Corporate Hedging and Implementation of International Financial Reporting Standards; Effects on UK Financial Performance.

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Executive Summary

The primary objective of this paper is to identify factors that affect the adoption rate of I.F.R.S.s for firms listed in the London Stock Exchange, the post adoption effects, as well as the financial characteristics that those firms exhibit. Additionally the paper focuses on firms that implement corporate hedging under the principles and demands of I.F.R.S.s in contrast to firms that use hedging instruments under the prerequisites of G.A.A.P., exploring the specific financial characteristics that those firms exhibit.

The empirical findings show that the adoption rate of I.F.R.S.s is affected by firms that have foreign sales, firms that are cross listed in other stock exchanges as well as firms that are externally audited by the Big Five Auditing firms; those firms tend to adopt I.F.R.S.s earlier. Further more, the study shows that the aforementioned firms present higher financial performance in contrast to firms that are non adopters (UK G.A.A.P.). Additionally, the paper shows that the post adoption effects denote higher financial measures and performance for firms and emphasise on the fact that adopters follow a stricter dividend and borrowing policy.

The paper also provides evidence for firms that implement corporate hedging under the demands of I.F.R.S.s. The empirical findings underline the higher financial performance and the higher financial measures for firms that hedge under I.F.R.S.s (in contrast to firms that implement corporate hedging under UK G.A.A.P.). The study is completed by a comparison between the main hedging instruments used by adopters, denoting the fact that firms which use Interest Rate Swaps and Futures and Forwards as hedging techniques, exhibit higher financial measures and better financial performance.

Overall, the research consists a basis for identifying specific financial at most, characteristics that are associated with adoption effects, as well as with various types of hedging behaviour and can be helpful in forming and structuring hedge-accounting rules that will allow firms to reflect the economic implications of their hedging strategies and choices under the requirements of I.F.R.S.s.

Acknowledgement

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This dissertation is dedicated to my family and friends.

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Chapter 1 Introduction

To increase efficiency of the European finance market, the European Union (EU) recently forced all public companies to publish their financial statements with the support of the International Financial Reporting Standards (IFRS), emanated by the International Accounting Standards Board (IASB), beginning from January 1, 2005 (Grant Thornton, 2004).

The importance of international accounting has been growing in order to meet the economic agent demands and to facilitate international business practices (Bodnar, 1998; Cordeiro, Couto and Silva, 2006). International accounting convergence intends to minimize the negative effects resulting from the diversity of accounting practices in different countries.

Implementation of International Accounting Standards may change the future on derivative hedging, as it requires the fair market values of derivatives contracts to be reported on the financial statements, which evidently can cause definite income fluctuations (Bodnar, 1998; Supanvanij and Strauss, 2006). On the contrary, accounting rules under General Accepted Accounting Principles (GAAP), exhibit suboptimal information content which leads to distortions from the optimal economic hedge (Melumad, 1999). To a greater extent, this study tests whether adoption or non adoption of I.A.S.s affects corporate hedging, as well as the firm's robustness and performance.

This study is primarily motivated by the need to identify if the adoption or the non adoption of I.A.S.s could have a possible effect on corporate hedging, in general, and on the business performance (hedgers). For instance, adopters of I.A.S.s recognize the gains and losses of the derivative hedging in the fair market value, at the time that the specific gain or loss is realized (Ball, 2005). Implementing a different accounting policy, GAAP adopters, on average, recognize the aforementioned gains and losses at their book value in specific accounting dates (Litan and Wallison, 2003). The study is also motivated from the attempt to determine if the implementation of the I.F.R.S.s and more specifically, the early adoption of I.F.R.S.s, in Europe has the ability to improve the firm's performance, focusing mostly on the aspect of the use of financial derivatives for hedging.

