**	-0,0000**	**MULTIN**	0,001**
	(0,001)		(0,000)		(0,000)
R*DR	0,218**	**DEBT**	-0,0000**	**R**	0,009**
	(0,011)		(0,000)		(0,004)

BETA	0,043**	**DR**	-0,009**	**DR**	-0,041**
	(0,003)		(0,001)		(0,006)
GDP	1,692**	**R*DR**	0,0000**	**BETA**	0,022**
	(0,028)		(0,000)		(0,005)
MCAP	0,275**	**BETA**	0,022**	**ΔNI**	-0,0000**
	(0,009)		(0,001)		(0,000)
HERF	-5,921**	**SICODE**	-0,009**	**GDP**	0,913**
	(0,009)		(0,001)		(0,056)
CRISIS	-0,158**	**GDP**	0,348**	**MCAP**	-0,350**
	(0,004)		(0,007)		(0,021)
R^2	0,259	**MCAP**	-0,045**	**HERF**	-10,256**
F test	453,291**		(0,001)		(0,320)
		HERF	0,016**	**CRISIS**	0,180**
			(0,001)		(0,010)
		CRISIS	0,021**	**R^2**	0,660
			(0,001)	**F test**	423,461**
		R^2	0,696		
		F test	7.117,249**		

Note: This panel shows the reults of OLS regression analysis to explain the change in value relevance (EQ_3) for all clusters in pre and crisis period. For variable definitions, see Table 1.
** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel D: Dechow's et al accrual quality model (EQ_4) under financial crisis of 2008 (H_3)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,024**	**CORPSIZE**	1,287**	**CORPSIZE**	-0,002**
	(0,007)		(0,341)		(0,001)
SV	0,017**	**SV**	-2,212**	**SV**	0,395**
	(0,001)		(0,081)		(0,011)
CFOV	-0,002**	**CFOV**	0,243**	**CFOV**	-0,547**

	(0,000)		(0,005)		(0,042)
LOC	-0,0000**	**LAGLOSS**	9,286**	**CORPERFOR**	-0,004**
	(0,000)		(1,502)		(0,009)
CORPROFIT	0,002**	**MASH**	-135,507**	**R**	-0,004**
	(0,001)		(41,031)		(0,002)
CORPERFOR	0,001**	**CAPINT**	0,0000**	**DR**	0,010**
	(0,000)		(0,000)		(0,003)
LAGLOSS	0,388**	**DR**	-3,866**	**R*DR**	-0,060**
	(0,032)		(2,017)		(0,007)
CORPEFFIC	0,003**	**BETA**	-30,425**	**MCAP**	-0,287**
	(0,001)		(1,891)		(0,011)
DR	-0,153**	**SICODE**	-5,029**	**HERF**	-0,534**
	(0,046)		(1,745)		(0,159)
R*DR	1,434**	**GDP**	-427,350**	**CRISIS**	-0,190**
	(0,094)		(11,319)		(0,005)
BETA	0,055**	**MCAP**	-85,533**	**R^2**	0,385
	(0,028)		(1,904)	**F test**	936,254**
GDP	-7,838**	**HERF**	6,815**		
	(0,238)		(1,193)		
MCAP	-4,804**	**CRISIS**	-148,487**		
	(0,079)		(2,087)		
HERF	-54,168**	**R^2**	0,236		
	(1,000)	**F test**	958,263**		
CRISIS	-3,883**				
	(0,036)				
R^2	0,354				
F test	711,939**				

Note: This panel shows the reults of OLS regression analysis to explain the change in accruals quality (EQ_4) for all clusters in pre and crisis period. For variable definitions, see Table 1.
** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel E: McNichols' accrual quality model (EQ_5) under financial crisis of 2008 (H_3)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,009**	**CORPSIZE**	0,067**	**CORPSIZE**	0,002**
	(0,002)		(0,038)		(0,001)
SV	0,007**	**SV**	-0,318**	**SV**	0,151**
	(0,000)		(0,009)		(0,015)
CFOV	0,0000**	**CFOV**	0,087**	**CFOV**	-0,412**
	(0,000)		(0,001)		(0,057)
LOC	-0,0000**	**CORPROFIT**	-0,002**	**MULTIN**	0,0000**
	(0,000)		(0,001)		(0,000)
LAGLOSS	0,114**	**LAGLOSS**	1,054**	**R**	-0,006**
	(0,010)		(0,166)		(0,003)
DR	-0,034**	**MASH**	-30,884**	**DR**	-0,024**
	(0,015)		(4,533)		(0,004)
R*DR	0,163**	**CAPINT**	0,0000**	**R*DR**	-0,084**
	(0,031)		(0,000)		(0,010)
BETA	-0,040**	**DR**	-1,360**	**ΔNI**	0,0000**
	(0,009)		(0,223)		(0,000)
GDP	2,912**	**BETA**	-6,571**	**GDP**	1,221**
	(0,077)		(0,209)		(0,038)
MCAP	-0,911**	**GDP**	55,432**	**MCAP**	0,272**
	(0,026)		(1,250)		(0,015)
HERF	-20,717**	**MCAP**	-23,643**	**HERF**	4,481**
	(0,325)		(0,210)		(0,217)
CRISIS	-0,637**	**HERF**	-2,261**	**CRISIS**	-0,150**
	(0,012)		(0,132)		(0,007)

R^2	0,192	**CRISIS**	-45,014**	**R^2**	0,534
F test	308,153**		(0,231)	**F test**	2.049,540**
		R^2	0,564		
		F test	4.007,593**		

Note: This panel shows the reults of OLS regression analysis to explain the change in accruals quality (EQ_5) for all clusters in pre and crisis period. For variable definitions, see Table 1. ** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel F: Kothari's et al accrual quality model (EQ_6) under financial crisis of 2008 (H_3)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,027**	**CORPSIZE**	1,281**	**CORPSIZE**	-0,002**
	(0,005)		(0,341)		(0,001)
SV	0,009**	**SV**	-2,304**	**SV**	0,349**
	(0,001)		(0,081)		(0,010)
CFOV	-0,001**	**CFOV**	-0,046**	**CFOV**	-0,633**
	(0,000)		(0,005)		(0,040)
LOC	-0,0000**	**LAGLOSS**	9,327**	**R**	-0,003**
	(0,000)		(1,498)		(0,002)
CORPROFIT	0,002**	**MASH**	-137,323**	**DR**	0,010**
	(0,001)		(40,934)		(0,003)
CORPERFOR	0,001**	**CAPINT**	0,0000**	**R*DR**	-0,064**
	(0,000)		(0,000)		(0,007)
LAGLOSS	0,354**	**DR**	-4,043**	**BETA**	-0,006**
	(0,025)		(2,012)		(0,003)
CORPEFFIC	0,003**	**BETA**	-30,868**	**MCAP**	-0,290**
	(0,001)		(1,886)		(0,010)
DR	-0,166**	**SICODE**	-5,074**	**HERF**	-0,469**
	(0,037)		(1,741)		(0,153)
R*DR	1,038**	**GDP**	-427,978**	**CRISIS**	-0,192**

	(0,076)		(11,292)		(0,005)
GDP	-3,684**	**MCAP**	-86,336**	**R²**	0,374
	(0,192)		(1,899)	**F test**	730,185**
MCAP	-2,727**	**HERF**	6,746**		
	(0,063)		(1,190)		
HERF	-36,088**	**CRISIS**	-149,216**		
	(0,805)		(2,082)		
CRISIS	-2,801**	**R²**	0,234		
	(0,029)	**F test**	950,077**		
R²	0,299				
F test	553,028**				

Note: This panel shows the reults of OLS regression analysis to explain the change in accruals quality (EQ_6) for all clusters in pre and crisis period. For variable definitions, see Table 1.
** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel G: Earnings persistence (EQ_7) under financial crisis of 2008 (H_4)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	-0,130**	**CORPSIZE**	-0,048**	**LEVER**	0,0000**
	(0,001)		(0,021)		(0,000)
SV	-0,007**	**SV**	0,123**	**SV**	1,452**
	(0,000)		(0,005)		(0,153)
CFOV	-0,004**	**CFOV**	0,006**	**CFOV**	-7,786**
	(0,000)		(0,000)		(0,591
LAGLOSS	-0,031**	**CORPROFIT**	0,001**	**LOC**	0,0000**
	(0,007)		(0,001)		(0,000)
MASH	2,344**	**LAGLOSS**	-0,434**	**LAGLOSS**	0,147**
	(0,414)		(0,092)		(0,033)
R	0,011**	**MASH**	7,850**	**MASH**	-4,909**
	(0,002)		(2,508)		(1,327)

DR	0,085**	**CAPINT**	0,052**	**DR**	-0,233**
	(0,010)		(0,000)		(0,042)
R*DR	-0,091**	**DR**	0,247**	**BETA**	0,098**
	(0,020)		(0,123)		(0,037)
BETA	-0,014**	**R*DR**	0,0000**	**GDP**	-2,663**
	(0,006)		(0,000)		(0,390)
GDP	-2,081**	**BETA**	1,687**	**MCAP**	-2,337**
	(0,052)		(0,116)		(0,150)
MCAP	-1,200**	**SICODE**	0,281**	**CRISIS**	0,061**
	(0,017)		(0,107)		(0,074)
HERF	-5,890**	**GDP**	23,619**	**R²**	0,261
	(0,217)		(0,692)	**F test**	76,948**
CRISIS	0,014**	**MCAP**	4,049**		
	(0,008)		(0,116)		
R²	0,723	**HERF**	-0,460**		
F test	3.385,710**		(0,073)		
		CRISIS	7,898**		
			(0,128)		
		R²	0,194		
		F test	745,099**		

Note: This panel shows the reults of OLS regression analysis to explain the change in earnings persistence (EQ_7) for all clusters in pre and crisis period. For variable definitions, see Table 1. ** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel H: Earnings predictability (EQ_8) under financial crisis of 2008 (H_5)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
LEVER	0,001**	**CORPSIZE**	1,618**	**LEVER**	0,0000**
	(0,000)		(0,420)		(0,000)
CORPSIZE	0,726**	**SV**	-2,912**	**TOBINQ**	-0,002**

	(0,083)		(0,100)		(0,026)
SV	-0,043**	**CFOV**	-0,119**	**SV**	3,792**
	(0,011)		(0,006)		(0,198)
CFOV	-0,002**	**CORPROFIT**	-0,018**	**CFOV**	-13,459**
	(0,001)		(0,011)		(0,763)
LOC	-0,0000**	**LAGLOSS**	11,755**	**LOC**	0,0000**
	(0,000)		(1,846)		(0,000)
LAGLOSS	1,886**	**MASH**	-164,694**	**CORPROFIT**	-0,011**
	(0,390)		(50,421)		(0,005)
MASH	-89,483**	**CAPINT**	0,0000**	**LAGLOSS**	0,227**
	(23,422)		(0,000)		(0,042)
MCTR	0,0000**	**MULTIN**	-0,001**	**MASH**	-9,047**
	(0,000)		(0,001)		(1,713)
MULTIN	0,174**	**DR**	-4,958**	**DEBT**	-0,010**
	(0,069)		(2,478)		(0,042)
R	-0,526**	**BETA**	-35,900**	**DR**	-0,378**
	(0,139)		(2,324)		(0,055)
DR	-2,470**	**ΔNI**	0,0000**	**R*DR**	0,246**
	(0,565)		(0,000)		(0,131)
R*DR	2,742**	**SICODE**	-6,142**	**BETA**	0,174**
	(1,156)		(2,145)		(0,048)
BETA	-1,030**	**GDP**	-487,709**	**GDP**	-1,256**
	(0,347)		(13,909)		(0,504)
GDP	-88,632**	**MCAP**	-106,417**	**MCAP**	-4,074**
	(2,928)		(2,339)		(0,194)
MCAP	-34,076**	**HERF**	8,931**	**HERF**	18,265**
	(0,969)		(1,466)		(2,899)
HERF	-155,479**	**CRISIS**	-205,049**	**CRISIS**	-1,045**
	(12,301)		(2,565)		(0,095)

CRISIS	-40,539**	**R²**	0,260	**R²**	0,297
	(0,437)	**F test**	1.090,928**	**F test**	91,986**
R²	0,258				
F test	451,630**				

Note: This panel shows the reults of OLS regression analysis to explain the change in earnings predictability (EQ_8) for all clusters in pre and crisis period. For variable definitions, see Table 1. ** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel I: Loss avoidance (EQ_9) under financial crisis of 2008 (H_6)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
LEVER	0,0000**	**LEVER**	0,0000**	**TOBINQ**	0,0000**
	(0,000)		(0,000)		(0,000)
CORPROFIT	0,945**	**CORPSIZE**	-0,0000**	**CFOV**	-0,0000**
	(0,007)		(0,000)		(0,000)
CORPERFOR	0,475**	**LOC**	-0,0000*	**CORPROFIT**	1,0000**
	(0,003)		(0,000)		(0,000)
CORPEFFIC	-0,104**	**CORPROFIT**	1,000**	**LAGLOSS**	0,0000**
	(0,011)		(0,000)		(0,000)
MULTIN	0,001**	**CAPINT**	0,0000**	**CORPEFFIC**	0,0000**
	(0,042)		(0,000)		(0,000)
DEBT	0,015**	**DIVIDYIELD**	-0,0000*	**MULTIN**	0,0000**
	(0,004)		(0,000)		(0,000)
R*DR	-1,712**	**DR**	0,0000**	**DIVIDYIELD**	-0,0000**
	(0,693)		(0,000)		(0,000)
GDP	1,169**	**R*DR**	0,0000**	**R**	-0,0000**
	(1,756)		(0,000)		(0,000)
MCAP	1,138**	**GDP**	-0,0000***	**R*DR**	0,0000**
	(0,581)		(0,000)		(0,000)
HERF	3,210**	**HERF**	-0,0000**	**BETA**	0,0000**

	(7,739)		(0,000)		(0,000)
CRISIS	0,001	**CRISIS**	-0,0000	**ΔNI**	-0,0000**
	(0,262)		(0,000)		(0,000)
R²	0,739	**R²**	1,000	**GDP**	-0,0000**
F test	3.675,679**	**F test**	1.087,835**		(0,000)
				CRISIS	-0,0000
					(0,000)
				R²	1,000
				F test	1.830,473**

Note: This panel shows the reults of OLS regression analysis to explain the change in loss avoidance (EQ_9) for all clusters in pre and crisis period. For variable definitions, see Table 1. ***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel J: Earnings smoothness (EQ_{10}) under financial crisis of 2008 (H_7)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
SV	-0,001**	**CORPSIZE**	-0,006**	**TOBINQ**	0,005**
	(0,000)		(0,001)		(0,008)
CFOV	0,003**	**SV**	-0,020**	**CORPSIZE**	0,003**
	(0,000)		(0,000)		(0,004)
LAGLOSS	-0,050**	**CFOV**	-0,001**	**SV**	-1,244**
	(0,013)		(0,000)		(0,061)
MASH	4,872**	**LAGLOSS**	-0,023**	**CFOV**	3,933**
	(0,787)		(0,005)		(0,235)
MCTR	-0,0000**	**MASH**	0,415**	**LOC**	-0,0000**
	(0,000)		(0,128)		(0,000)
R	0,007**	**CAPINT**	0,0000**	**CORPERFOR**	0,032**
	(0,005)		(0,000)		(0,049)
DR	-0,031**	**DEBT**	-0,0000**	**LAGLOSS**	0,037**
	(0,019)		(0,000)		(0,013)

R*DR	-0,363**	**R**	-0,0000**	**MASH**	0,999**
	(0,039)		(0,000)		(0,528)
BETA	-0,008**	**DR**	0,129**	**CORPEFFIC**	-0,006**
	(0,012)		(0,006)		(0,009)
SICODE	0,013**	**R*DR**	0,0000**	**R**	0,035**
	(0,015)		(0,000)		(0,011)
GDP	-0,813**	**BETA**	0,251**	**R*DR**	0,173**
	(0,098)		(0,006)		(0,040)
MCAP	-1,175**	**SICODE**	0,022 **	**ΔNI**	0,0000**
	(0,033)		(0,005)		(0,000)
HERF	9,712**	**GDP**	-0,439**	**GDP**	-0,247**
	(0,413)		(0,035)		(0,155)
CRISIS	-0,248**	**MCAP**	0,160**	**MCAP**	0,358**
	(0,015)		(0,006)		(0,060)
R²	0,491	**HERF**	0,040**	**CRISIS**	0,112**
F test	1.253,368**		(0,004)		(0,029)
		CRISIS	0,305**	**R²**	0,159
			(0,007)	**F test**	41,192**
		R²	0,189		
		F test	724,129**		

Note: This panel shows the reults of OLS regression analysis to explain the change in earnings smoothness (EQ_{10}) for all clusters in pre and crisis period. For variable definitions, see Table 1. ** indicate statistical significance at 5% level (two-tailed) and the standard errors may be found in the parentheses.

Panel K: The joint effect of global financial crisis of 2008 and investor protection on audit fees (AQ_1) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	7.693,807***	**CORPSIZE**	25.381,995***	**CORPSIZE**	11.221,126***
	(517,436)		(5.314,842)		(2.486,163)
ACCRUAL	0,000***	**ACCRUAL**	0,000***	**IRISK**	-70.802,058**

	(0,000)		(0,0000)		(29.231,274)
LOSSES	-5.023,572**	**R²**	0,000	**LOSSES**	-20.160,77**
	(2.352,349)	**F test**	1,662**		(9.676,559)
R²	0,918			**R²**	0,004
F test	16.452,782***			**F test**	1,929**

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on audit fees (AQ_1) for all clusters. For variable definitions, see Table 1.
****, ** indicate statistical significance at 1% and 5% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel L: The joint effect of global financial crisis of 2008 and investor protection on audit report opinion (AQ_2) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CRISIS	0,182***	**CRISIS**	0,192**	**$INVPR_2$**	0,019***
	(0,003)		(0,086)		0,006
$INVPR_1$	-0,260***	**$INVPR_1$**	0,022***	**$INVPR_3$**	0,030***
	(0,040)		(0,006)		0,007
$INVPR_2$	-0,073*	**$INVPR_2$**	0,019**	**$INVPR_5$**	-0,053**
	(0,039)		(0,008)		0,021
$INVPR_3$	0,395***	**$INVPR_3$**	-0,041***	**$INVPR_7$**	0,013**
	(0,036)		(0,005)		0,006
$INVPR_5$	0,103**	**$INVPR_4$**	-0,027***	**$INVPR_8$**	0,016*
	(0,045)		(0,006)		0,009
$INVPR_6$	-0,141***	**$INVPR_5$**	-0,031***	**CRISIS*$INVPR_3$**	0,020**
	(0,040)		(0,004)		0,009
$INVPR_7$	0,018**	**$INVPR_6$**	0,025***	**CRISIS*$INVPR_5$**	-0,051**
	(0,007)		(0,004)		0,021
$INVPR_8$	-0,020**	**$INVPR_7$**	-0,006***	**SICODE**	-0,010*
	(0,008)		(0,001)		0,005

CRISIS*INVPR$_1$	-0,276***
	(0,039)
CRISIS*INVPR$_3$	-0,111***
	(0,013)
CRISIS*INVPR$_4$	0,024**
	(0,008)
CRISIS*INVPR$_5$	0,116***
	(0,044)
CRISIS*INVPR$_6$	-0,136***
	(0,040)
CRISIS*INVPR$_8$	0,052***
	(0,012)
CORPSIZE	-0,096***
	(0,001)
SICODE	-0,058***
	(0,005)
PROFIT	-0,000***
	(0,0000)
COMPLEX	0,0000**
	(0,0000)
ACCRUAL	0,0000**
	(0,0000)
IRISK	-0,187***
	(0,012)
LEVERAGE	0,000**
	(0,0000)
LOSSES	-0,031***
	(0,003)

INVPR$_8$	0,005***
	(0,001)
CRISIS*INVPR$_1$	0,043***
	(0,006)
CRISIS*INVPR$_2$	0,030***
	(0,002)
CRISIS*INVPR$_3$	0,016**
	(0,007)
CRISIS*INVPR$_5$	-0,053***
	(0,017)
CRISIS*INVPR$_6$	-0,020***
	(0,006)
CRISIS*INVPR$_7$	0,006***
	(0,002)
CRISIS*INVPR$_8$	-0,009***
	(0,002)
CORPSIZE	-0,006***
	(0,000)
RISK	0,0000***
	(0,0000)
PROFIT	0,0000***
	(0,0000)
ACCRUAL	0,0000**
	(0,0000)
IRISK	0,001***
	(0,000)
LEVERAGE	0,000***
	(0,0000)

PROFIT	-0,000***
	0,0000
IRISK	0,023**
	0,008
LOSSES	-0,006**
	-0,002
R²	0,029
F test	8,309***

R^2	0,406	**LOSSES**	0,069***
F test	1.007,198***		(0,001)
		R^2	0,058
		F test	215,382***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on audit report opinion (AQ_2) for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel M: The joint effect of global financial crisis of 2008 and investor protection on auditor switch (AQ_3) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1 Coefficients	Variable(s)	Cluster 2 Coefficients	Variable(s)	Cluster 3 Coefficients
CRISIS	0,031***	**CRISIS**	1,155***	**CRISIS**	-0,062***
	(0,003)		(0,143)		(0,011)
$INVPR_1$	-0,039*	**$INVPR_1$**	0,230***	**$INVPR_6$**	0,236***
	(0,022)		(0,011)		(0,085)
$INVPR_2$	0,070***	**$INVPR_2$**	-0,018***	**$INVPR_7$**	-0,032*
	(0,024)		(0,003)		(0,017)
$INVPR_3$	-0,050*	**$INVPR_3$**	-0,087***	**$INVPR_8$**	0,045**
	(0,029)		(0,009)		(0,022)
$INVPR_4$	0,065***	**$INVPR_4$**	-0,094***	**CRISIS*$INVPR_1$**	-0,094**
	(0,018)		(0,025)		(0,047)
$INVPR_6$	-0,066***	**$INVPR_5$**	0,152***	**CRISIS*$INVPR_6$**	0,216***
	(0,014)		(0,026)		(0,075)
$INVPR_7$	-0,020***	**$INVPR_6$**	-0,123***	**CORPSIZE**	-0,034***
	(0,006)		(0,027)		(0,002)
CRISIS*$INVPR_7$	-0,010**	**$INVPR_7$**	0,017***	**RISK**	0,002***
	(0,005)		(0,004)		(0,000)
CORPSIZE	-0,017***	**$INVPR_8$**	-0,003***	**SICODE**	0,042*

	(0,001)
RISK	0,0000**
	(0,0000)
SICODE	0,012***
	(0,004)
PROFIT	0,0000*
	(0,0000)
IRISK	0,051***
	(0,010)
LOSSES	0,039***
	(0,002)
R²	0,037
F test	57,205***

	(0,001)
CRISIS*INVPR$_1$	0,301***
	(0,010)
CRISIS*INVPR$_2$	-0,055***
	(0,014)
CRISIS*INVPR$_3$	0,054***
	(0,011)
CRISIS*INVPR$_4$	-0,081***
	(0,013)
CRISIS*INVPR$_5$	-0,193***
	(0,028)
CRISIS*INVPR$_6$	-0,178***
	(0,010)
CRISIS*INVPR$_7$	0,038***
	(0,005)
CRISIS*INVPR$_8$	-0,027***
	(0,003)
CORPSIZE	-0,029***
	(0,000)
SICODE	-0,008***
	(0,003)
ACCRUAL	0,0000***
	(0,0000)
LEVERAGE	0,000***
	(0,0000)
LOSSES	0,042***
	(0,002)
R²	0,114

	(0,023)
PROFIT	-0,000***
	(0,000)
FCF	0,038***
	(0,011)
IRISK	0,101***
	(0,033)
LEVERAGE	-0,015**
	(0,007)
BM	0,001*
	(0,000)
LOSSES	0,067***
	(0,011)
R²	0,153
F test	45,841***

	F test	447,528***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on auditor switch (AQ_3) for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel N: The joint effect of global financial crisis of 2008 and investor protection on status of audit firm (AQ_4) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CRISIS	-0,037***	**CRISIS**	-3,703***	**CRISIS**	1,015***
	(0,005)		(0,210)		(0,319)
$INVPR_1$	0,165***	**$INVPR_1$**	-0,386***	**$INVPR_1$**	0,205***
	(0,038)		(0,016)		(0,032)
$INVPR_2$	-0,276***	**$INVPR_2$**	0,249***	**$INVPR_2$**	0,080*
	(0,044)		(0,020)		(0,046)
$INVPR_3$	0,187***	**$INVPR_3$**	0,200***	**$INVPR_4$**	0,369***
	(0,052)		(0,014)		(0,110)
$INVPR_4$	-0,158***	**$INVPR_4$**	-0,466***	**$INVPR_6$**	-0,462***
	(0,036)		(0,038)		(0,082)
$INVPR_5$	0,150***	**$INVPR_5$**	-0,307***	**$INVPR_7$**	0,106***
	(0,052)		(0,038)		(0,025)
$INVPR_6$	-0,183***	**$INVPR_6$**	0,246***	**$INVPR_8$**	-0,166***
	(0,058)		(0,040)		(0,037)
$INVPR_7$	0,081***	**$INVPR_7$**	-0,013**	**CRISIS*$INVPR_1$**	0,214***
	(0,010)		(0,006)		(0,050)
$INVPR_8$	-0,052***	**$INVPR_8$**	-0,012***	**CRISIS*$INVPR_4$**	0,318**
	(0,011)		(0,004)		(0,123)
CRISIS*$INVPR_3$	-0,049***	**CRISIS*$INVPR_1$**	-0,429***	**CRISIS*$INVPR_6$**	-0,133**
	(0,019)		(0,015)		(0,052)

CRISIS*INVPR$_4$	-0,137***
	(0,036)
CRISIS*INVPR$_5$	0,115*
	(0,064)
CRISIS*INVPR$_6$	-0,170***
	(0,058)
CRISIS*INVPR$_7$	-0,045***
	(0,011)
CRISIS*INVPR$_8$	0,042**
	(0,016)
CORPSIZE	0,069***
	(0,001)
SICODE	-0,072***
	(0,008)
ACCRUAL	0,0000**
	(0,0000)
IRISK	-0,333***
	(0,017)
BM	-0,000**
	(0,000)
LOSSES	-0,261***
	(0,005)
R²	0,189
F test	343,371***

CRISIS*INVPR$_2$	-0,282***
	(0,021)
CRISIS*INVPR$_3$	-0,118***
	(0,017)
CRISIS*INVPR$_4$	0,580***
	(0,042)
CRISIS*INVPR$_5$	0,468***
	(0,042)
CRISIS*INVPR$_6$	0,317***
	(0,014)
CRISIS*INVPR$_7$	-0,083***
	(0,007)
CRISIS*INVPR$_8$	0,067***
	(0,005)
CORPSIZE	0,061***
	(0,000)
RISK	0,0000**
	(0,0000)
SICODE	-0,026***
	(0,004)
ACCRUAL	0,0000***
	(0,0000)
IRISK	-0,001**
	(0,000)
LEVERAGE	-0,000***
	(0,0000)
LOSSES	-0,175***
	(0,002)

CRISIS*INVPR$_7$	-0,101***
	(0,022)
CORPSIZE	0,053***
	(0,002)
SICODE	-0,134***
	(0,022)
PROFIT	0,000***
	(0,000)
COMPLEX	0,046**
	(0,018)
ACCRUAL	0,0000*
	(0,0000)
IRISK	-0,459***
	(0,032)
LEVERAGE	-0,028***
	(0,009)
BM	-0,002**
	(0,001)
LOSSES	-0,106***
	(0,010)
R²	0,482
F test	230,991***

	R^2	0,163
	F test	677,566***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on status of audit firm (AQ_4) for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel O: The joint effect of global financial crisis of 2008 and investor protection on audit committee existence (AQ_5) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CRISIS	0,058***	**CRISIS**	0,086***	**CRISIS**	0,048***
	(0,003)		(0,002)		(0,008)
$INVPR_1$	-0,363***	**$INVPR_1$**	-0,191***	**$INVPR_3$**	0,037*
	(0,040)		(0,015)		(0,021)
$INVPR_2$	0,078**	**$INVPR_2$**	0,207***	**$INVPR_5$**	-0,141**
	(0,039)		(0,017)		(0,064)
$INVPR_3$	0,344***	**$INVPR_3$**	-0,059***	**$INVPR_6$**	-0,120*
	(0,036)		(0,012)		(0,065)
$INVPR_4$	0,058**	**$INVPR_4$**	0,175***	**CRISIS*$INVPR_5$**	-0,146**
	(0,025)		(0,033)		(0,064)
$INVPR_5$	0,081**	**$INVPR_5$**	0,098***	**CRISIS*$INVPR_6$**	-0,095*
	(0,036)		(0,034)		(0,056)
$INVPR_6$	-0,074*	**$INVPR_6$**	-0,349***	**CRISIS*$INVPR_8$**	0,057**
	(0,040)		(0,035)		(0,022)
$INVPR_7$	0,073***	**$INVPR_7$**	-0,039***	**CORPSIZE**	0,089***
	(0,007)		(0,005)		(0,002)
$INVPR_8$	0,022***	**$INVPR_8$**	-0,023***	**RISK**	0,002***
	(0,005)		(0,003)		(0,000)
CRISIS*$INVPR_1$	-0,344***	**CRISIS*$INVPR_1$**	-0,060***	**SICODE**	0,035**

	(0,039)
CRISIS*INVPR$_3$	-0,078***
	(0,013)
CRISIS*INVPR$_4$	0,049**
	(0,025)
CRISIS*INVPR$_5$	-0,080*
	(0,040)
CRISIS*INVPR$_7$	0,055***
	(0,005)
CRISIS*INVPR$_8$	0,053***
	(0,011)
CORPSIZE	0,113***
	(0,000)
SICODE	-0,031***
	(0,005)
ACCRUAL	0,0000***
	(0,0000)
IRISK	-0,364***
	(0,012)
LOSSES	-0,216***
	(0,003)
R²	0,444
F test	1.175,039***

	(0,013)
CRISIS*INVPR$_2$	-0,177***
	(0,018)
CRISIS*INVPR$_3$	0,053***
	(0,015)
CRISIS*INVPR$_4$	0,227***
	(0,017)
CRISIS*INVPR$_5$	-0,122***
	(0,036)
CRISIS*INVPR$_6$	0,298***
	(0,037)
CRISIS*INVPR$_7$	-0,041***
	(0,006)
CRISIS*INVPR$_8$	0,021***
	(0,004)
CORPSIZE	0,090***
	(0,000)
SICODE	-0,034***
	(0,004)
SOLV	0,0000**
	(0,000)
ACCRUAL	0,0000***
	(0,0000)
IRISK	-0,001**
	(0,000)
LEVERAGE	0,000***
	(0,0000)
LOSSES	-0,172***

	(0,018)
SOLV	0,0000*
	(0,0000)
ACCRUAL	0,0000***
	(0,0000)
FCF	0,042***
	(0,008)
IRISK	-0,559***
	(0,025)
LEVERAGE	-0,013**
	(0,006)
BM	-0,003***
	(0,000)
LOSSES	-0,090***
	(0,008)
R²	0,331
F test	123,444***

		(0,002)
	R^2	0,296
	F test	1.464,505***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on audit committee existence (AQ_5) for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel P: The joint effect of global financial crisis of 2008 and investor protection on demand for auditing (AQ_6) ($H_{8\text{-}10}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CRISIS	0,0000***	**CRISIS**	0,000***	**CRISIS**	-0,000***
	(0,0000)		(0,0000)		(0,0000)
$INVPR_1$	0,000***	**$INVPR_1$**	0,0000***	**$INVPR_1$**	0,000***
	(0,0000)		(0,0000)		(0,0000)
$INVPR_2$	0,0000*	**$INVPR_2$**	0,0000***	**$INVPR_2$**	-0,000***
	(0,0000)		(0,0000)		(0,0000)
$INVPR_3$	0,0000**	**$INVPR_3$**	0,0000***	**$INVPR_3$**	-0,000***
	(0,0000)		(0,0000)		(0,0000)
$INVPR_4$	0,0000**	**$INVPR_4$**	0,000***	**$INVPR_6$**	-0,000**
	(0,0000)		(0,0000)		(0,000)
$INVPR_5$	0,0000*	**$INVPR_5$**	0,0000***	**$INVPR_7$**	0,000**
	(0,0000)		(0,0000)		(0,0000)
$INVPR_6$	0,0000***	**$INVPR_6$**	0,0000***	**$INVPR_8$**	0,000***
	(0,0000)		(0,0000)		(0,0000)
$INVPR_7$	0,0000***	**$INVPR_7$**	0,0000**	**CRISIS*$INVPR_1$**	0,000**
	(0,0000)		(0,0000)		(0,000)
$INVPR_8$	0,0000***	**$INVPR_8$**	0,0000***	**CRISIS*$INVPR_3$**	-0,000*
	(0,0000)		(0,0000)		(0,0000)

CRISIS*INVPR$_1$	0,0000*
	(0,0000)
CRISIS*INVPR$_4$	0,0000*
	(0,0000)
CRISIS*INVPR$_5$	-0,000**
	(0,0000)
CRISIS*INVPR$_8$	0,0000***
	(0,0000)
CORPSIZE	0,0000***
	(0,0000)
SICODE	0,0000***
	(0,0000)
ACCRUAL	0,0000***
	(0,0000)
IRISK	-0,000***
	(0,0000)
LOSSES	-0,000***
	(0,0000)
R²	0,608
F test	2.279,319***

CRISIS*INVPR$_2$	0,0000*
	(0,0000)
CRISIS*INVPR$_3$	0,0000*
	(0,0000)
CRISIS*INVPR$_4$	0,0000***
	(0,0000)
CRISIS*INVPR$_5$	0,0000***
	(0,0000)
CRISIS*INVPR$_6$	0,0000***
	(0,0000)
CRISIS*INVPR$_7$	0,0000***
	(0,0000)
CRISIS*INVPR$_8$	0,0000***
	(0,0000)
CORPSIZE	0,0000***
	(0,0000)
RISK	0,0000***
	(0,0000)
SICODE	0,0000***
	(0,0000)
ACCRUAL	0,0000***
	(0,0000)
FCF	0,0000***
	(0,0000)
LEVERAGE	0,0000**
	(0,0000)
LOSSES	0,0000***
	(0,0000)

CRISIS*INVPR$_8$	0,000***
	(0,0000)
CORPSIZE	0,000***
	(0,0000)
RISK	0,0000***
	(0,0000)
SICODE	0,000*
	(0,0000)
SOLV	0,0000***
	(0,0000)
ACCRUAL	0,0000***
	(0,0000)
FCF	0,000***
	(0,0000)
IRISK	-0,000***
	(0,0000)
LEVERAGE	0,0000*
	(0,0000)
BM	0,0000**
	(0,0000)
LOSSES	-0,000***
	(0,0000)
R²	0,531
F test	281,597***

	R^2	0,305
	F test	1.533,806***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of financial crisis of 2008 and investor protection on demand for auditing (AQ_6) for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel Q: The joint effect of audit quality and investor protection on ex post conservatism (EQ_1) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
$INVPR_7$	0,058***	**$INVPR_1$**	2,842***	**$INVPR_6$**	0,729***
	(0,005)		(0,0321)		(0,088)
NI	0,0000*	**$INVPR_2$**	-1,075***	**$INVPR_7$**	-168,670***
	(0,0000)		(0,135)		(64,422)
LL	0,008***	**$INVPR_3$**	-1,177***	**$INVPR_8$**	-1,158***
	(0,002)		(0,162)		(0,139)
CORPSIZE	0,005***	**$INVPR_4$**	1,257***	**ΔRAV**	-0,004**
	(0,000)		(0,184)		(0,001)
CFOV	-0,008***	**$INVPR_5$**	1,804***	**PPE**	0,020***
	(0,000)		(0,399)		(0,007)
DEBT	0,012***	**$INVPR_6$**	-0,714***	**LL**	-0,111**
	(0,004)		(0,274)		(0,047)
BETA	-0,029***	**$INVPR_8$**	0,517***	**CORPSIZE**	0,045***
	(0,003)		(0,039)		(0,014)
SICODE	-0,000**	**NI**	0,0000**	**CFOV**	5,397***
	(0,000)		(0,0000)		(0,632)
LEVER	0,325***	**CURRENT**	0,002**	**DEBT**	0,296**
	(0,004)		(0,001)		(0,116)
R^2	0,752	**SP**	-0,173***	**LEVER**	-0,178*
F test	1213,546***		(0,062)		(0,094)

LL	0,130***	**ROA**	-0,004**
	(0,023)		(0,002)
CORPSIZE	0,056***	**R²**	0,281
	(0,005)	**F test**	24,436***
CFOV	-0,008***		
	(0,002)		
DEBT	-0,000*		
	(0,000)		
BETA	-0,110***		
	(0,026)		
LEVER	0,0000**		
	(0,0000)		
ROA	0,0000*		
	(0,0000)		
ΔREV	0,0000**		
	(0,0000)		
R²	0,129		
F test	98,730***		

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on ex post conservatism (EQ_1) in pre crisis period for all clusters. For variable defintions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel R: The joint effect of audit quality and investor protection on ex ante conservatism (EQ_2) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
R²	0,341	**AQ_2**	-61,085***	**$INVPR_6$**	-0,002*
F test	1,000		(11,689)		(0,001)
		LL	-8,401*	**AQ_4*$INVPR_7$**	0,002**
			(4,805)		(0,001)

	BETA	-24,877***	**BETA**	-0,003*
		(5,716)		(0,001)
	R^2	0,0000	**R^2**	-0,009
	F test	0,989	**F test**	0,428

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on ex ante conservatism (EQ_2) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel S: The joint effect of audit quality and investor protection on value relevance (EQ_3) in pre crisis period (H_{11-13})

Variable(s)	**Cluster 1**	**Variable(s)**	**Cluster 2**	**Variable(s)**	**Cluster 3**
	Coefficients		**Coefficients**		**Coefficients**
AQ_3	0,013***	**AQ_2**	-0,454***	**AQ_3**	0,986***
	(0,385)		(0,169)		(0,002)
AQ_5	-0,041***	**AQ_3**	0,852***	**$INVPR_4$**	0,084***
	(0,007)		(0,639)		(0,012)
AQ_6	-29,291***	**AQ_4**	-0,009***	**$INVPR_6$**	-0,217***
	(10,371)		(0,001)		(0,010)
$INVPR_8$	-0,174***	**AQ_5**	-0,538***	**$INVPR_8$**	-0,469***
	(0,019)		(0,054)		(0,016)
AQ_2*$INVPR_3$	0,058**	**AQ_6**	2.172,134***	**AQ_2*$INVPR_2$**	-0,440**
	(0,026)		(341,437)		(0,169)
AQ_2*$INVPR_8$	-0,070**	**$INVPR_1$**	-1,599***	**AQ_2*$INVPR_6$**	0,317**
	(0,027)		(0,016)		(0,123)
AQ_3* $INVPR_2$	0,333***	**$INVPR_2$**	0,349***	**AQ_3*$INVPR_7$**	-25,893***
	(0,000)		(0,006)		(3,269)
AQ_3*$INVPR_4$	0,258***	**$INVPR_3$**	0,531***	**AQ_4*$INVPR_2$**	-1,085***
	(0,001)		(0,008)		(0,020)
AQ_3*$INVPR_5$	0,897***	**$INVPR_4$**	0,452***	**AQ_4*$INVPR_6$**	0,726***

	(0,658)
AQ_4*$INVPR_3$	0,164***
	(0,006)
AQ_4*$INVPR_7$	0,042***
	(0,005)
AQ_4*$INVPR_8$	-0,116***
	(0,006)
NI	0,0000*
	(0,0000)
CURRENT	0,000*
	(0,000)
LL	0,013***
	(0,004)
CORPSIZE	0,008***
	(0,001)
CFOV	0,021***
	(0,000)
BETA	0,014***
	(0,004)
ΔREV	0,0000*
	(0,0000)
R^2	0,334
F test	200,974***

	(0,009)
$INVPR_5$	-1,647***
	(0,019)
$INVPR_6$	0,654***
	(0,013)
$INVPR_7$	-0,088***
	(0,002)
$INVPR_8$	-0,012***
	(0,002)
AQ_1*$INVPR_7$	0,0000**
	(0,0000)
AQ_1*$INVPR_8$	0,0000**
	(0,0000)
AQ_2*$INVPR_2$	-0,063*
	(0,035)
AQ_2*$INVPR_3$	0,104***
	(0,037)
AQ_2*$INVPR_7$	0,036**
	(0,014)
AQ_3* $INVPR_5$	68,351***
	(7,589)
AQ_3*$INVPR_6$	22,863***
	(2,222)
AQ_4*$INVPR_1$	-0,116***
	(0,012)
AQ_4*$INVPR_2$	-0,014**
	(0,006)
AQ_4*$INVPR_3$	0,026***

	(0,015)
AQ_4*$INVPR_7$	0,248***
	(0,004)
AQ_5*$INVPR_2$	0,105**
	(0,046)
AQ_5*$INVPR_6$	-0,067*
	(0,036)
AQ_5*$INVPR_7$	-0,023**
	(0,009)
AQ_6*$INVPR_2$	-97,037***
	(23,618)
AQ_6*$INVPR_4$	78,629***
	(22,901)
PPE	-0,002**
	(0,000)
NI	0,0000*
	(0,0000)
CURRENT	0,002*
	(0,001)
SP	-0,030**
	(0,015)
LL	0,029**
	(0,014)
CORPSIZE	-0,004**
	(0,001)
CFOV	2,183***
	(0,173)
DEBT	-0,180***