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The main research objective of this study is to identify possible differences mainly in size, growth, profitability, liquidity, leverage and more generally in performance, between early adopters of I.A.S.s for the year 2004 versus non- adopters (UK G.A.A.P.) for the year 2004, in which adoption of the I.A.S.s was not compulsory, as well as between normal adopters for the year 2005 versus early adopters for the year 2004, trying to denote what are the characteristics for firms that tend to adopt I.F.R.S.s earlier. Additionally, the fundamental research question is whether corporate hedging in firms that have adopted I.A.S.s and other that have not (UK G.A.A.P.) present similarities, differences, any or no effect on the income, value or business performance on the whole. More particularly, another research objective that would contribute to statistically and rationally safe conclusions is comparing firms that implement corporate hedging under the requirements of I.F.R.S.s. versus UK G.A.A.P, as well as defining the post adoption effects for the year 2006. The study attempts to compare corporate hedgers for the year 2005, when the adoption of I.F.R.S.s was compulsory versus corporate hedgers for the year 2004 (UK G.A.A.P.) as well as corporate hedging for adopters for the year 2005 versus adopters for the year 2006.

Furthermore, the paper attempts to denote the characteristics between hedgers companies and non hedgers in association with the hedging instruments that the companies use and also attempts to define whether corporate hedging under the veil of I.F.R.S.s is likely or not to reduce the scope for earnings management. Additionally, the study is completed by defining financial characteristics for hedgers and non hedgers in association with the firms' levels of risk grade and beta coefficient; more precisely the comparisons regard i) hedgers with high risk grade versus non hedgers with high risk grade, ii) hedgers with high beta coefficient versus non hedgers with high beta coefficient, iii) hedgers with high risk grade versus hedgers with low risk grade and iv) hedgers with high beta coefficient versus hedgers with low beta coefficient. Concluding, the basic research objective can be summarized into the measurement of the total impact on firms' financial performance, from the adoption of the International Accounting Standards under the spectrum of corporate hedging.

Chapter 2 Literature Review

2.1 Special characteristics of the hedging firms.

Relevant literature supports that firms which implement corporate hedging tend to develop special characteristics. More specifically, evidence is found that larger and more mature firms are more likely to use derivatives as a means of corporate hedging than smaller and less mature ones (Adam, 2002). Less diversified firms are more likely to hedge (Allayannis and Ofek, 2001), whereas firms are also more keen on hedging their future investment expenditures (Froot, Scharfstein and Slein, 1993).

In the same context, evidence is, additionally, found of increasing use of derivative hedging not only for larger firms, as stated previously, but firms with greater investment opportunities (Guay and Kothari, 2002). Moreover it is supported that complex firms on average choose to use derivatives more often and in higher volume compared to less complex firms (Breeden and Viswanathan, 1998; Geczy, Minton and Schrand, 1997).

Further more, it is proven that the hedging decision is affected by differences in corporate governance (Lel, 2003) whereas evidence is found that a firm's extent of corporate hedging depends on the level of its financial leverage (Haushlalter, 2000).

As far as the management is concerned, it is supported by the literature that corporate hedging costs will give rise to a separating equilibrium in which good managers hedge and poor managers do not; managers with inferior skills are less likely to hedge and manage risk properly in comparison to skillful managers, unless monitored by outsiders (Breeden and Viswanathan, 1998).

2.2 Motives for corporate hedging.

In order to protect investors' financial position against adverse price movements, the capital market provides a plethora of derivative hedging instruments, such as financial options, futures, forwards and swaps. Derivatives are defined as "financial instruments that derive their value from the price or rate of some underlying item", such as interest rates, exchange rates, equity prices or commodity prices (ASB, Appendices, 1996, p. 73). Derivatives tend to transfer risk (and return) between investors that are risk averse

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and investors that are speculators and willing to take higher risks with the expectation of higher returns (Foley, 1991). The incentives for hedging can be grouped into the following categories: a) home-made hedging; b) financial distress; c) debt covenants; d) taxation; e) growth options; and f) cash flow volatility.

Stulz (1984) shows that there are certain cases where managers may adjust the hedging strategy of the firm to their financial needs and priorities to the detriment of the shareholders' interests. In other words, shareholders may get motivated to hedge their own exposure themselves. Smith and Stulz (1985) have found that firms are inclined to hedge when their earnings before taxation display volatility. Tax considerations certainly encourage the development of hedging activities. Hedging aims to stabilise the taxable income, which would in turn make the tax charge and liability more stable. In the same context, hedging can reinforce the expected value of tax preference items, which are associated with the taxable income and the overall performance of the firm (Joseph, 2000). Lessard (1991) finds that the use of hedging is positively associated with growth options. From another point of view, hedging can reinforce the financial position of firms that are in a growth area, while it can also reduce firms' financing costs (Froot et al, 1993).

Shapiro and Titman (1985) as well as Mayers and Smith (1982) observe that the reduction of earnings volatility can prove to be an effective way to avoid or limit the possibility of bankruptcy. Hedging can reduce the observed variability in income and thus effectively deal with bankruptcy or debt covenant violation risks (Smith and Stulz, 1985; Cooper and Mello, 1999) as well as with agency costs that might otherwise arise (Nance et al, 1993). The fact that low levels of liquidity may increase the systematic risk (Morris, 1983) shows that there may be similarities between the use of hedging for liquidity purposes and the use of hedging for dealing with financial distress. Thus, hedging can have significant impact on firms' cash flows. Joseph and Hewins (1997) observe that firms that use hedging techniques show more stable cash flows, in contrast to those firms that decide not to use hedging. Depending on the size of the hedging activity and firms' financial position and capacity, the hedging costs may in certain cases negatively affect firms' liquidity (Froot et al, 1993).

Although no study thus far has addressed the question of whether there is a direct and strong relationship between corporate hedging and firm value (Nance, Smith and Smithson, 1993; Geczy, Mian, 1996; Tufano, 1996; Geczy, Milton and Schrand, 1997;

Haushalter, 1997), the realized risk reductions and the decision to initiate a derivatives program varies across firms as a function of the expected benefits from hedging. Taken, together, this evidence is consistent with firms using derivatives for hedging purposes, on average, and not to increase shareholder risk (Guay, 1999), hence, if derivatives use is correlated with factors associated with corporate incentives to hedge, it is more likely that hedging motivates the use of derivatives (Nance et al., 1993; Mian, 1996; Geczy et al., 1997).

Firms have an incentive to hedge not only because hedging is able to reduce firm risk, but also because it can potentially reduce the required risk premium (Stultz, 1984; Smith and Stultz, 1985; Guay, 1998). To continue with, literature supports that firms may have the incentive to hedge if external capital is costly. In such cases, firms use corporate hedging to increase the correlation between internal funds and their investments, in order to reduce their dependence on external capital (Froot, Scharfstein and Stein, 1993). Several papers, however, also support and prove the aspect that R&D expenses increase a firm's incentive to hedge (Dolde, 1995; Geczy, Minton and Schrand, 1997) and that firm's use of currency derivatives is also positively related to the amount of R&D expenditures which consequently, is consistent with the use of hedging as a mitigating factor in potential (Geczy, Minton and Schraud,1997), whereas, from another aspect, it is evident that globalization has increased the use of derivatives to hedge risks associated with foreign currency exposure (Crawford, Wilson and Bryan, 1992).

In accordance with the aforementioned, significant evidence is found on the fact that firms which use foreign currency as a means of hedging have a higher value than firms which do not use currency derivatives (Allayannis and Weston, 1998). Analogizing to conglomerate acquisitions and building on the literature in that field, some scholars have argued that financial derivatives, when used to hedge against unsystematic risk, also decrease shareholder value (Krawiec, 2003).

Following the opinion that the significance of the risk exposure consist a further important determinant of the decision to hedge (Allayannis and Ofek, 2001), recent studies have presented empirical evidence that hedging through derivatives can reduce a firm's beta; this is not surprising, given that some of the most widely used derivatives hedges are interest- rate and currency- based (Krawiec, 2003).

Taking into consideration that there are cases where the firm's behavior tends to be speculative, as far as corporate hedging is concerned, recent survey evidence shows that

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hedging plays a significant role in the financing policy of the majority of firms (Bodnar, Hayt, Marston and Smithson, 1995; Bodnar, Hyat and Marston, 1996). Hedging can potentially increase firm's value (Allayannis and Weston, 2001), thus the executive's interest in corporate hedging may be surprising since it can potentially induce reductions in future pay (Fabrozzi, 1998). From another perspective, due to the fact that a firm can hedge systematic risk with derivatives more efficiently and cheaply than shareholders themselves, corporate management can also enhance shareholder wealth by hedging systematic risk (Krawiec, 2003), while there is evidence that there is a positive relationship between the managerial compensation and the corporate hedging choices that support theory (Schrand and Unal, 1998).