	(0,007)		(0,031)
AQ_4*$INVPR_4$	0,675***	**BETA**	0,093***
	(0,012)		(0,012)
AQ_4*$INVPR_5$	-0,390***	**SICODE**	0,053**
	(0,010)		(0,022)
AQ_4*$INVPR_6$	-0,382***	**LEVER**	0,062**
	(0,014)		(0,025)
AQ_4*$INVPR_7$	0,008***	**ROA**	0,000*
	(0,002)		(0,000)
AQ_4*$INVPR_8$	0,010***	**ΔREV**	0,0000*
	(0,002)		(0,0000)
AQ_5*$INVPR_3$	-0,037***	**R^2**	0,887
	(0,008)	**F test**	531,653***
AQ_5*$INVPR_4$	-0,088***		
	(0,011)		
AQ_5*$INVPR_5$	0,135***		
	(0,019)		
AQ_5*$INVPR_6$	0,037**		
	(0,018)		
AQ_5*$INVPR_7$	-0,017***		
	(0,003)		
AQ_5*$INVPR_8$	-0,018***		
	(0,002)		
AQ_6*$INVPR_3$	-208,924***		
	(48,143)		
AQ_6*$INVPR_6$	-188,280***		
	(59,562)		
AQ_6*$INVPR_7$	-99,415***		

	(19,201)
AQ_6*$INVPR_8$	58,088***
	(15,455)
NI	0,0000***
	(0,0000)
CURRENT	-0,000**
	(0,000)
SP	-0,008***
	(0,003)
LL	-0,012***
	(0,001)
CORPSIZE	-0,000**
	(0,000)
CFOV	0,000***
	(0,000)
BETA	0,030***
	(0,001)
SICODE	-0,003*
	(0,002)
R^2	0,558
F test	835,446***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on value relevance (EQ_3) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel T: The joint effect of audit quality and investor protection on accruals quality by Dehow et al (1995) (EQ_4) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	-0,983***	**AQ_2**	46,359***	**AQ_2**	-0,054***

	(0,145)		(8,280)		(0,013)
AQ_3	-0,587***	AQ_3	-0,628***	AQ_3	-0,358***
	(0,005)		(0,582)		(0,741)
$INVPR_7$	0,177***	AQ_4	262,836***	AQ_4	-0,020***
	(0,052)		(77,934)		(0,003)
$INVPR_8$	1,650***	AQ_5	-303,968***	AQ_5	-0,195***
	(0,281)		(78,713)		(0,069)
$AQ_3*INVPR_1$	-0,522***	AQ_6	2.196.439,085***	$INVPR_6$	0,020***
	(0,001)		(496.274,531)		(0,006)
$AQ_3*INVPR_2$	0,896***	$INVPR_1$	695,737***	$INVPR_8$	-0,045***
	(2,369)		(23,284)		(0,010)
$AQ_3*INVPR_3$	28,963***	$INVPR_2$	-167,910***	$AQ_3*INVPR_5$	5,693***
	(0,0000)		(9,813)		(2,589)
$AQ_4*INVPR_3$	-1,666***	$INVPR_3$	-622,588***	$AQ_3*INVPR_7$	-0,005***
	(0,098)		(11,763)		(0,001)
$AQ_4*INVPR_4$	-0,308***	$INVPR_4$	207,502***	$AQ_4*INVPR_2$	-0,041***
	(0,076)		(13,347)		(0,010)
$AQ_4*INVPR_7$	1,079***	$INVPR_5$	439,105***	$AQ_4*INVPR_6$	0,033***
	(0,097)		(28,917)		(0,008)
$AQ_6*INVPR_3$	-1.255,229**	$INVPR_6$	228,030***	$AQ_5*INVPR_2$	0,076***
	(558,968)		(19,875)		(0,024)
$AQ_6*INVPR_7$	682,969**	$INVPR_7$	-37,788***	$AQ_5*INVPR_6$	0,026**
	(321,990)		(4,049)		(0,010)
ΔRAV	0,0000**	$INVPR_8$	215,765***	$AQ_5*INVPR_7$	0,016**
	(0,0000)		(2,876)		(0,006)
PPE	-0,005***	$AQ_2*INVPR_3$	-157,322***	$AQ_6*INVPR_2$	-30,093**
	(0,001)		(56,866)		(12,248)
NI	0,0000**	$AQ_2*INVPR_7$	-41,713**	$AQ_6*INVPR_4$	32,301***

	(0,0000)
SP	-0,437*
	(0,258)
LL	0,300***
	(0,071)
CORPSIZE	0,164***
	(0,019)
CFOV	0,694***
	(0,008)
DEBT	0,229***
	(0,065)
BETA	-0,124**
	(0,060)
SICODE	0,215**
	(0,102)
R²	0,378
F test	242,494***

	(16,609)
AQ_2*$INVPR_8$	116,737***
	(20,531)
AQ_3*$INVPR_5$	-0,589***
	(0,001)
AQ_4*$INVPR_1$	-359,765***
	(22,758)
AQ_4*$INVPR_2$	73,049***
	(8,701)
AQ_4*$INVPR_3$	-52,002***
	(10,512)
AQ_4*$INVPR_4$	87,208***
	(22,359)
AQ_4*$INVPR_5$	-487,638***
	(19,222)
AQ_4*$INVPR_6$	852,337***
	(26,547)
AQ_4*$INVPR_7$	-114,837***
	(4,565)
AQ_4*$INVPR_8$	-35,600***
	(3,237)
AQ_5*$INVPR_2$	-116,816***
	(13,261)
AQ_5*$INVPR_3$	15,334***
	(12,423)
AQ_5*$INVPR_4$	-94,853***
	(20,362)
AQ_5*$INVPR_5$	-71,184**

	(11,876)
PPE	0,001**
	(0,0000)
CFOV	-0,595***
	(0,048)
R²	0,201
F test	18,036***

	(28,342)
AQ_5*$INVPR_6$	109,030***
	(26,675)
AQ_5*$INVPR_7$	34,222***
	(6,061)
AQ_5*$INVPR_8$	33,410***
	(3,454)
AQ_6*$INVPR_2$	-578.511,950***
	(142.459,090)
AQ_6*$INVPR_3$	-307.130,259***
	(69.975,932)
AQ_6*$INVPR_6$	376.661,839***
	(136.070,093)
AQ_6*$INVPR_7$	-121.988,390***
	(27.908,418)
AQ_6*$INVPR_8$	59.768,252***
	(22.464,146)
NI	0,0000***
	(0,0000)
CURRENT	0,745***
	(0,155)
SP	-54,802***
	(9,643)
LL	-4,788***
	(1,671)
CORPSIZE	-3,549***
	(0,399)
CFOV	-72,260***

	(0,196)
DEBT	0,019*
	(0,011)
BETA	-221,894***
	(3,743)
SICODE	11,886**
	(5,030)
LEVER	0,0000**
	(0,0000)
ROA	0,000*
	(0,000)
ΔREV	-0,001**
	(0,000)
R^2	0,831
F test	3.241,411***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by Dehow et al (1995) (EQ_4) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel U: The joint effect of audit quality and investor protection on accruals quality by McNichols (2002) (EQ_5) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	-0,204***	**AQ_2**	3,611***	**AQ_4**	0,098***
	(0,047)		(1,053)		(0,008)
$INVPR_7$	-0,189***	**AQ_3**	-149,178**	**$INVPR_6$**	-0,155***
	(0,042)		(62,091)		(0,015)
$INVPR_8$	0,777***	**AQ_4**	52,485***	**AQ_3*$INVPR_2$**	-0,243***
	(0,093)		(15,726)		(0,037)
AQ_3*$INVPR_3$	-0,110***	**AQ_6**	11.650,810***	**AQ_3*$INVPR_6$**	0,137***

	(0,040)		(2.303,433)		(0,025)
AQ_3*$INVPR_7$	0,077***	**$INVPR_1$**	-112,521***	**AQ_3*$INVPR_7$**	0,092***
	(0,029)		(4,698)		(0,009)
AQ_4*$INVPR_3$	-0,618***	**$INVPR_2$**	-19,595***	**AQ_4*$INVPR_2$**	-0,254***
	(0,032)		(1,980)		(0,025)
AQ_4*$INVPR_7$	-0,338***	**$INVPR_3$**	15,819***	**AQ_4*$INVPR_6$**	0,149***
	(0,025)		(2,373)		(0,019)
AQ_4*$INVPR_8$	0,567***	**$INVPR_4$**	67,820***	**AQ_4*$INVPR_7$**	0,090***
	(0,032)		(2,693)		(0,005)
ΔRAV	0,0000*	**$INVPR_5$**	-144,406***	**AQ_5*$INVPR_2$**	0,096*
	(0,0000)		(5,835)		(0,057)
PPE	-0,001***	**$INVPR_6$**	187,207***	**AQ_5*$INVPR_6$**	0,041*
	(0,000)		(4,010)		(0,024)
NI	0,0000**	**$INVPR_7$**	-14,593***	**AQ_5*$INVPR_7$**	15,243*
	(0,0000)		(0,817)		(8,816)
SP	-0,142*	**$INVPR_8$**	24,790***	**ΔRAV**	0,000*
	(0,086)		(0,580)		(0,000)
LL	0,081***	**AQ_1*$INVPR_4$**	0,0000*	**PPE**	-0,003**
	(0,023)		(0,0000)		(0,001)
CORPSIZE	0,043***	**AQ_1*$INVPR_7$**	0,0000**	**LL**	0,020**
	(0,006)		(0,0000)		(0,008)
CFOV	0,115***	**AQ_1*$INVPR_8$**	0,0000**	**CORPSIZE**	-0,004*
	(0,002)		(0,0000)		(0,002)
DEBT	0,068***	**AQ_2*$INVPR_7$**	-4,375*	**CFOV**	-3,762***
	(0,021)		(2,515)		(0,112)
R^2	0,167	**AQ_2*$INVPR_8$**	11,062***	**DEBT**	-0,084***
F test	81,217***		(3,109)		(0,021)
		AQ_3*$INVPR_2$	22,185**	**BETA**	0,021***

	(9,477)		(0,008)
AQ_3*$INVPR_3$	24,850**	**SICODE**	0,026*
	(10,235)		(0,014)
AQ_3*$INVPR_4$	-57,603***	**LEVER**	0,043**
	(13,156)		(0,017)
AQ_3*$INVPR_7$	11,300***	**ROA**	0,000**
	(3,845)		(0,000)
AQ_3*$INVPR_8$	6,386**	**ΔREV**	0,0000*
	(2,811)		(0,0000)
AQ_4*$INVPR_1$	-102,197***	**R^2**	0,387
	(3,446)	**F test**	43,599***
AQ_4*$INVPR_2$	9,984***		
	(1,755)		
AQ_4*$INVPR_3$	-10,996***		
	(2,121)		
AQ_4*$INVPR_4$	75,249***		
	(3,386)		
AQ_4*$INVPR_5$	-137,825***		
	(2,911)		
AQ_4*$INVPR_6$	175,534***		
	(4,020)		
AQ_4*$INVPR_7$	-3,890***		
	(0,763)		
AQ_4*$INVPR_8$	-5,969***		
	(0,653)		
AQ_5*$INVPR_2$	8,330***		
	(3,057)		
AQ_5*$INVPR_3$	9,757***		

	(2,506)
AQ_5*$INVPR_4$	-17,100***
	(3,083)
AQ_5*$INVPR_5$	14,128**
	(5,719)
AQ_5*$INVPR_6$	-23,047***
	(5,382)
AQ_5*$INVPR_7$	2,291**
	(0,917)
AQ_5*$INVPR_8$	5,363***
	(0,697)
AQ_6*$INVPR_8$	13.759,528*
	(7.816,664)
NI	0,0000*
	(0,0000)
CURRENT	0,081***
	(0,019)
SP	2,082**
	(0,913)
LL	-0,896***
	(0,337)
CORPSIZE	-0,711***
	(0,080)
CFOV	-3,010***
	(0,039)
BETA	1,696***
	(0,382)
LEVER	0,0000**

		(0,0000)
	ΔREV	-0,000**
		(0,000)
	R^2	0,488
	F test	629,996***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by McNichols (2002) (EQ_5) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel V: The joint effect of audit quality and investor protection on accruals quality by Kothari et al (2005) (EQ_6) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	-0,704***	**AQ_2**	46,362***	**AQ_2**	-0,048***
	(0,116)		(8,280)		(0,013)
$INVPR_8$	1,295***	**AQ_3**	57,218***	**AQ_4**	-0,018***
	(0,227)		(10,327)		(0,003)
ΔRAV	0,0000**	**AQ_4**	262,738***	**AQ_5**	-0,211***
	(0,0000)		(977,929)		(0,068)
PPE	-0,004***	**AQ_5**	-303,756***	**$INVPR_6$**	0,020***
	(0,001)		(78,708)		(0,006)
NI	0,0000**	**AQ_6**	2.194.418,249***	**$INVPR_8$**	-0,032***
	(0,0000)		(496.239,950)		(0,010)
SP	-0,355*	**$INVPR_1$**	694,371***	**AQ_3*$INVPR_6$**	0,017*
	(0,211)		(23,282)		(0,010)
LL	0,240***	**$INVPR_2$**	-167,515***	**AQ_4*$INVPR_2$**	-0,023**
	(0,058)		(9,813)		(0,010)
CORPSIZE	0,130***	**$INVPR_3$**	-622,274***	**AQ_4*$INVPR_6$**	0,020**
	(0,016)		(11,762)		(0,008)

CFOV	0,423***
	(0,007)
DEBT	0,185***
	(0,052)
SICODE	0,148*
	(0,082)
R²	0,262
F test	142,955***

$INVPR_4$	208,104***
	(13,346)
$INVPR_5$	438,585***
	(28,915)
$INVPR_6$	228,072***
	(19,873)
$INVPR_7$	-37,866***
	(4,048)
$INVPR_8$	215,765***
	(2,876)
AQ_2*$INVPR_3$	-157,282***
	(56,863)
AQ_2*$INVPR_7$	-41,729**
	(16,608)
AQ_2*$INVPR_8$	116,699***
	(20,529)
AQ_3*$INVPR_2$	200,167***
	(62,579)
AQ_3*$INVPR_3$	91,738*
	(50,720)
AQ_3*$INVPR_4$	-244,295***
	(86,872)
AQ_3*$INVPR_7$	37,267*
	(19,054)
AQ_3*$INVPR_8$	27,506**
	(13,934)
AQ_4*$INVPR_1$	-360,414***
	(22,757)

AQ_5*$INVPR_2$	0,079***
	(0,024)
AQ_5*$INVPR_6$	0,028***
	(0,010)
AQ_5*$INVPR_7$	0,017***
	(0,006)
AQ_6*$INVPR_2$	-28,980**
	(12,198)
AQ_6*$INVPR_4$	29,946**
	(11,828)
PPE	0,000*
	(0,000)
CFOV	-0,599***
	(0,048)
R²	0,186
F test	16,483***

AQ_4*$INVPR_2$	73,009***
	(8,700)
AQ_4*$INVPR_3$	-51,979***
	(10,512)
AQ_4*$INVPR_4$	87,891***
	(22,358)
AQ_4*$INVPR_5$	-487,532***
	(19,221)
AQ_4*$INVPR_6$	851,901***
	(26,545)
AQ_4*$INVPR_7$	-114,863***
	(4,465)
AQ_4*$INVPR_8$	-35,584***
	(3,237)
AQ_5*$INVPR_2$	-116,516***
	(20,191)
AQ_5*$INVPR_3$	115,265***
	(12,422)
AQ_5*$INVPR_4$	-71,144**
	(28,340)
AQ_5*$INVPR_5$	-375,109***
	(34,261)
AQ_5*$INVPR_6$	108,964***
	(26,673)
AQ_5*$INVPR_7$	33,395***
	(3,454)
AQ_5*$INVPR_8$	42,226***
	(5,467)

AQ_6*$INVPR_2$	-577.987,637***
	(142.451,469)
AQ_6*$INVPR_3$	-306.839,202***
	(69.971,056)
AQ_6*$INVPR_6$	376.223,968***
	(136.062,814)
AQ_6*$INVPR_7$	-121.871,278***
	(27906,474)
AQ_6*$INVPR_8$	59.722,210***
	(22.462,580)
NI	0,0000***
	(0,0000)
CURRENT	0,745***
	(0,155)
SP	-54,811***
	(9,643)
LL	-4,790***
	(1,671)
CORPSIZE	-3,549***
	(0,399)
CFOV	-72,262***
	(0,196)
DEBT	0,019*
	(0,011)
BETA	-221,892***
	(3,743)
SICODE	11,888**
	(5,030)

LEVER	0,0000**
	(0,0000)
ROA	0,000*
	(0,000)
ΔREV	-0,001**
	(0,000)
R²	0,831
F test	3.241,794***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by Kothari et al (2005) (EQ_6) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel W: The joint effect of audit quality and investor protection on earnings persistence (EQ_7) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	0,398***	AQ_2	-2,441***	AQ_3	0,001**
	(0,030)		(0,499)		(0,002)
AQ_3	0,158***	AQ_3	0,0000***	AQ_4	0,232***
	(0,0000)		(0,0000)		(0,016)
AQ_5	-0,168***	AQ_4	-15,149***	$INVPR_6$	-0,377***
	(0,021)		(5,657)		(0,025)
$INVPR_7$	-0,238***	AQ_5	16,686***	AQ_3*$INVPR_3$	0,000**
	(0,022)		(5,714)		(0,000)
$INVPR_8$	-0,589***	AQ_6	-119.000,277***	AQ_3*$INVPR_7$	0,217***
	(0,048)		(36.028,175)		(0,015)
AQ_2*$INVPR_3$	0,323***	$INVPR_1$	-43,845***	AQ_3*$INVPR_8$	0,0000**
	(0,074)		(1,690)		(0,0000)
AQ_2*$INVPR_7$	-0,097*	$INVPR_2$	10,649***	AQ_4*$INVPR_2$	-0,617***
	(0,056)		(0,712)		(0,042)

AQ_4*$INVPR_3$	0,694***	**$INVPR_3$**	35,842***	**AQ_4*$INVPR_6$**	0,363***
	(0,018)		(0,854)		(0,032)
AQ_4*$INVPR_8$	-0,342***	**$INVPR_4$**	-9,244***	**AQ_4*$INVPR_7$**	0,218***
	(0,018)		(0,969)		(0,009)
AQ_6*$INVPR_3$	402,085***	**$INVPR_5$**	-26,699***	**AQ_6*$INVPR_7$**	36,410**
	(105,761)		(2,099)		(17,795)
AQ_6*$INVPR_7$	-228,708***	**$INVPR_6$**	-11,050***	**ΔRAV**	-0,001**
	(60,923)		(1,442)		(0,000)
PPE	0,000*	**$INVPR_7$**	1,589***	**NI**	0,0000**
	(0,000)		(0,294)		(0,0000)
NI	0,0000*	**$INVPR_8$**	-12,411***	**LL**	-0,029**
	(0,0000)		(0,208)		(0,013)
CURRENT	0,001***	**AQ_2*$INVPR_3$**	8,898**	**CORPSIZE**	0,008*
	(0,000)		(3,637)		(0,004)
LL	-0,031**	**AQ_2*$INVPR_7$**	2,350**	**CFOV**	-6,834***
	(0,012)		(1,062)		(0,184)
CORPSIZE	-0,012***	**AQ_2*$INVPR_8$**	-6,545***	**DEBT**	-0,130***
	(0,003)		(1,313)		(0,038)
CFOV	-0,067***	**AQ_4*$INVPR_1$**	17,198***	**BETA**	0,056***
	(0,001)		(1,455)		(0,015)
DEBT	-0,031***	**AQ_4*$INVPR_2$**	-4,153***	**SICODE**	0,072***
	(0,011)		(0,631)		(0,027)
BETA	0,065***	**AQ_4*$INVPR_3$**	2,923***	**LEVER**	0,074**
	(0,012)		(0,763)		(0,031)
SICODE	-0,088***	**AQ_4*$INVPR_5$**	26,945***	**ROA**	-0,001**
	(0,021)		(1,229)		(0,000)
ROA	0,0000**	**AQ_4*$INVPR_6$**	-47,398***	**R^2**	0,518
	(0,0000)		(1,698)	**F test**	73,574***

R^2	0,384	**AQ_4*$INVPR_7$**	6,074***
F test	249,719***		(0,285)
		AQ_4*$INVPR_8$	2,071***
			(0,235)
		AQ_5*$INVPR_2$	6,717***
			(0,962)
		AQ_5*$INVPR_3$	-6,531***
			(0,901)
		AQ_5*$INVPR_4$	5,343***
			(1,302)
		AQ_5*$INVPR_5$	4,378**
			(2,057)
		AQ_5*$INVPR_6$	-6,568***
			(1,936)
		AQ_5*$INVPR_7$	-1,869***
			(0,387)
		AQ_5*$INVPR_8$	-1,945***
			(0,250)
		AQ_6*$INVPR_2$	33.663,437***
			(9.112,386)
		AQ_6*$INVPR_3$	16.698,701***
			(5.080,061)
		AQ_6*$INVPR_7$	6.469,993***
			(2.026,075)
		AQ_6*$INVPR_8$	-3.334,139**
			(1.630,835)
		NI	0,0000***
			(0,0000)

CURRENT	-0,040***
	(0,009)
SP	-0,565*
	(0,328)
LL	0,408***
	(0,121)
CORPSIZE	0,268***
	(0,029)
CFOV	4,222***
	(0,014)
DEBT	-0,001*
	(0,000)
BETA	-0,263*
	(0,136)
SICODE	-0,646**
	(0,303)
LEVER	0,000**
	(0,0000)
ROA	0,0000*
	(0,0000)
ΔREV	0,000**
	(0,0000)
R^2	0,754
F test	2.020,214***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection onearnings persistence (EQ_7) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel X: The joint effect of audit quality and investor protection on earnings predictability (EQ_8) in pre crisis period (H_{11-13})					
Variable(s)	**Cluster 1**	**Variable(s)**	**Cluster 2**	**Variable(s)**	**Cluster 3**
	Coefficients		**Coefficients**		**Coefficients**
AQ_2	-13,274***	**AQ_2**	56,813***	**AQ_2**	-0,016***
	(2,200)		(10,243)		(0,004)
$INVPR_7$	3,827*	**AQ_3**	70,445***	**AQ_4**	-0,006***
	(1,958)		(12,775)		(0,001)
$INVPR_8$	23,656***	**AQ_4**	329,972***	**AQ_5**	0,116***
	(4,265)		(98,124)		(0,019)
AQ_3*$INVPR_3$	-10,511***	**AQ_5**	-385,098***	**AQ_6**	-33,574***
	(1,870)		(99,105)		(9,899)
AQ_3*$INVPR_7$	7,291***	**AQ_6**	2.789.845,851***	**$INVPR_6$**	0,005***
	(1,343)		(624.842,060)		(0,001)
AQ_4*$INVPR_3$	-24,312***	**$INVPR_1$**	914,368***	**$INVPR_8$**	-0,033***
	(1,499)		(29,316)		(0,003)
AQ_4*$INVPR_7$	-3,836***	**$INVPR_2$**	-224,004***	**AQ_2*$INVPR_7$**	0,009*
	(1,166)		(12,356)		(0,005)
AQ_4*$INVPR_8$	15,266***	**$INVPR_3$**	-778,334***	**AQ_3*$INVPR_2$**	-0,036***
	(1,472)		(14,810)		(0,004)
AQ_6*$INVPR_3$	-24.662,950***	**$INVPR_4$**	225,939***	**AQ_3*$INVPR_6$**	0,027***
	(8.487,633)		(16,805)		(0,003)
AQ_6*$INVPR_7$	13.510,998***	**$INVPR_5$**	560,064***	**AQ_3*$INVPR_7$**	0,004***
	(4.889,256)		(36,409)		(0,001)
ΔRAV	0,0000**	**$INVPR_6$**	281,880***	**AQ_4*$INVPR_2$**	-0,034***
	(0,0000)		(25,024)		(0,003)
PPE	-0,078***	**$INVPR_7$**	-42,870***	**AQ_4*$INVPR_6$**	0,025***
	(0,026)		(5,098)		(0,002)
NI	0,0000***	**$INVPR_8$**	265,307***	**AQ_4*$INVPR_7$**	0,004***

	(0,0000)		(3,622)		(0,000)
SP	-9,842**	**AQ_2*$INVPR_3$**	-192,412***	**AQ_5*$INVPR_2$**	-0,035***
	(3,925)		(70,710)		(0,006)
LL	4,773***	**AQ_2*$INVPR_7$**	-51,667**	**AQ_5*$INVPR_6$**	-0,017***
	(1,091)		(20,653)		(0,002)
CORPSIZE	2,849***	**AQ_2*$INVPR_8$**	143,366***	**AQ_5*$INVPR_7$**	-0,008***
	(0,300)		(25,529)		(0,001)
CFOV	0,235*	**AQ_3*$INVPR_2$**	246,195***	**AQ_6*$INVPR_2$**	5,370***
	(0,133)		(77,818)		(1,793)
DEBT	3,220***	**AQ_3*$INVPR_3$**	114,692*	**AQ_6*$INVPR_7$**	2,231*
	(0,986)		(63,865)		(1,293)
BETA	-2,201**	**AQ_3*$INVPR_4$**	-301,849***	**NI**	0,0000*
	(0,914)		(108,027)		(0,0000)
SICODE	3,424**	**AQ_3*$INVPR_7$**	46,494*	**LL**	-0,001*
	(1,552)		(23,993)		(0,001)
R^2	0,087	**AQ_3*$INVPR_8$**	34,444*	**CORPSIZE**	0,000***
F test	39,121***		(17,545)		(0,000)
		AQ_4*$INVPR_1$	-412,051***	**CFOV**	0,075***
			(28,298)		(0,013)
		AQ_4*$INVPR_2$	9,961***	**BETA**	0,003***
			(10,955)		(0,001)
		AQ_4*$INVPR_3$	-65,133***	**ROA**	-0,000*
			(13,236)		(0,0000)
		AQ_4*$INVPR_4$	75,238***	**ΔREV**	0,0000**
			(27,803)		(0,0000)
		AQ_4*$INVPR_5$	-604,788***	**R^2**	0,253
			(23,902)	**F test**	23,910***
		AQ_4*$INVPR_6$	1.068,390***		

	(33,010)
AQ_4*$INVPR_7$	-44,752***
	(4,076)
AQ_4*$INVPR_8$	184,814***
	(3,240)
AQ_5*$INVPR_2$	-148,275***
	(16,697)
AQ_5*$INVPR_3$	145,489***
	(15,641)
AQ_5*$INVPR_4$	-118,557***
	(25,319)
AQ_5*$INVPR_5$	-91,044**
	(35,685)
AQ_5*$INVPR_6$	140,309***
	(33,586)
AQ_5*$INVPR_7$	42,276***
	(7,536)
AQ_5*$INVPR_8$	42,026***
	(4,349)
AQ_6*$INVPR_2$	-735.453,156***
	(177.140,608)
AQ_6*$INVPR_3$	-390.063,444***
	(88.104,270)
AQ_6*$INVPR_6$	482.556,405***
	(169.196,217)
AQ_6*$INVPR_7$	-154.973,535***
	(35.138,522)
AQ_6*$INVPR_8$	75.726,825***

	(28283,827)
NI	0,0000***
	(0,0000)
CURRENT	0,917***
	(0,192)
SP	-66,630***
	(11,929)
LL	-6,067***
	(2,104)
CORPSIZE	-4,480***
	(0,502)
CFOV	-87,674***
	(0,247)
DEBT	0,024*
	(0,014)
BETA	-272,615***
	(4,630)
SICODE	14,436**
	(6,222)
LEVER	0,0000**
	(0,0000)
ROA	0,000*
	(0,000)
ΔREV	-0,001**
	(0,000)
R^2	0,822
F test	3.057,250***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on earnings predictability (EQ_8) in pre crisis period for all clusters. For variable definitions, see Table 1.

***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel Y: The joint effect of audit quality and investor protection on loss avoidance (EQ_9) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
LL	-1,105***	**AQ_2**	-10,057***	**AQ_2**	0,086*
	(0,139)		(1,203)		(0,049)
CORPSIZE	0,153***	**$INVPR_1$**	-12,825*	**AQ_5**	-0,436*
	(0,038)		(7,237)		(0,251)
DEBT	-0,832***	**CORPSIZE**	0,344***	**$INVPR_6$**	-0,024***
	(0,126)		(0,124)		(0,008)
R^2	0,009	**DEBT**	-1,703***	**AQ_3*$INVPR_7$**	0,027*
F test	4,492***		(0,003)		(0,014)
		SICODE	-1,254*	**AQ_5*$INVPRr_2$**	0,147*
			(0,733)		(0,088)
		LEVER	0,0000***	**AQ_5*$INVPR_7$**	-0,032*
			(0,0000)		(0,018)
		ROA	-0,003***	**AQ_6*$INVPR_2$**	-45,277*
			(0,0000)		(23,651)
		R^2	0,877	**ΔRAV**	0,020***
		F test	4719,904***		(0,000)
				LL	0,075***
					(0,013)
				CORPSIZE	0,011***
					(0,004)
				DEBT	0,382***
					(0,029)
				LEVER	-0,387***

		(0,024)
	ROA	0,020***
		(0,000)
	ΔREV	0,0000*
		(0,0000)
	R²	0,542
	F test	81,016***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on loss avoidance (EQ_9) in pre crisis period for all clusters. For variable definitions, see Table 1.
*** and * indicate statistical significance at 1% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel Z: The joint effect of audit quality and investor protection on earnings smoothness (EQ_{10}) in pre crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_3	0,000***	AQ_2	-0,033**	AQ_2	0,201***
	(0,000)		(0,013)		(0,051)
$INVPR_7$	0,045***	AQ_3	0,008***	AQ_4	-0,025**
	(0,011)		(0,152)		(0,012)
$INVPR_8$	-0,193***	AQ_4	0,166***	AQ_5	-1,197***
	(0,024)		(0,037)		(0,221)
AQ_2*$INVPR_3$	0,062*	AQ_5	-0,044***	AQ_6	358,161***
	(0,033)		(0,006)		(114,778)
AQ_2*$INVPR_7$	-0,061*	AQ_6	-89,537***	$INVPR_6$	0,087***
	(0,034)		(28,970)		(0,021)
AQ_3*$INVPR_1$	0,0000**	$INVPR_1$	0,951***	$INVPR_8$	0,341***
	(0,0000)		(0,064)		(0,034)
AQ_3*$INVPR_4$	-0,582***	$INVPR_2$	-1,236***	AQ_2*$INVPR_7$	-0,106*
	(0,011)		(0,027)		(0,062)

AQ_4*$INVPR_3$	0,154***
	(0,008)
AQ_4*$INVPR_7$	0,084***
	(0,006)
AQ_4*$INVPR_8$	-0,141***
	(0,008)
AQ_6*$INVPR_3$	97,245**
	(47,964)
AQ_6*$INVPR_7$	-54,284**
	(27,629)
NI	0,0000**
	(0,0000)
SP	0,060***
	(0,022)
LL	-0,013**
	(0,005)
CORPSIZE	-0,006***
	(0,001)
CFOV	-0,028***
	(0,000)
BETA	0,011**
	(0,005)
R^2	0,149
F test	70,716***

$INVPR_3$	0,499***
	(0,032)
$INVPR_4$	-0,051***
	(0,005)
$INVPR_5$	-1,283***
	(0,080)
$INVPR_6$	1,151***
	(0,055)
$INVPR_7$	0,044***
	(0,011)
$INVPR_8$	-0,052***
	(0,008)
AQ_1*$INVPR_7$	0,0000*
	(0,0000)
AQ_1*$INVPR_8$	0,0000*
	(0,0000)
AQ_2*$INVPR_2$	-0,228*
	(0,125)
AQ_2*$INVPR_3$	0,355***
	(0,113)
AQ_2*$INVPR_7$	0,090***
	(0,033)
AQ_2*$INVPR_8$	0,074*
	(0,043)
AQ_3*$INVPR_6$	-0,852***
	(0,011)
AQ_3*$INVPR_8$	-7,589***
	(0,189)

AQ_3*$INVPR_6$	0,0000**
	(0,0000)
AQ_4*$INVPR_2$	0,580***
	(0,035)
AQ_4*$INVPR_6$	-0,396***
	(0,026)
AQ_4*$INVPR_7$	-0,122***
	(0,007)
AQ_5*$INVPR_2$	0,352***
	(0,079)
AQ_5*$INVPR_7$	0,187***
	(0,034)
AQ_5*$INVPR_8$	0,086***
	(0,020)
AQ_6*$INVPR_2$	-50,305**
	(20,796)
AQ_6*$INVPR_7$	-27,727*
	(15,000)
ΔRAV	0,000*
	(0,000)
PPE	-0,003*
	(0,001)
LL	0,023**
	(0,011)
CORPSIZE	-0,013***
	(0,003)
CFOV	7,481***
	(0,155)

$\mathbf{AQ_4*INVPR_1}$	0,669***	**DEBT**	0,066**
	(0,045)		(0,030)
$\mathbf{AQ_4*INVPR_2}$	0,044*	**BETA**	-0,056***
	(0,024)		(0,011)
$\mathbf{AQ_4*INVPR_3}$	0,456***	**ROA**	0,000*
	(0,020)		(0,000)
$\mathbf{AQ_4*INVPR_4}$	0,148***	**ΔREV**	0,0000**
	(0,044)		(0,0000)
$\mathbf{AQ_4*INVPR_5}$	-1,504***	**R²**	0,575
	(0,038)	**F test**	92,447***
$\mathbf{AQ_4*INVPR_6}$	1,409***		
	(0,052)		
$\mathbf{AQ_4*INVPR_8}$	-0,038***		
	(0,005)		
$\mathbf{AQ_5*INVPR_2}$	-0,082**		
	(0,036)		
$\mathbf{AQ_5*INVPR_3}$	0,064*		
	(0,037)		
$\mathbf{AQ_5*INVPR_4}$	0,086**		
	(0,040)		
$\mathbf{AQ_5*INVPR_5}$	-0,166**		
	(0,068)		
$\mathbf{AQ_5*INVPR_6}$	0,125*		
	(0,074)		
$\mathbf{AQ_5*INVPR_7}$	-0,040***		
	(0,012)		
$\mathbf{AQ_6*INVPR_2}$	-620,004**		
	(283,811)		

NI	0,0000*
	(0,0000)
SP	0,029*
	(0,015)
LL	0,016***
	(0,004)
CORPSIZE	0,008***
	(0,001)
CFOV	-0,015***
	(0,000)
BETA	-0,014***
	(0,005)
LEVER	0,0000*
	(0,0000)
ΔREV	0,0000*
	(0,0000)
R^2	0,467
F test	578,744***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on earnings smoothness (EQ_{10}) in pre crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AA: The joint effect of audit quality and investor protection on ex post conservatism (EQ_1) in crisis period ($H_{11\text{-}13}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
$INVPR_1$	10,718***	**$INVPR_1$**	0,167***	**$INVPR_1$**	-2,944***
	(0,407)		(0,011)		(0,088)
$INVPR_2$	-8,439***	**$INVPR_2$**	-0,103***	**$INVPR_2$**	-0,185**
	(0,200)		(0,007)		(0,077)

$INVPR_3$	-0,956***	**$INVPR_3$**	-0,112***	**$INVPR_3$**	-0,726***
	(0,305)		(0,007)		(0,056)
$INVPR_4$	4,676***	**$INVPR_4$**	-0,556***	**$INVPR_4$**	-3,557***
	(0,179)		(0,013)		(0,127)
$INVPR_5$	12,378***	**$INVPR_5$**	0,185***	**$INVPR_5$**	4,201***
	(0,306)		(0,022)		(0,115)
$INVPR_6$	-17,203***	**$INVPR_6$**	0,282***	**$INVPR_6$**	0,283***
	(0,268)		(0,016)		(0,072)
$INVPR_7$	2,244***	**$INVPR_7$**	-0,263***	**$INVPR_7$**	-1,030***
	(0,034)		(0,006)		(0,026)
$INVPR_8$	-3,843***	**$INVPR_8$**	-0,005***	**$INVPR_8$**	-1,897***
	(0,061)		(0,005)		(0,051)
AQ_2*$INVPR_2$	-0,655**	**AQ_2*$INVPR_3$**	0,059**	**AQ_2*$INVPR_2$**	-1,850**
	(0,256)		(0,026)		(0,916)
AQ_2*$INVPR_3$	2,727***	**AQ_2*$INVPR_5$**	0,184***	**AQ_2*$INVPR_3$**	-2,594***
	(0,133)		(0,053)		(0,765)
AQ_2*$INVPR_4$	-0,304*	**AQ_2*$INVPR_6$**	-0,054**	**AQ_2*$INVPR_4$**	1,608**
	(0,182)		(0,025)		(0,694)
AQ_2*$INVPR_5$	1,185***	**AQ_2*$INVPR_7$**	-0,114***	**AQ_2*$INVPR_5$**	5,636**
	(0,293)		(0,018)		(2,212)
AQ_2*$INVPR_6$	-0,869***	**AQ_2*$INVPR_8$**	-0,082***	**AQ_5*$INVPR_2$**	-0,627*
	(0,330)		(0,025)		(0,339)
AQ_2*$INVPR_7$	0,285***	**AQ_5*$INVPR_1$**	0,168***	**AQ_5*$INVPR_3$**	0,152*
	(0,050)		(0,019)		(0,083)
AQ_2*$INVPR_8$	-0,242***	**AQ_5*$INVPR_2$**	0,073***	**AQ_5*$INVPR_5$**	-0,784***
	(0,051)		(0,006)		(0,150)
AQ_5*$INVPR_1$	-2,058***	**AQ_5*$INVPR_3$**	0,026***	**AQ_5*$INVPR_8$**	0,205**
	(0,287)		(0,010)		(0,089)

AQ_5*$INVPR_3$	0,433***	**AQ_5*$INVPR_4$**	-0,079***	**ΔRAV**	0,0000***
	(0,163)		(0,024)		(0,0000)
AQ_5*$INVPR_4$	0,413*	**AQ_5*$INVPR_5$**	-0,061***	**NI**	0,0000**
	(0,215)		(0,018)		(0,0000)
AQ_5*$INVPR_5$	0,785**	**AQ_5*$INVPR_6$**	-0,174***	**CURRENT**	0,008**
	(0,319)		(0,020)		(0,003)
AQ_5*$INVPR_7$	0,342***	**AQ_5*$INVPR_7$**	0,085***	**LL**	-0,024***
	(0,053)		(0,006)		(0,009)
AQ_5*$INVPR_8$	-0,484***	**AQ_5*$INVPR_8$**	-0,075***	**CORPSIZE**	-0,084***
	(0,059)		(0,004)		(0,013)
ΔRAV	0,0000**	**NI**	0,0000***	**CFOV**	14,590***
	(0,0000)		(0,0000)		(0,457)
NI	0,0000***	**CURRENT**	0,000*	**DEBT**	-0,058**
	(0,0000)		(0,0000)		(0,023)
CURRENT	0,0000**	**SP**	-0,034***	**BETA**	0,574***
	(0,0000)		(0,005)		(0,051)
LL	-0,042**	**LL**	0,011***	**SICODE**	0,160*
	(0,018)		(0,001)		(0,087)
CORPSIZE	-0,023***	**CORPSIZE**	-0,003***	**LEVER**	0,001*
	(0,006)		(0,000)		(0,000)
CFOV	-0,003***	**CFOV**	0,000***	**R^2**	0,974
	(0,000)		(0,0000)	**F test**	1.849,630***
DEBT	-0,000***	**BETA**	-0,061***		
	(0,000)		(0,002)		
BETA	0,029*	**SICODE**	0,010***		
	(0,016)		(0,002)		
SICODE	-0,0369***	**ROA**	0,0000***		
	(0,027)		(0,0000)		

LEVER	0,000***	**R²**	0,345
	(0,0000)	**F test**	507,066***
ΔREV	0,0000*		
	(0,0000)		
R²	0,704		
F test	863,393***		

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on ex post conservatism (EQ_1) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AB: The joint effect of audit quality and investor protection on ex ante conservatism (EQ_2) in crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
$INVPR_2$	-0,021**	**AQ_5**	-227.140,773*	**$INVPR_1$**	0,044**
	(0,010)		(123.881,776)		(0,020)
CORPSIZE	0,000*	**AQ_6**	63.494.947,010**	**AQ_4*$INVPR_1$**	0,049**
	(0,000)		(30.726.632,180)		(0,023)
R²	-0,002	**$INVPR_2$**	-16.603,518***	**R²**	-0,003
F test	0,282		(5.061,487)	**F test**	0,614
		$INVPR_4$	39.248,335**		
			(18.949,455)		
		$INVPR_7$	-12.096,693*		
			(6.293,407)		
		AQ_5*$INVPR_2$	-62.968,925***		
			(12.075,556)		
		AQ_5*$INVPR_4$	143.565,768***		
			(43.613,875)		
		AQ_5*$INVPR_6$	-96.382,380**		
			(38.269,408)		