2.3   Benefits of corporate hedging.

Several theories suggest that hedging is a value increasing strategy for the firm (Allayannis and Weston, 1998). It is supported by relevant theory that multinational diversification may provide a natural on- balance sheet operational hedge against economic exposure when purchasing power parity and uncovered interest parity fail (Logue, 1995). Through surveys and tests that have investigated all the possible types of corporate hedging, strong evidence is found of economies of scale in hedging (Mian, 1996). To continue with the obvious benefits, it is supported, by examining currency hedging activities for the firm, that the firm's use of currency derivatives is positively related to growth opportunities (Geczy, Minton and Schrand, 1997). Moreover, a positive relationship is documented between hedging and debt capacity, suggesting that derivatives-induced debt capacity, increases firm value on average (Graham and Rogers, 2002).

The findings suggest that the substantial increases in firm value documented in some previous studies are driven either by other risk management activities (for instance, operational hedges) that are correlated with derivatives use, or that a percentage of the results are spurious (Guay and Kothari, 2002). Despite this, it is indicated through tests that hedging users have significantly higher leverage and fewer liquid assets, hence are larger firms and more profitable (Batram, Brown and Fehle, 2006). In addition, it is supported that unhedged firms are valued lower than hedged firms, if they belong to industries where hedging is widespread. In contrast, unhedged firms, belonging to industries where hedging is rare or even non- existent, do not appear to suffer a value discount; thus, if a firm

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chooses to remain unhedged while many of its competitors are hedging, it appears to be in danger of suffering a value discount (Naim, 2004). Further more, it is found that interest rate hedging increases firm value (Batram, Brown and Fehle, 2003) as well as that, through an investigation in jet fuel hedging, hedging is strongly associated with higher firm value as well (Carter, Rogers and Simkins, 2003). Finally, it is supported that the observed relationship between firm value and hedging could be related to agency costs between managers and shareholders (Lookman, 2003).

Firms that use derivatives can take advantage of the benefits that stem from corporate hedging. More accurately, the practical benefit gained from hedging is that the results of the decision can be determined beforehand (Remmers, 2003). Through hedging, management can reduce the "noise" in earnings contributed by macroeconomic factors such as exchange rates and interest rates. Noise in this context refers to factors contributing to earnings that are believed to be outside of managerial control (Dadalt, Gay and Nam, 2001). Hedging therefore, by reducing the noise contained in earnings, actually increases their usefulness as indicators of managerial quality (DeMarzo and Duffie, 1995; Breeden and Viswanathan, 1998). Further more, investigating the tax incentives to hedge, evidence is provided that firms hedge to increase debt capacity, but probably not in response to tax schedule convexity (Graham and Smith, 1999; Graham and Rogers, 2002). On the other hand, it is suggested that firms that hedge, face more convex tax function, have less coverage of fixed claims, are larger and have more growth options in their investment-opportunity set (Nance, Smith and Smithson, 1993).

Hedging can reduce the probability and the expected cost of financial distress by reducing the variance of a firm's cash flows on earnings (Smith and Stultz, 1985; Genzy et al., 1997; Berkman and Bradbury, 1996). Continuing in the same context, evidence is provided that firms that use derivatives display lower investment/cash flow sensitivity in comparison to firms that do not hedge (Allayannis and Mozumbar, 2000). To end with, study results show that there is a positive relationship between value and the use of foreign currency hedging; other types of derivatives use, interest rate and commodities, may also be beneficial for the firm (Allayannis and Weston, 1998).