AQ_5*$INVPR_7$	-20.507,933*
	(11.639,835)
AQ_6*$INVPR_5$	683.679.813,708*
	(390.401.493,423)
AQ_6*$INVPR_7$	-244.652.460,679***
	(88.149.053,590)
NI	-0,038***
	(0,000)
LL	-18.808,095***
	(3.444,521)
CORPSIZE	2.593,258***
	(793,798)
LEVER	30,022***
	(11,140)
ROA	1,442***
	(0,005)
R^2	0,744
F test	2.790,105***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on ex ante conservatism (EQ_2) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AC: The joint effect of audit quality and investor protection on value relevance (EQ_3) in crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	0,283***	**AQ_2**	-0,421*	**AQ_2**	-0,141***
	(0,097)		(0,232)		(0,041)
AQ_3	1,358***	**AQ_3**	0,896***	**AQ_4**	0,091***
	(0,005)		(0,753)		(0,010)

AQ_4	-0,016***	AQ_4	0,236***	AQ_5	-0,052***
	(0,005)		(0,060)		(0,016)
AQ_5	0,286***	AQ_5	0,261***	$INVPR_1$	-1,015***
	(0,100)		(0,036)		(0,019)
$INVPR_1$	-0,155***	AQ_6	46,212***	$INVPR_2$	0,089***
	(0,023)		(11,230)		(0,016)
$INVPR_2$	-2,306***	$INVPR_1$	-0,217***	$INVPR_3$	0,234***
	(0,011)		(0,006)		(0,012)
$INVPR_3$	2,143***	$INVPR_2$	0,142***	$INVPR_4$	-0,660***
	(0,017)		(0,004)		(0,027)
$INVPR_4$	-0,022**	$INVPR_3$	-0,505***	$INVPR_5$	0,892***
	(0,010)		(0,007)		(0,025)
$INVPR_5$	0,877***	$INVPR_4$	0,579***	$INVPR_6$	-0,056***
	(0,017)		(0,007)		(0,015)
$INVPR_6$	-1,785***	$INVPR_5$	-0,126***	$INVPR_7$	-0,118***
	(0,015)		(0,012)		(0,005)
$INVPR_7$	0,068***	$INVPR_6$	0,172***	$INVPR_8$	-0,352***
	(0,002)		(0,009)		(0,011)
$INVPR_8$	-0,011***	$INVPR_7$	-0,115***	$AQ_1*INVPR_1$	0,0000*
	(0,003)		(0,003)		(0,0000)
$AQ_1*INVPR_3$	0,0000***	$INVPR_8$	0,044***	$AQ_1*INVPR_7$	0,0000*
	(0,0000)		(0,003)		(0,0000)
$AQ_1*INVPR_4$	0,0000***	$AQ_1*INVPR_3$	0,0000*	$AQ_2*INVPR_1$	-0,287***
	(0,0000)		(0,0000)		(0,099)
$AQ_1*INVPR_8$	0,0000***	$AQ_1*INVPR_8$	0,0000*	$AQ_2*INVPR_2$	-0,114*
	(0,0000)		(0,0000)		(0,058)
$AQ_2*INVPR_2$	-0,039***	$AQ_2*INVPR_2$	-0,041***	$AQ_2*INVPR_3$	-0,446***
	(0,014)		(0,015)		(0,155)

AQ_2*$INVPR_3$	0,725***	**AQ_2*$INVPR_3$**	-0,068***	**AQ_2*$INVPR_4$**	-0,522***
	(0,019)		(0,015)		(0,150)
AQ_2*$INVPR_4$	-0,020*	**AQ_2*$INVPR_5$**	0,237***	**AQ_2*$INVPR_5$**	0,364***
	(0,010)		(0,044)		(0,135)
AQ_2*$INVPR_5$	0,052***	**AQ_2*$INVPR_6$**	0,044***	**AQ_2*$INVPR_6$**	0,575***
	(0,016)		(0,014)		(0,149)
AQ_2*$INVPR_6$	-0,040**	**AQ_2*$INVPR_7$**	-0,029***	**AQ_2*$INVPR_7$**	0,139***
	(0,018)		(0,010)		(0,038)
AQ_2*$INVPR_7$	0,012***	**AQ_2*$INVPR_8$**	-0,103***	**AQ_3*$INVPR_2$**	-96,324**
	(0,002)		(0,014)		(9,726)
AQ_2*$INVPR_8$	-0,014***	**AQ_3*$INVPR_5$**	0,0000*	**AQ_3*$INVPR_3$**	0,0000**
	(0,002)		(0,0000)		(0,0000)
AQ_3*$INVPR_8$	-75,296**	**AQ_4*$INVPR_1$**	-0,256***	**AQ_4*$INVPR_1$**	-0,087***
	(6,276)		(0,006)		(0,020)
AQ_4*$INVPR_1$	-0,082*	**AQ_4*$INVPR_2$**	0,007*	**AQ_4*$INVPR_2$**	-0,148***
	(0,044)		(0,004)		(0,017)
AQ_4*$INVPR_2$	-0,050***	**AQ_4*$INVPR_3$**	0,055***	**AQ_4*$INVPR_3$**	-0,141***
	(0,008)		(0,006)		(0,012)
AQ_4*$INVPR_3$	0,016***	**AQ_4*$INVPR_4$**	0,590***	**AQ_4*$INVPR_4$**	-0,062*
	(0,006)		(0,008)		(0,033)
AQ_4*$INVPR_4$	-0,060***	**AQ_4*$INVPR_5$**	-0,098***	**AQ_4*$INVPR_5$**	0,188***
	(0,011)		(0,013)		(0,026)
AQ_4*$INVPR_5$	0,092***	**AQ_4*$INVPR_6$**	0,014**	**AQ_4*$INVPR_6$**	0,219***
	(0,012)		(0,006)		(0,022)
AQ_4*$INVPR_6$	-1,652***	**AQ_4*$INVPR_7$**	0,016***	**AQ_4*$INVPR_7$**	0,071***
	(0,040)		(0,003)		(0,007)
AQ_4*$INVPR_7$	0,010***	**AQ_4*$INVPR_8$**	-0,010***	**AQ_4*$INVPR_8$**	-0,080***
	(0,001)		(0,003)		(0,013)

AQ_4*$INVPR_8$	0,088***	**AQ_5*$INVPR_1$**	-0,098***	**AQ_5*$INVPR_1$**	0,082***
	(0,007)		(0,010)		(0,026)
AQ_5*$INVPR_2$	-0,108***	**AQ_5*$INVPR_2$**	-0,011***	**AQ_5*$INVPR_4$**	-0,204***
	(0,016)		(0,003)		(0,041)
AQ_5*$INVPR_3$	0,022**	**AQ_5*$INVPR_3$**	-0,042***	**AQ_5*$INVPR_5$**	-0,245*
	(0,009)		(0,005)		(0,138)
AQ_5*$INVPR_4$	0,022*	**AQ_5*$INVPR_4$**	-0,021*	**AQ_5*$INVPR_6$**	0,103***
	(0,012)		(0,012)		(0,035)
AQ_5*$INVPR_5$	0,045**	**AQ_5*$INVPR_5$**	0,101***	**AQ_5*$INVPR_7$**	-130,828***
	(0,018)		(0,010)		(23,744)
AQ_5*$INVPR_7$	0,018***	**AQ_5*$INVPR_6$**	0,085***	**AQ_5*$INVPR_8$**	-705,982***
	(0,003)		(0,011)		(62,742)
AQ_5*$INVPR_8$	-0,026***	**AQ_5*$INVPR_7$**	-0,055***	**AQ_6*$INVPR_2$**	-65,005***
	(0,003)		(0,003)		(15,232)
AQ_6*$INVPR_3$	246,405***	**AQ_5*$INVPR_8$**	0,006**	**AQ_6*$INVPR_3$**	104,195**
	(21,412)		(0,002)		(43,240)
AQ_6*$INVPR_5$	35,628**	**AQ_6*$INVPR_3$**	-112,800**	**AQ_6*$INVPR_5$**	253,589**
	(17,456)		(46,276)		(117,325)
AQ_6*$INVPR_7$	-110,918***	**AQ_6*$INVPR_4$**	252,222**	**AQ_6*$INVPR_6$**	130,766***
	(24,580)		(127,419)		(22,960)
AQ_6*$INVPR_8$	-150,606***	**AQ_6*$INVPR_6$**	-159,292*	**AQ_6*$INVPR_7$**	66,710***
	(11,359)		(86,651)		(11,123)
NI	0,0000***	**ΔRAV**	0,000**	**AQ_6*$INVPR_8$**	504,996***
	(0,0000)		(0,000)		(55,110)
TA	0,0000*	**PPE**	0,0000*	**ΔRAV**	0,0000***
	(0,0000)		(0,0000)		(0,0000)
CURRENT	0,000**	**NI**	0,0000**	**PPE**	-0,022*
	(0,000)		(0,0000)		(0,012)

LL	-0,003***	**CURRENT**	-0,000**	**NI**	0,0000***
	(0,001)		(0,0000)		(0,0000)
CORPSIZE	-0,001***	**SP**	0,016***	**LL**	-0,006***
	(0,000)		(0,002)		(0,002)
CFOV	0,000***	**LL**	-0,003***	**CORPSIZE**	0,001**
	(0,0000)		(0,001)		(0,000)
BETA	0,002**	**CORPSIZE**	0,000***	**CFOV**	5,015***
	(0,000)		(0,000)		(0,099)
SICODE	0,107***	**CFOV**	-0,001***	**DEBT**	-0,013***
	(0,008)		(0,0000)		(0,004)
LEVER	0,0000***	**DEBT**	0,0000***	**BETA**	-0,003*
	(0,0000)		(0,0000)		(0,002)
ΔREV	0,0000**	**BETA**	0,017***	**SICODE**	-0,039**
	(0,0000)		(0,001)		(0,018)
R²	0,970	**SICODE**	-0,003**	**LEVER**	0,000*
F test	11.698,319***		(0,001)		(0,000)
		ROA	0,0000***	**ROA**	-0,000*
			(0,0000)		(0,000)
		R²	0,817	**R²**	0,970
		F test	4.299,941***	**F test**	1.592,295***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on value relevance (EQ_3) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AD: The joint effect of audit quality and investor protection on accruals quality by Dechow et al (1995) (EQ_4) in crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	0,116***	AQ_1	0,0000***	AQ_4	-0,150**
	(0,035)		(0,0000)		(0,070)

AQ_4	-0,095***	AQ_2	45,807***	AQ_6	-230,732*
	(0,024)		(10,401)		(124,030)
AQ_5	1,424**	AQ_3	-5,896***	$INVPR_1$	0,372***
	(0,593)		(0,001)		(0,017)
AQ_6	-491,169***	AQ_4	-33,927***	$INVPR_2$	0,217***
	(104,013)		(2,709)		(0,015)
$INVPR_1$	23,865***	AQ_5	-29,419***	$INVPR_3$	0,172***
	(0,137)		(1,613)		(0,011)
$INVPR_2$	-15,046***	$INVPR_1$	10,971***	$INVPR_4$	0,427***
	(0,067)		(0,280)		(0,025)
$INVPR_3$	-9,621***	$INVPR_2$	13,434***	$INVPR_5$	-0,979***
	(0,103)		(0,182)		(0,023)
$INVPR_4$	-0,294***	$INVPR_3$	-7,520***	$INVPR_6$	-0,433***
	(0,032)		(0,316)		(0,014)
$INVPR_5$	23,138***	$INVPR_4$	-44,350***	$INVPR_7$	-0,091***
	(0,103)		(0,323)		(0,005)
$INVPR_6$	-18,430***	$INVPR_5$	-15,683***	$INVPR_8$	0,427***
	(0,090)		(0,563)		(0,010)
$INVPR_7$	1,814***	$INVPR_6$	18,995***	$AQ_1*INVPR_1$	-0,216**
	(0,011)		(0,410)		(0,092)
$INVPR_8$	-4,948***	$INVPR_7$	0,418**	$AQ_1*INVPR_2$	-0,106*
	(0,020)		(0,168)		(0,054)
$AQ_1*INVPR_2$	0,0000*	$INVPR_8$	-3,587***	$AQ_1*INVPR_3$	-0,112**
	(0,0000)		(0,138)		(0,047)
$AQ_1*INVPR_3$	0,0000***	$AQ_2*INVPR_2$	8,728***	$AQ_1*INVPR_4$	-0,677***
	(0,0000)		(0,694)		(0,140)
$AQ_1*INVPR_8$	0,0000***	$AQ_2*INVPR_3$	-3,244***	$AQ_1*INVPR_5$	0,511***
	(0,0000)		(0,678)		(0,125)

AQ_2*$INVPR_2$	-4,129***	**AQ_2*$INVPR_5$**	-8,599***	**AQ_1*$INVPR_6$**	0,596***
	(0,123)		(1,990)		(0,138)
AQ_2*$INVPR_3$	0,109**	**AQ_2*$INVPR_6$**	-4,427***	**AQ_1*$INVPR_7$**	0,125***
	(0,051)		(0,638)		(0,036)
AQ_2*$INVPR_4$	-0,224***	**AQ_2*$INVPR_7$**	1,774***	**AQ_1*$INVPR_8$**	0,125**
	(0,061)		(0,470)		(0,063)
AQ_2*$INVPR_5$	1,061***	**AQ_2*$INVPR_8$**	-3,556***	**AQ_3*$INVPR_8$**	0,005*
	(0,099)		(0,635)		(0,003)
AQ_2*$INVPR_6$	-0,913***	**AQ_3*$INVPR_5$**	0,000***	**AQ_4*$INVPR_1$**	0,047***
	(0,112)		(0,000)		(0,013)
AQ_2*$INVPR_7$	0,186***	**AQ_3*$INVPR_6$**	0,0000**	**AQ_4*$INVPR_4$**	0,179***
	(0,017)		(0,0000)		(0,035)
AQ_2*$INVPR_8$	0,186***	**AQ_4*$INVPR_1$**	22,977***	**AQ_4*$INVPR_5$**	-0,082***
	(0,017)		(0,320)		(0,028)
AQ_4*$INVPR_1$	6,796***	**AQ_4*$INVPR_2$**	0,653***	**AQ_4*$INVPR_6$**	-0,173***
	(0,189)		(0,190)		(0,028)
AQ_4*$INVPR_2$	-0,298***	**AQ_4*$INVPR_3$**	-0,627**	**AQ_4*$INVPR_7$**	-0,075***
	(0,052)		(0,293)		(0,008)
AQ_4*$INVPR_3$	0,070*	**AQ_4*$INVPR_4$**	-30,543***	**AQ_4*$INVPR_8$**	0,070***
	(0,037)		(0,428)		(0,010)
AQ_4*$INVPR_4$	-0,581***	**AQ_4*$INVPR_5$**	6,688***	**AQ_5*$INVPR_3$**	-0,049***
	(0,066)		(0,591)		(0,016)
AQ_4*$INVPR_5$	0,715***	**AQ_4*$INVPR_6$**	-1,279***	**AQ_5*$INVPR_4$**	-0,134***
	(0,073)		(0,307)		(0,038)
AQ_4*$INVPR_6$	-9,015***	**AQ_4*$INVPR_7$**	5,900***	**AQ_5*$INVPR_5$**	0,189***
	(0,172)		(0,117)		(0,030)
AQ_4*$INVPR_7$	0,070***	**AQ_4*$INVPR_8$**	0,760***	**AQ_5*$INVPR_8$**	-0,044*
	(0,011)		(0,143)		(0,024)

AQ_4*$INVPR_8$	0,055***	**AQ_5*$INVPR_1$**	3,208***	**AQ_6*$INVPR_1$**	-36,583*
	(0,014)		(0,472)		(22,064)
AQ_5*$INVPR_2$	-0,855***	**AQ_5*$INVPR_2$**	1,985***	**AQ_6*$INVPR_2$**	-31,308**
	(0,097)		(0,157)		(14,154)
AQ_5*$INVPR_3$	0,237***	**AQ_5*$INVPR_3$**	0,991***	**AQ_6*$INVPR_4$**	-52,865***
	(0,055)		(0,304)		(19,668)
AQ_5*$INVPR_4$	2,428***	**AQ_5*$INVPR_4$**	4,407***	**AQ_6*$INVPR_6$**	72,429***
	(0,233)		(0,568)		(21,335)
AQ_5*$INVPR_5$	0,454***	**AQ_5*$INVPR_6$**	-7,499***	**AQ_6*$INVPR_7$**	44,615***
	(0,108)		(0,498)		(10,336)
AQ_5*$INVPR_7$	0,161***	**AQ_5*$INVPR_7$**	2,571***	**AQ_6*$INVPR_8$**	122,191***
	(0,018)		(0,172)		(25,919)
AQ_5*$INVPR_8$	-0,143***	**AQ_5*$INVPR_8$**	-0,334***	**PPE**	0,021***
	(0,002)		(0,120)		(0,005)
AQ_6*$INVPR_3$	681,352***	**AQ_6*INVPR2**	-9.469,813***	**LL**	0,016***
	(126,619)		(1.672,311)		(0,004)
AQ_6*$INVPR_4$	1.227,813***	**AQ_6*$INVPR_4$**	-21.762,541***	**CORPSIZE**	0,000*
	(239,440)		(5.383,625)		(0,000)
AQ_6*$INVPR_5$	486,207***	**AQ_6*$INVPR_5$**	11.541,786**	**CFOV**	1,329***
	(103,227)		(5.086,030)		(0,099)
AQ_6*$INVPR_7$	-224,861**	**AQ_6*$INVPR_6$**	20.002,163***	**DEBT**	0,003*
	(105,344)		(3661,591)		(0,001)
AQ_6*$INVPR_8$	-604,289***	**NI**	0,0000**	**BETA**	-0,007*
	(67,168)		(0,0000)		(0,004)
ΔRAV	0,0000***	**CURRENT**	0,001*	**LEVER**	-0,000*
	(0,0000)		(0,001)		(0,0000)
NI	0,0000***	**SP**	-0,815***	**R^2**	0,844
	(0,0000)		(0,115)	**F test**	267,855***

CURRENT	0,001**	**LL**	0,136***
	(0,000)		(0,043)
LL	-0,097***	**CORPSIZE**	0,086***
	(0,024)		(0,010)
CORPSIZE	-0,004*	**CFOV**	0,332***
	(0,002)		(0,000)
CFOV	-0,004***	**DEBT**	0,0000***
	(0,0000)		(0,0000)
BETA	0,019***	**BETA**	-6,703***
	(0,005)		(0,091)
SICODE	0,229***	**SICODE**	0,351***
	(0,033)		(0,070)
LEVER	0,0000***	**ROA**	0,0000***
	(0,0000)		(0,0000)
R^2	0,936	**R^2**	0,995
F test	5.285,553***	**F test**	175.197,705***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by Dechow et al (1995) (EQ_4) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AF: The joint effect of audit quality and investor protection on accruals quality by McNichols (2002) (EQ_5) in crisis period ($H_{11\text{-}13}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_1	0,0000*	**AQ_2**	0,380***	**AQ_2**	-0,180**
	(0,0000)		(0,046)		(0,087)
AQ_2	0,069***	**AQ_3**	-0,383***	**AQ_4**	-0,141***
	(0,015)		(0,028)		(0,028)
AQ_4	-0,083***	**AQ_4**	-1,075***	**AQ_5**	-0,084**
	(0,010)		(0,091)		(0,040)

AQ_5	1,173***	**AQ_5**	0,195***	**$INVPR_1$**	0,132***
	(0,337)		(0,021)		(0,007)
AQ_6	-359,410***	**AQ_6**	647,363***	**$INVPR_2$**	-0,175***
	(45,056)		(160,704)		(0,006)
$INVPR_1$	13,161***	**$INVPR_1$**	1,930***	**$INVPR_3$**	-0,092***
	(0,078)		(0,079)		(0,004)
$INVPR_2$	-5,959***	**$INVPR_2$**	3,812***	**$INVPR_4$**	-0,220***
	(0,038)		(0,051)		(0,010)
$INVPR_3$	-8,113***	**$INVPR_3$**	-2,115***	**$INVPR_5$**	0,111***
	(0,059)		(0,089)		(0,009)
$INVPR_4$	-2,656***	**$INVPR_4$**	-1,972**	**$INVPR_6$**	0,211***
	(0,034)		(0,762)		(0,005)
$INVPR_5$	10,095***	**$INVPR_5$**	-0,558***	**$INVPR_7$**	0,091***
	(0,059)		(0,158)		(0,002)
$INVPR_6$	-4,117***	**$INVPR_6$**	-4,224***	**$INVPR_8$**	0,029***
	(0,051)		(0,115)		(0,004)
$INVPR_7$	-0,021***	**$INVPR_7$**	0,495***	**AQ_2*$INVPR_1$**	-0,090**
	(0,006)		(0,047)		(0,037)
$INVPR_8$	-1,628***	**$INVPR_8$**	-1,181***	**AQ_2*$INVPR_2$**	-0,062***
	(0,011)		(0,039)		(0,022)
AQ_1*$INVPR_3$	0,0000***	**AQ_1*$INVPR_7$**	0,0000**	**AQ_2*$INVPR_3$**	-0,063***
	(0,0000)		(0,000)		(0,018)
AQ_1*$INVPR_8$	0,0000***	**AQ_2*$INVPR_2$**	1,224***	**AQ_2*$INVPR_4$**	-0,290***
	(0,0000)		(0,205)		(0,056)
AQ_2*$INVPR_2$	-1,417***	**AQ_2*$INVPR_3$**	-1,729***	**AQ_2*$INVPR_5$**	0,223***
	(0,060)		(0,190)		(0,050)
AQ_2*$INVPR_3$	0,332***	**AQ_2*$INVPR_5$**	3,914***	**AQ_2*$INVPR_6$**	0,278***
	(0,041)		(0,560)		(0,055)