Moving further, taking a firm's core business risk as given, hedging with derivatives reduces firm risk; the opposite effect is expected if the firm uses derivatives primarily for speculation (Hentscel and Kothari, 1997; Guay, 1999). By allowing firms to diversify and hedge against unwanted risk, derivatives enable risk-averse end-users to reduce both total risk and the possibility of financial crisis; this benefits the firm's

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management, employees, suppliers, creditors and other stakeholders with an interest in the stability and continued existence of the firms (Van-Horne, 1998). On the other hand, some commentators argue that firm level hedging provides no benefit to diversified shareholders, thus implicitly assume that most firm level hedging reduces primarily unsystematic risk (Krawiec, 2003). In addition, firm risk, measured several ways, is suggested that declines in the period following the initiation of a hedging with derivatives program (Guay, 1999). Hedging reduces compensation risk and in turns, the risk premium required by a risk averse firm (Fischer, 1999; Pirchegger, 2003).

A careful examination of the legal and financial literature reveals that firm level derivatives hedging can provide many potential benefits to diversified shareholders (Krawiec, 2003). Respected scholars have long emphasized the many benefits that may accrue to the corporation and its shareholders from derivatives hedging (Romano, 1995; Macey, 1996). More particularly, hedging use has positive net present value and modestly increases shareholder value in industry (Adam and Fernando, 2006). To sum up, although many questions remained unanswered and further research is still needed, the available empirical evidence generally supports the theory that hedging practices of most firms are consistent with a shareholder wealth maximization rationale (Krawiec, 2003).

2.4   Counter incentives of corporate hedging.

Though the prevalence of derivatives hedging use, high-profile cases of ex post bad realizations has led investors, creditors and regulators to become increasingly concerned about how firms use these financial instruments; little empirical evidence documents the effect of derivatives on firm risk (Guay, 1999). Modern financial theory thus holds that a wide range of actions that reduce unsystematic risk are occasionally irrelevant to firm value. Corporate management may not realize that specific actions appearing to benefit the firm may nonetheless produce no benefit for the shareholders (Krawiec, 2003). A more popular explanation is that this divergence of corporate and shareholders interest result primarily from the separation of ownership from control in the publicly held corporations. Managers can use corporate hedging to speculate on movements in interest rates, currency exchange rates, or commodity prices. Since speculative activity is not expected to be

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correlated, on average, with firms that underlay business exposures, derivatives used for this purpose are anticipated to increase not to reduce the firm's risk exposure (Guay, 1999).

In accordance with older and more modern research, there do exist theories which suggest that hedging has no evident impact on the firm's value (see Modigliani and Miller, 1985). For instance, there is no consensus in the opinion that hedging can increase the value of a levered firm, when the expected costs of financial distress are decreasing in firm-value (Smith and Stultz, 1985). To continue with, it is supported that derivatives hedging users have lower capital expenditures, do less research and development and have lower market-to-book ratios (Geczy, Minton and Schrand, 1997), strengthening the opinion that firms may not be using hedging to a degree that is economically important (Guay and Kothari, 2003), or that firms hedge less when they have similar levels of internal funds available for production and when products are relatively homogenous (Mello and Ruckes, 2004).

It becomes ,though, obvious that the failure of a corporation to hedge firm-level risk can have significant negative impact on the firm's expected cash flows and correspondingly on shareholders' wealth (Krawiec, 2003). In accordance with the aforementioned, evidence is provided on the fact that the impact of derivatives hedging has a limited effect on the firm's cash flows (Brown, 2001). To end with, other researches provide empirical evidence and doubt the opinion that a reduction in volatility through hedging can increase debt capacity and generate greater tax benefits (Stultz, 1996; Leland, 1998; Graham and Rogers, 2002).

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Chapter 3 Methodology – Research Hypotheses

3.1 Data

Accounting and financial data were collected from DataStream. Information on the hedging practices, hedging instruments, adoption of I.F.R.S.s and every other valuable, for the analysis, element were collected from their published, externally audited financial statements, gathered from the Financial Times Annual Report Service. The sample consists of 229 firms whose operating activities are placed in the area of United Kingdom. From the 229 firms of the sample, 134 firms implement corporate hedging, whereas 95 do not (Figure 1.1). Each one of the chosen firms is listed in the London Stock Exchange. The study is focused on industrial, mostly, firms and has intentionally excluded from the analysis banks, insurance, pension and brokerage firms, in order to achieve validity and comparability, as the accounting methods of the aforementioned firms are not always comparable with firms belonging in the industrial sector. Appendix A provides information on the sector that each one of the sample firms belong to.

Figure 1.1 The use of corporate hedging: 2006
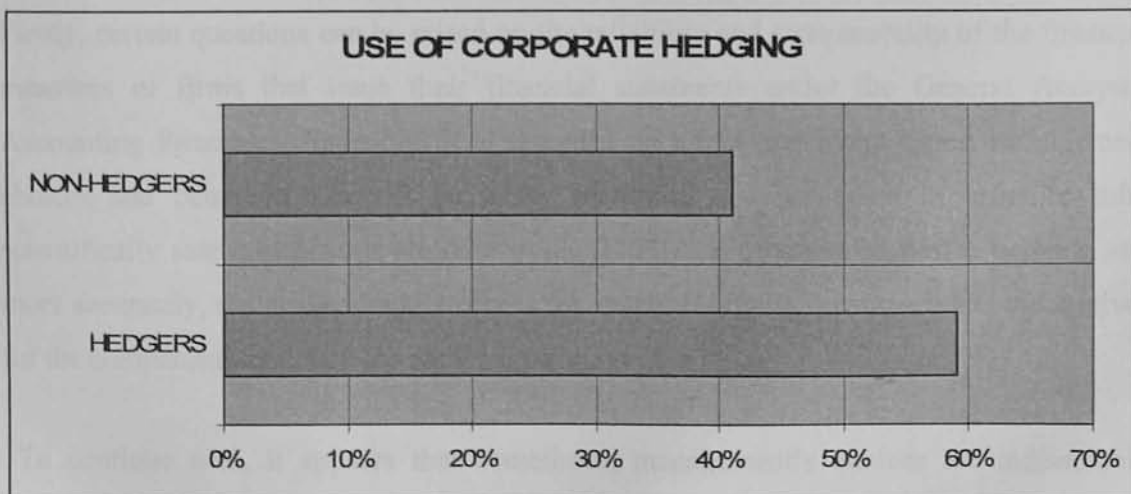
The empirical analysis has focused on three general time periods; early adopters and non adopters of I.F.R.S.s, hedgers and non hedgers for the year 2004, normal adopters and

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hedgers and non hedgers for the year 2005 as well as adopters, hedgers and non hedgers for the year 2006. The study attempted to denote and define standard financial characteristics for early, normal and non adopters of I.F.R.S.s, focused on exploring the aforementioned characteristics via the perspective of corporate hedging under the I.F.R.S.s versus the principles and demands of G.A.A.P., searched the influence of foreign sales, cross listing, and audit by the Big Five auditing firms on the time and speed of adoption of I.F.R.S.s, attempted to investigate possible relationship between corporate hedging and the scope for earnings management and, lastly, attempted to define financial characteristics between hedgers and non hedgers in association with risk exposure (risk grade and beta coefficient).

The study makes use of the binary logistic regression analysis, linear regression, correlation, F-test and descriptive statistics in order to test the validity of the hypotheses. Appendix B presents the explanatory variables that are used in the empirical analysis. The aforementioned statistical analysis tools can offer validity and reliability into the study, as they can define statistically significant relations between important and signal for the empirical analysis variables.

3.2   Research Limitations

Attempting to define financial characteristics for adopters and non adopters, as well as for hedgers and non hedgers may embrangle the research with significant difficulties. Firstly, certain questions can be raised on the reliability and comparability of the financial measures of firms that issue their financial statements under the General Accepted Accounting Principles. Secondly, it is regarded as a fact that many times, management choices and behaviours cannot be easily identified and processed in order to infer scientifically safe conclusions (Hodder et al., 2003), for instance, corporate hedging and more accurately, the management's choice for specific hedging instrument and the motives for the companies' tendency for early adoption.

To continue with, it appears that sometimes, management's choices are indissolubly connected with what investors expect from a firm and seem to be influenced by the need to raise the interest of a respected base of investors (Levitt, 1998). Therefore it becomes extremely difficult to asses the aforementioned choices and infer conclusions in order to

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interpretate specific characteristics related to corporate hedging and adoption rate of I.F.R.S.s.