AQ_2*$INVPR_4$	-1,107***	**AQ_2*$INVPR_6$**	-1,336***	**AQ_2*$INVPR_7$**	0,061***
	(0,065)		(0,179)		(0,014)
AQ_2*$INVPR_5$	0,343***	**AQ_2*$INVPR_7$**	-0,483***	**AQ_3*$INVPR_1$**	0,038***
	(0,056)		(0,132)		(0,009)
AQ_2*$INVPR_6$	-0,262***	**AQ_2*$INVPR_8$**	-0,621***	**AQ_3*$INVPR_2$**	-0,175***
	(0,063)		(0,179)		(0,010)
AQ_2*$INVPR_7$	0,078***	**AQ_3*$INVPR_1$**	-5,650***	**AQ_3*$INVPR_3$**	-0,106***
	(0,009)		(0,182)		(0,007)
AQ_2*$INVPR_8$	-0,029***	**AQ_3*$INVPR_2$**	-0,216***	**AQ_3*$INVPR_4$**	-0,181***
	(0,009)		(0,069)		(0,021)
AQ_3*$INVPR_2$	-1,708***	**AQ_3*$INVPR_3$**	0,182*	**AQ_3*$INVPR_5$**	0,188***
	(0,093)		(0,105)		(0,014)
AQ_3*$INVPR_1$	0,700***	**AQ_3*$INVPR_4$**	5,226***	**AQ_3*$INVPR_6$**	0,175***
	(0,067)		(0,210)		(0,010)
AQ_3*$INVPR_4$	-1,217***	**AQ_3*$INVPR_5$**	-0,683***	**AQ_3*$INVPR_7$**	0,065***
	(0,122)		(0,210)		(0,003)
AQ_3*$INVPR_5$	2,605***	**AQ_3*$INVPR_6$**	2,328***	**AQ_3*$INVPR_8$**	-0,038***
	(0,130)		(0,191)		(0,005)
AQ_3*$INVPR_7$	0,117***	**AQ_3*$INVPR_7$**	-1,932***	**AQ_4*$INVPR_1$**	-0,076***
	(0,020)		(0,078)		(0,007)
AQ_3*$INVPR_8$	-0,085***	**AQ_3*$INVPR_8$**	0,784***	**AQ_4*$INVPR_2$**	-0,101***
	(0,025)		(0,058)		(0,006)
AQ_4*$INVPR_1$	3,576***	**AQ_4*$INVPR_1$**	3,668***	**AQ_4*$INVPR_3$**	-0,083***
	(0,093)		(0,077)		(0,004)
AQ_4*$INVPR_2$	-0,214***	**AQ_4*$INVPR_2$**	-0,125**	**AQ_4*$INVPR_4$**	-0,025**
	(0,030)		(0,053)		(0,012)
AQ_4*$INVPR_3$	0,036*	**AQ_4*$INVPR_3$**	0,762***	**AQ_4*$INVPR_5$**	0,246***
	(0,021)		(0,082)		(0,010)

AQ_4*$INVPR_4$	0,330***	**AQ_4*$INVPR_4$**	-0,967***	**AQ_4*$INVPR_6$**	0,095***
	(0,037)		(0,103)		(0,008)
AQ_4*$INVPR_5$	4,635***	**AQ_4*$INVPR_5$**	-1,196***	**AQ_4*$INVPR_7$**	0,024***
	(0,101)		(0,166)		(0,002)
AQ_4*$INVPR_6$	0,483***	**AQ_4*$INVPR_6$**	0,657***	**AQ_4*$INVPR_8$**	-0,071***
	(0,084)		(0,086)		(0,005)
AQ_4*$INVPR_7$	0,028***	**AQ_4*$INVPR_7$**	0,276***	**AQ_5*$INVPR_1$**	0,024**
	(0,006)		(0,044)		(0,009)
AQ_4*$INVPR_8$	-0,088***	**AQ_4*$INVPR_8$**	-0,883***	**AQ_5*$INVPR_2$**	0,043***
	(0,008)		(0,132)		(0,012)
AQ_5*$INVPR_2$	-0,358***	**AQ_5*$INVPR_1$**	-1,554***	**AQ_5*$INVPR_3$**	-0,022***
	(0,055)		(0,133)		(0,006)
AQ_5*$INVPR_3$	0,076**	**AQ_5*$INVPR_2$**	0,433***	**AQ_5*$INVPR_4$**	-0,067***
	(0,031)		(0,044)		(0,015)
AQ_5*$INVPR_4$	0,085**	**AQ_5*$INVPR_3$**	-0,866***	**AQ_5*$INVPR_5$**	0,076***
	(0,041)		(0,073)		(0,012)
AQ_5*$INVPR_5$	1,210***	**AQ_5*$INVPR_4$**	0,547***	**AQ_5*$INVPR_6$**	0,026**
	(0,114)		(0,160)		(0,013)
AQ_5*$INVPR_7$	0,051***	**AQ_5*$INVPR_5$**	0,536***	**AQ_6*$INVPR_1$**	-22,191**
	(0,010)		(0,131)		(8,878)
AQ_5*$INVPR_8$	-0,073***	**AQ_5*$INVPR_6$**	0,514***	**AQ_6*$INVPR_2$**	-20,899***
	(0,011)		(0,132)		(5,695)
AQ_6*$INVPR_3$	634,586***	**AQ_5*$INVPR_7$**	0,250***	**AQ_6*$INVPR_3$**	-8,772**
	(72,165)		(0,036)		(4,256)
AQ_6*$INVPR_5$	174,812***	**AQ_5*$INVPR_8$**	0,169***	**AQ_6*$INVPR_6$**	41,913***
	(58,833)		(0,033)		(8,585)
AQ_6*$INVPR_7$	-387,637***	**AQ_6*$INVPR_2$**	1.171,019**	**AQ_6*$INVPR_7$**	19,808***
	(51,799)		(470,810)		(4,159)

AQ_6*$INVPR_8$	-431,369***
	(38,282)
ΔRAV	0,0000***
	(0,0000)
PPE	-0,000*
	(0,0000)
CURRENT	0,001***
	(0,000)
SP	-0,105***
	(0,038)
LL	0,101***
	(0,010)
CORPSIZE	0,020***
	(0,003)
CFOV	-0,002***
	(0,0000)
BETA	0,045***
	(0,008)
SICODE	0,352***
	(0,014)
LEVER	0,0000***
	(0,0000)
R^2	0,898
F test	3.187,785***

AQ_6*$INVPR_3$	-2.628,289***
	(583,878)
AQ_6*$INVPR_4$	6.460,142***
	(1.515,667)
AQ_6*$INVPR_5$	-6.786,499***
	(1.431,884)
AQ_6*$INVPR_6$	-4.467,277***
	(1.030,858)
AQ_6*$INVPR_7$	1.933,090***
	(323,306)
AQ_6*$INVPR_8$	2.624,086***
	(447,030)
ΔRAV	0,001*
	(0,000)
NI	0,0000***
	(0,0000)
CURRENT	0,000*
	(0,000)
SP	-0,246***
	(0,046)
LL	-0,022*
	(0,012)
CORPSIZE	0,014***
	(0,002)
CFOV	0,105***
	(0,000)
DEBT	0,0000*
	(0,0000)

AQ_6*$INVPR_8$	-67,029***
	(9,703)
NI	0,0000*
	(0,0000)
SP	-0,011**
	(0,005)
CORPSIZE	0,000***
	(0,000)
CFOV	1,449***
	(0,037)
ROA	0,000*
	(0,0000)
R^2	0,935
F test	714,402***

BETA	-0,368***
	(0,015)
ROA	0,0000***
	(0,0000)
ΔREV	0,0000**
	(0,0000)
R²	0,995
F test	208.833,957***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by McNichols (2002) (EQ_5) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AG: The joint effect of audit quality and investor protection on accruals quality by Kothari et al (2005) (EQ_6) in crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	1,284**	**AQ_1**	0,0000***	**AQ_2**	-0,387*
	(0,588)		(0,0000)		(0,200)
AQ_4	-0,097***	**AQ_2**	43,002***	**AQ_4**	-0,127*
	(0,021)		(10,824)		(0,065)
AQ_5	1,862***	**AQ_3**	-77,354***	**$INVPR_1$**	0,324***
	(0,607)		(3,410)		(0,016)
AQ_6	-563,742***	**AQ_4**	-35,645***	**$INVPR_2$**	0,219***
	(93,154)		(2,819)		(0,014)
$INVPR_1$	10,303***	**$INVPR_1$**	7,331***	**$INVPR_3$**	0,185***
	(0,141)		(0,291)		(0,010)
$INVPR_2$	-11,043***	**$INVPR_2$**	13,324***	**$INVPR_4$**	0,570***
	(0,069)		(0,190)		(0,023)
$INVPR_3$	-1,538***	**$INVPR_3$**	-7,246***	**$INVPR_5$**	-0,963***
	(0,106)		(0,329)		(0,021)

$INVPR_4$	0,443***	**$INVPR_4$**	-45,172***	**$INVPR_6$**	-0,527***
	(0,062)		(0,337)		(0,013)
$INVPR_5$	15,093***	**$INVPR_5$**	-29,816***	**$INVPR_7$**	-0,094***
	(0,106)		(1,679)		(0,004)
$INVPR_6$	-11,560***	**$INVPR_6$**	16,679***	**$INVPR_8$**	0,444***
	(0,092)		(0,427)		(0,009)
$INVPR_7$	1,693***	**$INVPR_7$**	1,186***	**AQ_2*$INVPR_1$**	-0,262***
	(0,011)		(0,086)		(0,085)
$INVPR_8$	-3,655***	**$INVPR_8$**	-3,519***	**AQ_2*$INVPR_2$**	-0,153***
	(0,021)		(0,144)		(0,050)
AQ_1*$INVPR_2$	0,0000***	**AQ_2*$INVPR_2$**	9,286***	**AQ_2*$INVPR_3$**	-0,144***
	(0,0000)		(0,722)		(0,043)
AQ_1*$INVPR_3$	0,0000***	**AQ_2*$INVPR_3$**	-4,696***	**AQ_2*$INVPR_4$**	-0,768***
	(0,0000)		(0,705)		(0,129)
AQ_1*$INVPR_8$	0,0000***	**AQ_2*$INVPR_5$**	-6,314***	**AQ_2*$INVPR_5$**	0,556***
	(0,0000)		(2,071)		(0,116)
AQ_2*$INVPR_2$	-0,222**	**AQ_2*$INVPR_6$**	-5,448***	**AQ_2*$INVPR_6$**	0,734***
	(0,089)		(0,664)		(0,128)
AQ_2*$INVPR_3$	2,340***	**AQ_2*$INVPR_7$**	1,813***	**AQ_2*$INVPR_7$**	0,165***
	(0,075)		(0,489)		(0,033)
AQ_2*$INVPR_4$	-0,121*	**AQ_2*$INVPR_8$**	-3,591***	**AQ_2*$INVPR_8$**	0,117*
	(0,063)		(0,661)		(0,062)
AQ_2*$INVPR_5$	0,366***	**AQ_3*$INVPR_1$**	1,768***	**AQ_3*$INVPR_1$**	0,324***
	(0,101)		(0,673)		(0,024)
AQ_2*$INVPR_6$	-0,026**	**AQ_3*$INVPR_2$**	-2,753***	**AQ_3*$INVPR_2$**	0,138***
	(0,114)		(0,255)		(0,027)
AQ_2*$INVPR_7$	0,085***	**AQ_3*$INVPR_3$**	3,829***	**AQ_3*$INVPR_3$**	0,064***
	(0,017)		(0,390)		(0,018)

AQ_2*$INVPR_8$	-0,078***	**AQ_3*$INVPR_4$**	1,517*	**AQ_3*$INVPR_4$**	0,448***
	(0,017)		(0,7780)		(0,056)
AQ_3*$INVPR_2$	-5,812***	**AQ_3*$INVPR_5$**	9,149***	**AQ_3*$INVPR_5$**	-0,674***
	(0,169)		(0,778)		(0,037)
AQ_3*$INVPR_3$	2,720***	**AQ_3*$INVPR_6$**	-2,997***	**AQ_3*$INVPR_6$**	-0,461***
	(0,121)		(0,706)		(0,027)
AQ_3*$INVPR_4$	1,465***	**AQ_3*$INVPR_7$**	3,072***	**AQ_3*$INVPR_7$**	-0,120***
	(0,220)		(0,282)		(0,008)
AQ_3*$INVPR_5$	4,003***	**AQ_3*$INVPR_8$**	3,299***	**AQ_3*$INVPR_8$**	0,307***
	(0,235)		(0,216)		(0,013)
AQ_3*$INVPR_7$	0,794***	**AQ_4*$INVPR_1$**	20,827***	**AQ_4*$INVPR_1$**	-0,264***
	(0,036)		(0,330)		(0,017)
AQ_3*$INVPR_8$	-1,460***	**AQ_4*$INVPR_2$**	0,460**	**AQ_4*$INVPR_2$**	-0,177***
	(0,046)		(0,198)		(0,015)
AQ_4*$INVPR_2$	-0,253***	**AQ_4*$INVPR_3$**	-5,354***	**AQ_4*$INVPR_3$**	-0,111***
	(0,054)		(0,223)		(0,010)
AQ_4*$INVPR_3$	1,737***	**AQ_4*$INVPR_4$**	-31,454***	**AQ_4*$INVPR_4$**	-0,080***
	(0,120)		(0,442)		(0,028)
AQ_4*$INVPR_4$	-0,163**	**AQ_4*$INVPR_5$**	5,516***	**AQ_4*$INVPR_5$**	0,646***
	(0,067)		(0,615)		(0,022)
AQ_4*$INVPR_5$	0,354***	**AQ_4*$INVPR_6$**	-5,500***	**AQ_4*$INVPR_6$**	0,165***
	(0,075)		(0,333)		(0,019)
AQ_4*$INVPR_6$	-7,047***	**AQ_4*$INVPR_7$**	5,626***	**AQ_4*$INVPR_7$**	0,023***
	(0,153)		(0,121)		(0,006)
AQ_4*$INVPR_7$	0,040***	**AQ_4*$INVPR_8$**	0,843***	**AQ_4*$INVPR_8$**	-0,204***
	(0,011)		(0,149)		(0,011)
AQ_4*$INVPR_8$	-2,072***	**AQ_5*$INVPR_1$**	2,399***	**AQ_5*$INVPR_1$**	0,043*
	(0,029)		(0,491)		(0,022)

AQ_5*$INVPR_2$	-0,712***	**AQ_5*$INVPR_2$**	1,978***	**AQ_5*$INVPR_3$**	-0,050***
	(0,099)		(0,163)		(0,015)
AQ_5*$INVPR_3$	0,174***	**AQ_5*$INVPR_3$**	0,756**	**AQ_5*$INVPR_4$**	-0,153***
	(0,056)		(0,313)		(0,035)
AQ_5*$INVPR_5$	0,356***	**AQ_5*$INVPR_4$**	3,744***	**AQ_5*$INVPR_5$**	0,167***
	(0,110)		(0,591)		(0,028)
AQ_5*$INVPR_7$	0,127***	**AQ_5*$INVPR_5$**	1,071*	**AQ_5*$INVPR_6$**	0,071**
	(0,018)		(0,591)		(0,030)
AQ_5*$INVPR_8$	-0,158***	**AQ_5*$INVPR_6$**	-6,610***	**AQ_6*$INVPR_1$**	-49,430**
	(0,020)		(0,518)		(20,388)
AQ_6*$INVPR_3$	1.418,100***	**AQ_5*$INVPR_7$**	2,392***	**AQ_6*$INVPR_2$**	-32,740**
	(129,639)		(0,179)		(13,080)
AQ_6*$INVPR_5$	296,886***	**AQ_5*$INVPR_8$**	0,478***	**AQ_6*$INVPR_6$**	77,116***
	(105,689)		(0,154)		(19,715)
AQ_6*$INVPR_7$	-221,920**	**AQ_6*$INVPR_2$**	-9.779,590***	**AQ_6*$INVPR_7$**	44,003***
	(93,362)		(1.740,299)		(9,551)
AQ_6*$INVPR_8$	-911,051***	**AQ_6*$INVPR_4$**	-23.618,556***	**AQ_6*$INVPR_8$**	130,557***
	(68,770)		(5.602,496)		(25,248)
ΔRAV	0,0000***	**AQ_6*$INVPR_5$**	11.570,270**	**PPE**	0,018***
	(0,0000)		(5.292,802)		(0,004)
NI	0,0000**	**AQ_6*$INVPR_6$**	20.826,074***	**LL**	0,014***
	(0,0000)		(3.810,452)		(0,004)
CURRENT	0,002***	**AQ_6*$INVPR_8$**	4.079,123**	**CORPSIZE**	0,001**
	(0,000)		(1.652,398)		(0,000)
LL	-0,015**	**NI**	0,0000*	**CFOV**	1,771***
	(0,006)		(0,0000)		(0,085)
CORPSIZE	-0,008***	**TA**	0,0000*	**DEBT**	0,002**
	(0,002)		(0,0000)		(0,001)

CFOV	-0,002***	**CURRENT**	0,001*	**BETA**	-0,009**
	(0,0000)		(0,001)		(0,004)
BETA	-0,124***	**SP**	-0,826***	**R²**	0,849
	(0,018)		(0,120)	**F test**	278,983***
SICODE	0,291***	**LL**	0,114**		
	(0,030)		(0,045)		
LEVER	0,000***	**CORPSIZE**	0,089***		
	(0,0000)		(0,010)		
ΔREV	0,0000*	**CFOV**	0,049***		
	(0,0000)		(0,000)		
R²	0,916	**DEBT**	0,0000***		
F test	3.962,711***		(0,0000)		
		BETA	-6,693***		
			(0,093)		
		SICODE	0,327***		
			(0,073)		
		ROA	0,0000*		
			(0,0000)		
		R²	0,873		
		F test	6.595,349***		

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by Kothari et al (2005) (EQ_6) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AH: The joint effect of audit quality and investor protection on earnings persistence (EQ_7) in crisis period (H_{11-13})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	-2,638***	**AQ_2**	-0,109***	**AQ_2**	-0,496**
	(0,450)		(0,029)		(0,229)

AQ_3	0,888***	AQ_3	0,963***	AQ_3	1,596***
	(0,654)		(0,741)		(0,753)
AQ_4	0,034***	AQ_4	3,989***	AQ_4	-0,809***
	(0,008)		(0,650)		(0,058)
AQ_5	-1,358***	AQ_5	3,849***	AQ_6	-2.678,143**
	(0,465)		(0,387)		(1.162,965)
AQ_6	63,329*	$INVPR_1$	0,298***	$INVPR_1$	-3,013***
	(36,513)		(0,067)		(0,167)
$INVPR_1$	14,890***	$INVPR_2$	-0,367***	$INVPR_2$	-2,593***
	(0,108)		(0,043)		(0,146)
$INVPR_2$	-5,626***	$INVPR_3$	1,673***	$INVPR_3$	-1,979***
	(0,053)		(0,075)		(0,106)
$INVPR_3$	-9,729***	$INVPR_4$	1,021***	$INVPR_4$	-12,193***
	(0,081)		(0,077)		(0,240)
$INVPR_4$	-1,140***	$INVPR_5$	-0,577***	$INVPR_5$	2,720***
	(0,047)		(0,044)		(0,219)
$INVPR_5$	6,642***	$INVPR_6$	-2,233***	$INVPR_6$	13,367***
	(0,081)		(0,098)		(0,137)
$INVPR_6$	-4,213***	$INVPR_7$	0,863***	$INVPR_7$	3,284***
	(0,071)		(0,040)		(0,050)
$INVPR_7$	-0,043***	$INVPR_8$	0,535***	$INVPR_8$	-1,006***
	(0,009)		(0,033)		(0,098)
$INVPR_8$	-1,805***	$AQ_1*INVPR_3$	0,0000**	$AQ_2*INVPR_1$	3,124***
	(0,016)		(0,0000)		(0,866)
$AQ_1*INVPR_2$	0,0000***	$AQ_1*INVPR_8$	0,0000**	$AQ_2*INVPR_2$	2,279***
	(0,0000)		(0,0000)		(0,513)
$AQ_1*INVPR_3$	0,0000***	$AQ_2*INVPR_2$	-0,434***	$AQ_2*INVPR_3$	1,512***
	(0,0000)		(0,166)		(0,440)

AQ_1*$INVPR_4$	0,0000**	**AQ_2*$INVPR_3$**	-0,349**	**AQ_2*$INVPR_4$**	6,988***
	(0,0000)		(0,162)		(1,314)
AQ_1*$INVPR_8$	0,0000***	**AQ_2*$INVPR_5$**	2,030***	**AQ_2*$INVPR_5$**	-3,392***
	(0,0000)		(0,477)		(1,177)
AQ_2*$INVPR_2$	0,285***	**AQ_2*$INVPR_7$**	-0,341***	**AQ_2*$INVPR_6$**	-8,736***
	(0,068)		(0,112)		(1,300)
AQ_2*$INVPR_3$	0,141***	**AQ_3*$INVPR_3$**	-0,063**	**AQ_2*$INVPR_7$**	-2,325***
	(0,040)		(0,616)		(0,339)
AQ_2*$INVPR_4$	-0,113**	**AQ_4*$INVPR_1$**	-0,173***	**AQ_4*$INVPR_1$**	-1,707***
	(0,048)		(0,062)		(0,180)
AQ_2*$INVPR_5$	0,699***	**AQ_4*$INVPR_2$**	-0,422***	**AQ_4*$INVPR_2$**	0,561***
	(0,078)		(0,022)		(0,154)
AQ_2*$INVPR_6$	-0,767***	**AQ_4*$INVPR_3$**	0,474***	**AQ_4*$INVPR_3$**	0,818***
	(0,087)		(0,070)		(0,108)
AQ_2*$INVPR_7$	0,081***	**AQ_4*$INVPR_5$**	-1,396***	**AQ_4*$INVPR_4$**	1,195***
	(0,013)		(0,142)		(0,288)
AQ_2*$INVPR_8$	0,054***	**AQ_4*$INVPR_6$**	0,229***	**AQ_4*$INVPR_5$**	0,852***
	(0,013)		(0,073)		(0,232)
AQ_3*$INVPR_7$	0,0000**	**AQ_4*$INVPR_7$**	0,169***	**AQ_4*$INVPR_6$**	-2,046***
	(0,0000)		(0,037)		(0,192)
AQ_3*$INVPR_8$	-17,167***	**AQ_4*$INVPR_8$**	-0,101***	**AQ_4*$INVPR_7$**	-0,683***
	(9,396)		(0,034)		(0,064)
AQ_4*$INVPR_2$	-3,174***	**AQ_5*$INVPR_1$**	-1,194***	**AQ_4*$INVPR_8$**	-1,258***
	(0,064)		(0,113)		(0,133)
AQ_4*$INVPR_3$	-4,183***	**AQ_5*$INVPR_2$**	-0,110***	**AQ_5*$INVPR_1$**	-0,483**
	(0,065)		(0,037)		(0,231)
AQ_4*$INVPR_4$	-2,197***	**AQ_5*$INVPR_3$**	-0,746***	**AQ_5*$INVPR_4$**	1,705***
	(0,056)		(0,059)		(0,360)

AQ_4*$INVPR_5$	3,967***	**AQ_5*$INVPR_4$**	0,516***	**AQ_5*$INVPR_5$**	0,613**
	(0,099)		(0,139)		(0,284)
AQ_4*$INVPR_6$	-0,148*	**AQ_5*$INVPR_5$**	1,225***	**AQ_5*$INVPR_6$**	-1,333***
	(0,083)		(0,111)		(0,304)
AQ_4*$INVPR_7$	0,275***	**AQ_5*$INVPR_6$**	1,086***	**AQ_5*$INVPR_7$**	-0,335***
	(0,012)		(0,119)		(0,094)
AQ_4*$INVPR_8$	-0,524***	**AQ_5*$INVPR_7$**	-0,736***	**AQ_6*$INVPR_1$**	1.008,300***
	(0,016)		(0,041)		(206,883)
AQ_5*$INVPR_1$	0,062***	**AQ_5*$INVPR_8$**	-0,070**	**AQ_6*$INVPR_2$**	356,796***
	(0,015)		(0,028)		(132,722)
AQ_5*$INVPR_2$	-0,187**	**AQ_6*$INVPR_3$**	-947,792*	**AQ_6*$INVPR_5$**	-2.371,170***
	(0,079)		(497,622)		(715,953)
AQ_5*$INVPR_3$	0,208***	**AQ_6*$INVPR_8$**	764,922*	**AQ_6*$INVPR_6$**	-775,087***
	(0,049)		(387,105)		(200,053)
AQ_5*$INVPR_4$	0,252***	**NI**	0,0000**	**AQ_6*$INVPR_7$**	-293,968***
	(0,081)		(0,0000)		(96,917)
AQ_5*$INVPR_5$	-0,283**	**SP**	0,191***	**AQ_6*$INVPR_8$**	470,126**
	(0,112)		(0,027)		(225,987)
AQ_6*$INVPR_2$	-1.601,273***	**CORPSIZE**	0,004**	**PPE**	0,312***
	(142,278)		(0,002)		(0,070)
AQ_6*$INVPR_3$	-1.397,166***	**CFOV**	0,002***	**CORPSIZE**	-0,013***
	(99,316)		(0,000)		(0,004)
AQ_6*$INVPR_7$	192,015***	**BETA**	0,120***	**CFOV**	-6,610***
	(50,878)		(0,013)		(0,867)
AQ_6*$INVPR_8$	711,615***	**SICODE**	-0,033**	**BETA**	0,131***
	(52,685)		(0,016)		(0,018)
ΔRAV	0,0000**	**ROA**	0,0000***	**R^2**	0,931
	(0,0000)		(0,0000)	**F test**	669,520***

CURRENT	-0,000***	**R²**	0,137
	(0,000)	**F test**	153,787***
LL	-0,055***		
	(0,008)		
CORPSIZE	0,002***		
	(0,001)		
CFOV	-0,005***		
	(0,0000)		
BETA	0,017***		
	(0,004)		
SICODE	-0,170***		
	(0,011)		
LEVER	0,0000***		
	(0,0000)		
R²	0,939		
F test	5.614,784***		

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on accruals quality by earnings persistence (EQ_7) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AI: The joint effect of audit quality and investor protection on earnings predictability (EQ_8) in crisis period ($H_{11\text{-}13}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	-1,192**	**AQ_2**	-0,652***	**AQ_2**	4,524**
	(0,497)		(0,237)		(2,250)
AQ_3	0,046**	**AQ_3**	0,386***	**AQ_4**	-1,187***
	(0,022)		(0,074)		(0,078)
AQ_5	1,038**	**AQ_4**	0,204***	**$INVPR_1$**	-5,691***
	(0,513)		(0,061)		(0,184)

$INVPR_1$	11,087***	**AQ_5**	0,379***	**$INVPR_2$**	-4,256***
	(0,119)		(0,036)		(0,162)
$INVPR_2$	3,039***	**$INVPR_1$**	0,231***	**$INVPR_3$**	-3,470***
	(0,058)		(0,006)		(0,117)
$INVPR_3$	-9,077***	**$INVPR_2$**	-0,136***	**$INVPR_4$**	-14,934***
	(0,089)		(0,004)		(0,266)
$INVPR_4$	1,748***	**$INVPR_3$**	0,008**	**$INVPR_5$**	12,152***
	(0,052)		(0,004)		(0,242)
$INVPR_5$	-3,519***	**$INVPR_4$**	-0,281***	**$INVPR_6$**	15,542***
	(0,089)		(0,007)		(0,151)
$INVPR_6$	-0,600***	**$INVPR_5$**	0,293***	**$INVPR_7$**	3,406***
	(0,074)		(0,012)		(0,055)
$INVPR_7$	-2,220***	**$INVPR_6$**	0,055***	**$INVPR_8$**	-1,704***
	(0,010)		(0,009)		(0,108)
$INVPR_8$	-0,832***	**$INVPR_7$**	0,035***	**AQ_2*$INVPR_1$**	4,026***
	(0,018)		(0,003)		(0,958)
AQ_1*$INVPR_2$	0,0000*	**$INVPR_8$**	0,019***	**AQ_2*$INVPR_2$**	2,459***
	(0,0000)		(0,003)		(0,567)
AQ_1*$INVPR_3$	0,0000***	**AQ_1*$INVPR_3$**	0,0000**	**AQ_2*$INVPR_3$**	2,013***
	(0,0000)		(0,0000)		(0,486)
AQ_1*$INVPR_8$	0,0000***	**AQ_1*$INVPR_8$**	0,0000**	**AQ_2*$INVPR_4$**	10,818***
	(0,0000)		(0,0000)		(1,453)
AQ_2*$INVPR_2$	1,837***	**AQ_2*$INVPR_2$**	-0,043***	**AQ_2*$INVPR_5$**	-6,952***
	(0,092)		(0,015)		(1,301)
AQ_2*$INVPR_3$	0,135***	**AQ_2*$INVPR_3$**	-0,025*	**AQ_2*$INVPR_6$**	-11,186***
	(0,044)		(0,014)		(1,438)
AQ_2*$INVPR_4$	-0,239***	**AQ_2*$INVPR_5$**	0,200***	**AQ_2*$INVPR_7$**	-2,663***
	(0,053)		(0,045)		(0,374)

AQ_2*$INVPR_5$	1,274***	**AQ_2*$INVPR_6$**	0,034**	**AQ_3*$INVPR_1$**	-5,434***
	(0,086)		(0,014)		(0,432)
AQ_2*$INVPR_6$	-1,190***	**AQ_2*$INVPR_7$**	0,120***	**AQ_3*$INVPR_2$**	-4,662***
	(0,097)		(0,013)		(0,483)
AQ_2*$INVPR_7$	0,221***	**AQ_3*$INVPR_1$**	-0,036**	**AQ_3*$INVPR_3$**	-4,447***
	(0,014)		(0,014)		(0,318)
AQ_2*$INVPR_8$	-0,042***	**AQ_3*$INVPR_2$**	-0,023***	**AQ_3*$INVPR_4$**	-16,274***
	(0,015)		(0,005)		(0,997)
AQ_3*$INVPR_2$	3,433***	**AQ_3*$INVPR_4$**	-0,152***	**AQ_3*$INVPR_5$**	15,093***
	(0,142)		(0,017)		(0,657)
AQ_3*$INVPR_3$	-0,262**	**AQ_3*$INVPR_5$**	0,049***	**AQ_3*$INVPR_6$**	15,660***
	(0,101)		(0,017)		(0,484)
AQ_3*$INVPR_4$	0,306*	**AQ_3*$INVPR_6$**	0,119***	**AQ_3*$INVPR_7$**	2,887***
	(0,184)		(0,015)		(0,153)
AQ_3*$INVPR_5$	-3,307***	**AQ_3*$INVPR_7$**	-0,023***	**AQ_3*$INVPR_8$**	-3,039***
	(0,197)		(0,006)		(0,234)
AQ_3*$INVPR_7$	-0,919***	**AQ_3*$INVPR_8$**	0,009***	**AQ_4*$INVPR_1$**	2,528***
	(0,030)		(0,003)		(0,200)
AQ_3*$INVPR_8$	0,286***	**AQ_4*$INVPR_1$**	0,119***	**AQ_4*$INVPR_2$**	2,133***
	(0,038)		(0,006)		(0,171)
AQ_4*$INVPR_1$	-2,258***	**AQ_4*$INVPR_2$**	-0,133***	**AQ_4*$INVPR_3$**	1,596***
	(0,141)		(0,002)		(0,119)
AQ_4*$INVPR_2$	-0,505***	**AQ_4*$INVPR_3$**	0,031***	**AQ_4*$INVPR_4$**	1,294***
	(0,045)		(0,006)		(0,318)
AQ_4*$INVPR_3$	0,205***	**AQ_4*$INVPR_4$**	-0,354***	**AQ_4*$INVPR_5$**	-6,091***
	(0,032)		(0,008)		(0,256)
AQ_4*$INVPR_4$	-0,665***	**AQ_4*$INVPR_5$**	-0,084***	**AQ_4*$INVPR_6$**	-2,668***
	(0,057)		(0,013)		(0,213)

AQ_4*$INVPR_5$	0,992***	**AQ_4*$INVPR_6$**	0,188***	**AQ_4*$INVPR_7$**	-0,592***
	(0,063)		(0,006)		(0,071)
AQ_4*$INVPR_6$	5,668***	**AQ_4*$INVPR_7$**	0,015***	**AQ_4*$INVPR_8$**	2,041***
	(0,128)		(0,003)		(0,127)
AQ_4*$INVPR_7$	0,128***	**AQ_4*$INVPR_8$**	-0,188***	**AQ_5*$INVPR_1$**	-0,707***
	(0,010)		(0,010)		(0,255)
AQ_4*$INVPR_8$	-0,032***	**AQ_5*$INVPR_1$**	-0,139***	**AQ_5*$INVPR_3$**	0,518***
	(0,012)		(0,010)		(0,175)
AQ_5*$INVPR_2$	-0,759***	**AQ_5*$INVPR_2$**	0,008**	**AQ_5*$INVPR_4$**	2,369***
	(0,084)		(0,003)		(0,398)
AQ_5*$INVPR_3$	0,178***	**AQ_5*$INVPR_3$**	-0,071***	**AQ_5*$INVPR_5$**	-1,367***
	(0,048)		(0,005)		(0,314)
AQ_5*$INVPR_4$	0,173***	**AQ_5*$INVPR_4$**	0,084***	**AQ_5*$INVPR_6$**	-1,295***
	(0,063)		(0,013)		(0,337)
AQ_5*$INVPR_5$	0,334***	**AQ_5*$INVPR_5$**	0,089***	**AQ_6*$INVPR_1$**	1.011,396***
	(0,093)		(0,010)		(228,712)
AQ_5*$INVPR_7$	0,141***	**AQ_5*$INVPR_6$**	0,115***	**AQ_6*$INVPR_2$**	547,468***
	(0,015)		(0,011)		(146,726)
AQ_5*$INVPR_8$	-0,119***	**AQ_5*$INVPR_7$**	-0,088***	**AQ_6*$INVPR_5$**	-3.064,409***
	(0,017)		(0,003)		(942,623)
AQ_6*$INVPR_3$	449,194***	**AQ_6*$INVPR_2$**	-160,107***	**AQ_6*$INVPR_6$**	-1.214,651***
	(109,658)		(38,195)		(221,162)
AQ_6*$INVPR_5$	429,295***	**AQ_6*$INVPR_4$**	-421,133***	**AQ_6*$INVPR_7$**	-165,883***
	(89,399)		(122,963)		(107,143)
AQ_6*$INVPR_7$	-359,237***	**AQ_6*$INVPR_5$**	548,150***	**AQ_6*$INVPR_8$**	2.815,886***
	(78,373)		(116,165)		(442,768)
AQ_6*$INVPR_8$	-452,204***	**AQ_6*$INVPR_6$**	264,053***	**PPE**	0,507***
	(58,171)		(83,631)		(0,094)

CURRENT	0,001**	**AQ_6*$INVPR_7$**	-63,624**	**LL**	0,217***
	(0,000)		(26,229)		(0,079)
LL	0,137***	**AQ_6*$INVPR_8$**	-99,181***	**CORPSIZE**	-0,010**
	(0,013)		(36,266)		(0,005)
CORPSIZE	0,015***	**NI**	0,0000***	**CFOV**	-17,279***
	(0,004)		(0,0000)		(0,958)
CFOV	0,004***	**CURRENT**	-0,000***	**BETA**	0,066***
	(0,0000)		(0,0000)		(0,020)
BETA	0,033***	**SP**	0,011***	**LEVER**	0,002**
	(0,004)		(0,002)		(0,001)
SICODE	0,182***	**LL**	-0,002**	**ROA**	0,006**
	(0,019)		(0,001)		(0,003)
LEVER	0,0000***	**CORPSIZE**	0,000***	**R^2**	0,957
	(0,0000)		(0,000)	**F test**	1.099,419***
R^2	0,988	**CFOV**	0,0000***		
F test	29.792,186***		(0,0000)		
		BETA	0,018***		
			(0,001)		
		SICODE	-0,003**		
			(0,001)		
		ROA	0,0000***		
			(0,0000)		
		ΔREV	0,0000***		
			(0,0000)		
		R^2	0,222		
		F test	276,140***		

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on earnings predictability (EQ_8) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AJ: The joint effect of audit quality and investor protection on loss avoidance (EQ_9) in crisis period (H_{11-13})					
Variable(s)	**Cluster 1**	**Variable(s)**	**Cluster 2**	**Variable(s)**	**Cluster 3**
	Coefficients		**Coefficients**		**Coefficients**
$INVPR_7$	2,236***	**AQ_3**	-3,758**	**AQ_2**	2,771*
	(0,830)		(1,603)		(1,559)
AQ_2*$INVPR_5$	34,451***	**$INVPR_3$**	-17,181**	**AQ_3**	1,109*
	(10,565)		(7,159)		(0,582)
AQ_2*$INVPR_6$	-33,247***	**$INVPR_6$**	17,423*	**$INVPR_2$**	0,209*
	(11,892)		(9,298)		(0,112)
AQ_2*$INVPR_7$	8,111***	**AQ_2*$INVPRr_3$**	-91,621***	**$INVPR_6$**	-0,224**
	(1,811)		(15,356)		(0,105)
ΔRAV	-10,095***	**AQ_2*$INVPR_5$**	46,991*	**$INVPR_7$**	-0,102***
	(0,124)		(28,504)		(0,038)
PPE	0,231***	**AQ_2*$INVPR_6$**	72,849***	**$INVPR_8$**	0,150**
	(0,006)		(14,460)		(0,075)
LL	-1,400**	**AQ_2*$INVPR_7$**	-31,477***	**AQ_2*$INVPRr_8$**	-0,553*
	(0,666)		(10,651)		(0,312)
CORPSIZE	0,670***	**AQ_3*$INVPR_3$**	30,759***	**AQ_3*$INVPR_1$**	0,192*
	(0,249)		(8,497)		(0,105)
DEBT	0,012**	**AQ_3*$INVPR_6$**	-30,766**	**AQ_3*$INVPR_6$**	0,249**
	(0,005)		(15,376)		(0,112)
ROA	0,019***	**AQ_4*$INVPR_3$**	18,294***	**AQ_3*$INVPR_8$**	-0,185*
	(0,000)		(6,655)		(0,099)
R^2	0,247	**AQ_4*$INVPR_6$**	-18,939***	**ΔRAV**	0,396***
F test	120,006***		(6,964)		(0,036)
		AQ_4*$INVPR_7$	6,647*	**PPE**	-0,134***
			(3,541)		(0,015)
		CURRENT	0,159***	**CURRENT**	-0,001*

	(0,021)		(0,000)
LL	-4,088***	**SP**	-0,054*
	(1,013)		(0,031)
CFOV	0,010**	**LL**	0,084***
	(0,004)		(0,013)
LEVER	-0,024***	**CORPSIZE**	0,216***
	(0,003)		(0,003)
R²	0,003	**CFOV**	-0,687**
F test	3,638***		(0,301)
		DEBT	-0,070***
			(0,006)
		LEVER	-0,018***
			(0,000)
		ROA	0,019***
			(0,000)
		R²	0,999
		F test	37.728,507***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on loss avoidance (EQ_9) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AK: The joint effect of audit quality and investor protection on earnings smoothness (EQ_{10}) in crisis period ($H_{11\text{-}13}$)

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
AQ_2	3,366*	AQ_2	-5,216***	AQ_4	1,519***
	(1,917)		(1,360)		(0,313)
AQ_3	8,963***	AQ_3	1,285***	$INVPR_1$	-0,135*
	(0,444)		(0,0000)		(0,079)
AQ_4	0,120***	AQ_6	-124,740**	$INVPR_2$	1,938***

	(0,022)		(62,593)		(0,069)
AQ_5	-6,824***	**$INVPR_1$**	-0,882***	**$INVPR_3$**	2,741***
	(1,978)		(0,036)		(0,050)
AQ_6	-306,040***	**$INVPR_2$**	-0,633***	**$INVPR_4$**	0,435***
	(97,679)		(0,023)		(0,114)
$INVPR_1$	2,196***	**$INVPR_3$**	-1,922***	**$INVPR_5$**	-2,334***
	(0,460)		(0,041)		(0,104)
$INVPR_2$	-5,860***	**$INVPR_4$**	0,032***	**$INVPR_6$**	-2,639***
	(0,226)		(0,008)		(0,065)
$INVPR_3$	0,636*	**$INVPR_5$**	0,633***	**$INVPR_7$**	-0,520***
	(0,345)		(0,073)		(0,023)
$INVPR_4$	-1,142***	**$INVPR_6$**	2,159***	**$INVPR_8$**	0,914***
	(0,202)		(0,053)		(0,046)
$INVPR_5$	-1,646***	**$INVPR_7$**	-0,717***	**AQ_2*$INVPR_1$**	-1,007**
	(0,346)		(0,022)		(0,412)
$INVPR_7$	-0,188***	**$INVPR_8$**	0,517***	**AQ_2*$INVPR_2$**	-0,923***
	(0,038)		(0,018)		(0,244)
$INVPR_8$	-1,302***	**AQ_2*$INVPR_1$**	0,491***	**AQ_2*$INVPR_3$**	-0,698***
	(0,069)		(0,083)		(0,209)
AQ_2*$INVPR_2$	-0,745**	**AQ_2*$INVPR_2$**	0,239***	**AQ_2*$INVPR_4$**	-2,219***
	(0,290)		(0,090)		(0,626)
AQ_2*$INVPR_3$	-0,421***	**AQ_2*$INVPR_3$**	-0,835***	**AQ_2*$INVPR_5$**	1,173**
	(0,130)		(0,086)		(0,560)
AQ_2*$INVPR_4$	-0,449**	**AQ_2*$INVPR_5$**	0,525**	**AQ_2*$INVPR_6$**	2,957***
	(0,206)		(0,260)		(0,619)
AQ_2*$INVPR_5$	-0,495*	**AQ_2*$INVPRr_6$**	0,225***	**AQ_2*$INVPR_7$**	0,822***
	(0,299)		(0,081)		(0,161)
AQ_2*$INVPR_6$	0,857**	**AQ_2*$INVPR_7$**	0,140**	**AQ_3*$INVPR_2$**	-7,033**

	(0,373)		(0,061)		(0,782)
$AQ_3*INVPR_2$	3,758*	$AQ_2*INVPR_8$	0,400***	$AQ_3*INVPR_8$	0,0000**
	(24,794)		(0,069)		(0,0000)
$AQ_4*INVPR_1$	3,233***	$AQ_4*INVPR_1$	-1,205***	$AQ_4*INVPR_1$	-0,178**
	(0,290)		(0,034)		(0,086)
$AQ_4*INVPR_2$	-0,911***	$AQ_4*INVPR_2$	0,091***	$AQ_4*INVPR_2$	0,462***
	(0,176)		(0,024)		(0,073)
$AQ_4*INVPR_3$	0,880***	$AQ_4*INVPR_3$	0,166***	$AQ_4*INVPR_3$	0,463***
	(0,124)		(0,038)		(0,051)
$AQ_4*INVPR_4$	-1,080***	$AQ_4*INVPR_4$	1,007***	$AQ_4*INVPR_4$	-0,532***
	(0,178)		(0,046)		(0,137)
$AQ_4*INVPR_5$	0,587**	$AQ_4*INVPR_5$	0,228***	$AQ_4*INVPR_5$	-0,365***
	(0,246)		(0,077)		(0,110)
$AQ_4*INVPR_6$	-0,479*	$AQ_4*INVPR_6$	-0,432***	$AQ_4*INVPR_6$	-1,978***
	(0,264)		(0,040)		(0,114)
$AQ_4*INVPR_7$	0,188***	$AQ_4*INVPR_7$	0,058***	$AQ_4*INVPR_7$	-0,074**
	(0,038)		(0,020)		(0,030)
$AQ_4*INVPR_8$	-0,539***	$AQ_4*INVPR_8$	-0,071***	$AQ_4*INVPR_8$	0,546***
	(0,047)		(0,018)		(0,042)
$AQ_5*INVPR_2$	1,167***	$AQ_5*INVPR_1$	0,169***	$AQ_5*INVPR_2$	-0,153*
	(0,324)		(0,061)		(0,085)
$AQ_5*INVPR_4$	-0,496**	$AQ_5*INVPR_2$	-0,055*	$AQ_5*INVPR_3$	-0,358***
	(0,244)		(0,033)		(0,114)
$AQ_5*INVPR_7$	-0,496**	$AQ_5*INVPR_5$	-0,127**	$AQ_5*INVPR_4$	0,158**
	(0,060)		(0,061)		(0,072)
$AQ_5*INVPR_8$	0,354***	$AQ_5*INVPR_6$	0,213***	$AQ_5*INVPR_6$	0,389***
	(0,067)		(0,059)		(0,145)
$AQ_6*INVPR_5$	-694,937**	$AQ_5*INVPR_7$	-0,126***	$AQ_5*INVPR_7$	0,163***

	(344,489)		(0,020)		(0,045)
AQ_6*$INVPR_8$	396,751*	**AQ_5*$INVPR_8$**	0,083***	**AQ_6*$INVPR_1$**	-396,442***
	(224,154)		(0,015)		(120,570)
ΔRAV	0,007*	**AQ_6*$INVPR_2$**	-417,143*	**AQ_6*$INVPR_2$**	149,025**
	(0,004)		(226,948)		(63,219)
NI	0,0000**	**AQ_6*$INVPR_3$**	-545,023**	**AQ_6*$INVPR_3$**	136,130***
	(0,0000)		(271,307)		(47,243)
CURRENT	-0,001*	**AQ_6*$INVPR_5$**	-2.773,647***	**AQ_6*$INVPR_5$**	-401,150*
	(0,000)		(665,346)		(225,459)
LL	0,041**	**AQ_6*$INVPR_7$**	360,776**	**AQ_6*$INVPR_6$**	-176,159*
	(0,019)		(150,229)		(95,290)
CORPSIZE	0,022***	**AQ_6*$INVPR_8$**	1.247,950***	**AQ_6*$INVPR_7$**	-86,874*
	(0,008)		(207,719)		(46,164)
CFOV	0,004***	**NI**	0,0000***	**AQ_6*$INVPR_8$**	478,678***
	(0,000)		(0,0000)		(105,902)
BETA	0,080***	**CURRENT**	-0,000**	**PPE**	-0,033**
	(0,018)		(0,000)		(0,015)
SICODE	-0,141***	**SP**	0,031**	**SP**	-0,137**
	(0,031)		(0,015)		(0,054)
ΔREV	0,0000*	**LL**	0,017***	**CORPSIZE**	0,019***
	(0,0000)		(0,005)		(0,006)
R^2	0,527	**CORPSIZE**	0,013***	**CFOV**	16,683***
F test	405,599***		(0,001)		(0,413)
		CFOV	-0,002***	**BETA**	-0,067***
			(0,0000)		(0,008)
		DEBT	0,0000**	**R^2**	0,884
			(0,0000)	**F test**	378,463***
		BETA	0,057***		

	(0,007)
SICODE	0,016*
	(0,009)
ROA	0,0000**
	(0,0000)
ΔREV	0,0000**
	(0,0000)
R²	0,356
F test	534,385***

Note: This panel shows the reults of OLS regression analysis to explain the joint effect of audit quality and investor protection on earnings smoothness (EQ_{10}) in crisis period for all clusters. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AL: Cost of equity capital ($COSTOFEQUITY_1$) under financial crisis of 2008 (H_{14-15})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
BM	-0,259***	**LNMV**	-0,658*	**DPO**	0,003*
	(0,046)		(0,624)		(0,201)
CORPSIZE	1,735**	**LNLEV**	0,872*	**LNLEV**	7,222*
	(0,783)		(0,833)		(10,263)
BETA	0,399**	**CORPSIZE**	2,327**	**CORPSIZE**	3,569*
	(1,067)		(1,422)		(0,059)
AQ_4	-1,475*	**AQ_4**	-0,740**	**AQ_1**	0,0000*
	(1,301)		(3,515)		(0,0000)
AQ_2	2,030*	**AQ_5**	0,297**	**AQ_2**	4,140*
	(1,805)		(3,475)		(97,733)
R²	0,001	**CRISIS**	2,563*	**R²**	0,001
F test	2,463***		(2,754)	**F test**	0,251*
		R²	0,0000		

	F test	0,644*

Note: This panel shows the reults of OLS regression analysis to explain the change in cost of equity capital ($COSTOFEQUITY_1$) for all clusters in pre and crisis period and the effect of audit quality on cost of capital. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AM: Cost of equity capital ($COSTOFEQUITY_2$) under financial crisis of 2008 (H_{14-15})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
LNMV	0,019***	**BM**	-0,0000*	**DEBT**	0,027***
	(0,002)		(0,0000)		(0,006)
BM	-0,022***	**VOLUME**	-0,0000*	**BM**	-0,003***
	(0,0000)		(0,0000)		(0,001)
VOLUME	-0,0000***	**BETA**	0,029**	**BETA**	0,034**
	(0,0000)		(0,009)		(0,013)
BETA	0,013**	**LNLEV**	0,012***	**CFO**	-0,387***
	(0,006)		(0,002)		(0,044)
LNLEV	0,005**	**LNBM**	0,031***	**LNLEV**	0,026***
	(0,002)		(0,004)		(0,006)
LNBM	0,060***	**CORPSIZE**	0,047***	**LNBM**	0,021**
	(0,004)		(0,004)		(0,007)
CORPSIZE	0,019***	**FIRM**	0,143***	**CORPSIZE**	0,050***
	(0,004		(0,009)		(0,006)
FIRM	0,144***	**AQ_4**	-0,024**	**FIRM**	0,085***
	(0,008)		(0,009)		(0,013)
AQ_4	-0,062***	**AQ_3**	-0,034**	**AQ_4**	-0,025*
	(0,007)		(0,014)		(0,013)
AQ_2	0,033***	**AQ_2**	0,255***	**AQ_5**	-0,083***
	(0,010)		(0,020)		(0,017)
AQ_5	-0,113***	**AQ_5**	-0,083***	**CRISIS**	0,028**

	(0,009)		(0,009)		(0,011)
CRISIS	0,022**	**CRISIS**	0,008**	**R²**	0,071
	(0,007)		(0,007)	**F test**	22,901***
R²	0,220	**R²**	0,009		
F test	502,907***	**F test**	48,522***		

Note: This panel shows the reults of OLS regression analysis to explain the change in cost of equity capital ($COSTOFEQUITY_2$) for all clusters in pre and crisis period and the effect of audit quality on cost of capital. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AN: Cost of equity capital ($COSTOFEQUITY_1$) and earnings quality under pre crisis period (H_{16})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	1,366*	**CORPSIZE**	2,637**	**NER**	-2,987**
	(0,791)		(1,165)		(1,451)
EQ_1	0,047*	**BM**	-0,290*	**COLLATERAL**	-5,433**
	(17,601)		(0,171)		(0,031)
EQ_3	12,132**	**CFOV**	-2,447*	**EQ_1**	1,688**
	(35,678)		(1,478)		(16,045)
EQ_5	1,389***	**EQ_1**	-0,719**	**EQ_6**	0,522**
	(5,734)		(9,190)		(14,889)
EQ_{10}	1,060*	**EQ_3**	7,092**	**EQ_7**	-5,062***
	(56,725)		(19,938)		(3,154)
R²	0,001	**EQ_5**	0,030*	**R²**	0,008
F test	0,595*		(0,182)	**F test**	0,773**
		EQ_{10}	-0,657**		
			(8,378)		
		R²	0,0000		
		F test	1,647*		

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of equity capital ($COSTOFEQUITY_1$) for all clusters in pre crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AO: Cost of equity capital ($COSTOFEQUITY_1$) and earnings quality under crisis period (H_{16})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
BETA	0,831**	**SV**	0,468**	**SICODE**	19,375*
	(0,370)		(0,236)		(71,198)
CORPSIZE	0,275***	**NON-DEBT**	-34,887***	**EQ_4**	-2.155,287**
	(0,082)		(4,639)		(2.301,786)
BM	-0,297***	**EQ_3**	34,433***	**EQ_8**	-37,134**
	(0,012)		(12,686)		(48,741)
EQ_1	16,944***	**EQ_9**	-0,001**	**R^2**	0,003
	(3,319)		(0,014)	**F test**	0,391*
EQ_3	-2,066**	**R^2**	0,001		
	(0,859)	**F test**	3,311***		
EQ_5	-0,811*				
	(0,439)				
EQ_8	2,323***				
	(2,772)				
R^2	0,028				
F test	25,786***				

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of equity capital ($COSTOFEQUITY_1$) for all clusters in crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AP: Cost of equity capital ($COSTOFEQUITY_2$) and earnings quality under pre crisis period (H_{16})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
BM	-0,003**	**BETA**	-0,036***	**CORPSIZE**	0,021***
	(0,001)		(0,012)		(0,005)
LEVERAGE	0,047***	**CORPSIZE**	0,019***	**BM**	0,027***
	(0,010)		(0,002)		(0,006)
NER	0,270***	**BM**	-0,017***	**CFOV**	2,233**
	(0,010)		(0,0000)		(1,000)
COLLATERAL	0,073***	**CFOV**	-0,014***	**SV**	0,517***
	(0,017)		(0,003)		(0,126)
NON-DEBT	0,104***	**NER**	0,227***	**NER**	0,117***
	(0,040)		(0,010)		(0,018)
LIQUIDITY	-0,001**	**NON-DEBT**	0,405***	**PROFITABILITY**	-0,006***
	(0,0000)		(0,054)		(0,001)
EQ_1	-0,119**	**GROWTH**	-0,005***	**EQ_1**	-0,055**
	(0,055)		(0,002)		(0,022)
EQ_2	-0,011*	**SICODE**	0,031**	**EQ_3**	-0,102*
	(0,006)		(0,015)		(0,054)
EQ_3	-0,215*	**EQ_1**	-0,048***	**EQ_4**	5,828***
	(0,111)		(0,017)		(2,085)
EQ_5	-0,056***	**EQ_2**	-0,001***	**EQ_6**	-6,235**
	(0,018)		(0,0000)		(2,562)
EQ_8	-0,001***	**EQ_3**	0,528***	**EQ_7**	0,178***
	(0,0000)		(0,037)		(0,040)
EQ_9	-0,002***	**EQ_4**	-0,005***	**EQ_9**	-0,147***
	(0,001)		(0,001)		(0,031)

R^2	0,080	**EQ_5**	-0,001**	**R^2**	0,156
F test	51,316***		(0,0000)	**F test**	18,576***
		EQ_7	0,030***		
			(0,010)		
		EQ_8	0,005***		
			(0,001)		
		R^2	0,176		
		F test	325,891***		

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of equity capital ($COSTOFEQUITY_2$) for all clusters in pre crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AQ: Cost of equity capital ($COSTOFEQUITY_2$) and earnings quality under crisis period (H_{16})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,011***	**CORPSIZE**	0,012***	**BETA**	0,047***
	(0,002)		(0,002)		(0,017)
BM	-0,025***	**SV**	0,002**	**CORPSIZE**	0,024***
	(0,0000)		(0,001)		(0,004)
LEVERAGE	0,0000**	**NER**	0,331***	**BM**	0,001*
	(0,0000)		(0,010)		(0,001)
NER	0,317***	**NON-DEBT**	0,041***	**LEVERAGE**	0,023***
	(0,008)		(0,014)		(0,008)
COLLATERAL	0,046***	**EQ_4**	0,004***	**SV**	-0,338**
	(0,008)		(0,001)		(0,157)
NON-DEBT	0,042***	**EQ_5**	-0,009***	**NER**	0,136***
	(0,009)		(0,003)		(0,016)
SICODE	-0,067***	**EQ_6**	-0,003***	**COLLATERAL**	0,055*
	(0,012)		(0,001)		(0,029)

LIQUIDITY	-0,002***	**EQ_8**	0,037**	**GROWTH**	-0,405***
	(0,0000)		(0,058)		(0,135)
EQ_2	1,355***	**R^2**	0,021	**PROFITABILITY**	-0,014***
	(0,068)	**F test**	55,386***		(0,001)
EQ_4	-0,075***			**EQ_3**	-0,168**
	(0,016)				(0,081)
EQ_5	0,046***			**EQ_4**	2,531***
	(0,011)				(0,949)
EQ_6	0,065***			**EQ_5**	0,549***
	(0,017)				(0,183)
EQ_7	0,034***			**EQ_6**	-2,470***
	(0,012)				(0,924)
EQ_8	0,019***			**EQ_7**	-0,083***
	(0,004)				(0,024)
EQ_9	0,0000***			**EQ_8**	0,083***
	(0,0000)				(0,020)
EQ_{10}	-0,008**			**EQ_9**	0,008***
	(0,003)				(0,001)
R^2	0,357			**R^2**	0,262
F test	495,518***			**F test**	50,752***

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of equity capital ($COSTOFEQUITY_2$) for all clusters in crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AR: Cost of debt (COSTOFDEBT) under financial crisis of 2008 (H_{17-18})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
BM	0,002*	**CORPSIZE**	0,001**	**CORPSIZE**	0,0000***
	(0,014)		(0,002)		(0,0000)

CORPSIZE	0,110*	**LNMVE**	-0,003*	**LNNIBE**	-0,000*
	(0,128)		(0,001)		(0000)
AQ_4	-1,173**	**SICODE**	-0,003**	**LNMVE**	0,0000***
	(0,509)		(0,009)		(0000)
AQ_1	-0,0000**	**AQ_3**	0,015**	**COLLATERAL**	-0,004***
	(0,0000)		(0,010)		(0,0000)
AQ_2	1,733**	**AQ_2**	-0,004*	**AQ_4**	0,001***
	(0,596)		(0,016)		(0,0000)
CRISIS	0,527**	**CRISIS**	0,011**	**AQ_5**	-0,002***
	(0,364)		(0,006)		(0,0000)
R^2	0,001	**R^2**	0,001	**AQ_2**	0,0000**
F test	2,895***	**F test**	18,939***		(0,001)
				R^2	0,034
				F test	11,681***

Note: This panel shows the reults of OLS regression analysis to explain the change in cost of debt (COSTOFDEBT) for all clusters in pre and crisis period and the effect of audit quality on cost of debt. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AS: Cost of debt (COSTOFDEBT) and earnings quality under pre crisis period (H_{19})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
LEVERAGE	-0,352**	**LEVERAGE**	0,0000*	**LEVERAGE**	0,0000**
	(0,988)		(0,0000)		(0,0000)
LNNIBE	-0,269*	**PROFITABILITY**	0,0000*	**CORPSIZE**	-0,0000*
	(0,299)		(0,0000)		(0,0000)
ΔEPS	1,016***	**EPS**	0,0000*	**INTCOV**	0,0000***
	(0,005)		(0,0000)		(0,0000)
CFO	-0,001*	**PROFIT**	-0,002*	**PROFIT**	0,0000*
	(0,100)		(0,040)		(0,001)

EQ_2	-0,055*	**INCR**	0,014**	**EQ_2**	0,001*
	(1,026)		(0,016)		(0,015)
EQ_5	-0,635**	**EQ_1**	-0,0000*	**EQ_7**	0,001*
	(3,346)		(0,0000)		(0,001)
EQ_8	-0,025*	**EQ_4**	0,0000*	**EQ_9**	0,0000**
	(0,026)		(0,001)		(0,001)
EQ_{10}	-2,465***	**EQ_7**	-0,0000*	**EQ_{10}**	-0,0000*
	(9,820)		(0,014)		(0,004)
R^2	0,001	**EQ_9**	0,0000*	**R^2**	0,014
F test	0,640***		(0,0000)	**F test**	1,514***
		R^2	0,0000		
		F test	0,342*		

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of debt (COSTOFDEBT) for all clusters in pre crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.

Panel AT: Cost of debt (COSTOFDEBT) and earnings quality under crisis period (H_{19})

Variable(s)	Cluster 1	Variable(s)	Cluster 2	Variable(s)	Cluster 3
	Coefficients		Coefficients		Coefficients
CORPSIZE	0,0000***	**LNNIBE**	0,0000**	**ΔEPS**	0,001**
	(0,0000)		(0,0000)		(0,001)
INTCOV	-0,0000***	**PROFIT**	-0,003**	**PROFIT**	-0,001**
	(0,0000)		(0,002)		(0,001)
LNNIBE	-00000***	**INCR**	-0,002*	**INCR**	0,0000**
	(0,0000)		(0,001)		(0,0000)
PROFIT	0,0000***	**EQ_4**	0,0000**	**CFO**	0,0000*
	(0,0000)		(0,0000)		(0,001)
EQ_1	-0,0000**	**EQ_5**	0,0000**	**RND**	0,002***
	(0,0000)		(0,0000)		(0,0000)

EQ_6	0,0000**	**EQ_8**	-0,002*	**EQ_4**	-0,023**
	(0,0000)		(0,005)		(0,010)
EQ_8	0,0000*	**EQ_{10}**	-0,0000*	**EQ_6**	0,022**
	(0,0000)		(0,001)		(0,011)
R^2	0,005	**R^2**	0,0000	**EQ_7**	0,0000*
F test	5,507***	**F test**	0,662*		(0,0000)
				EQ_8	0,0000**
					(0,0000)
				R^2	0,014
				F test	2,294***

Note: This panel shows the reults of OLS regression analysis to explain the effect of earnings quality on cost of debt (COSTOFDEBT) for all clusters in crisis period. For variable definitions, see Table 1.
***, **, * indicate statistical significance at 1%, 5% and 10% levels (two-tailed) respectively and the standard errors may be found in the parentheses.