3.3 Research Hypotheses

3.3.1 Adoption of I.F.R.S.s.

The study primarily focuses on identifying the special characteristics in size, growth, profitability, liquidity and leverage between companies that issue their financial statements under the principles and requirements of I.F.R.S.s as well as companies that issue their financial statements under the demands of G.A.A.P., for the year 2006. The logistic regression that is applied in order to denote possible characteristics uses a dummy variable which is dichotomous, consisting of two values, 1 for companies that present their financial statements in accordance with the demands of the I.F.R.S.s and 0 for companies that present their financial statements in accordance with G.A.A.P. The hypothesis that it is tested is the following:

H_{01} *There are no differences in the financial characteristics between companies that have adopted I.F.R.S.s and those that abide by the demands of G.A.A.P. The alternative hypothesis is that companies that demonstrate better financial performance are adopters of I.F.R.S.s.*

The paper also focuses on possible characteristics for firms that are controlled by the Big Five external auditors (Chaney et al., 2003), PricewaterhouseCoopers LLP, Deloitte & Touche LLP, Ernst & Young LLP, KPMG Audit Plc, Accenture LLP, in contrast to firms that are not externally audited by the aforementioned auditing firms. More specifically, the logistic regression employed, tests possible differences between early adopters and non-adopters for the year 2004, as well as early adopters for the year 2004 to normal adopters for the year 2005. The logistic regressions use two dummy variables which are dichotomous; the variable consists of two values, 1 for early adopters as well as for normal adopters for the years 2004 versus 2005 and 0 for non adopters as well as early adopters for the years 2004 versus 2005. The second (independent) dummy variable, consists of two

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values also, 1 for companies that are controlled from the Big Five external auditors and 0 for those who are not.

Another interesting area that is being explored is cross listing. The paper attempts to identify which are the possible characteristics for firms that are cross listed in various stock markets outside their mother country, such as NYSE, NASDAQ, etc, for normal, early and non adopters. Once more, both logistic regressions use two dummy variables which are dichotomous; the variable consists of two values, 1 for early adopters as well as for normal adopters for the years 2004 versus 2005 and 0 for non adopters as well as early adopters for the years 2004 versus 2005. The second (independent) dummy variable consists of two values also, 1 for companies that are cross listed in stock exchange markets outside Great Britain and 0 for those who are not cross listed in various stock exchanges.

To continue with the hypothesis development, the paper emphasises as well on foreign sales, sales that are connected with operational activities outside the national borders, thus sales in other countries. By that, the paper attempts to denote differences for early, normal and non adopters. Again, as explained before the logistic regressions use two dummy variables which are dichotomous; 1 for early adopters (2004) and normal adopters (2005) for the second regression and 0 for non adopters and early correspondingly. The independent dummy variable is 1 for companies that are cross listed in stock exchange markets outside Great Britain and 0 for those who are not cross listed. The hypothesis that is tested is the following:

H_{02} *Firms that are cross listed in stock exchanges in other countries, firms that have foreign sales in other countries and firms whose financial statements are audited by the Big Five external auditing firms tend to adopt I.F.R.S.s earlier and tend to exhibit better financial characteristics. The alternative hypothesis is that the implementations of I.F.R.S.s as well as the exhibition of better financial characteristics are more likely to be associated with cross listing, foreign sales and with Big Five auditing firms.*

3.3.2 Hedging interrelated with foreign sales, cross listing and Big Five auditing firms.

The paper employs another logistic regression in order to denote possible characteristics for hedgers and non hedgers for the year 2006 in relation with foreign sales and cross

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listing. The first regression uses a dichotomous dummy variable as dependent; 1 for hedger companies that have foreign or external sales in other countries and 0 for hedgers that do not. Additionally, the paper employs another logistic regression in order to denote possible characteristics for hedgers and non hedgers as far as cross listing is concerned; the regression uses a dichotomous dummy variable as dependent; 1 for hedger companies that are cross listed in other countries and 0 for hedgers that are not cross listed in various stock exchanges. The hypothesis that is tested is the following:

H_{03} There are no differences in financial characteristics between firms who implement corporate hedging, have foreign sales and are cross listed in stock exchange markets in other countries and firms who implement corporate hedging but do not have foreign sales and they are not cross listed. The alternative hypothesis is that firms which demonstrate better financial results are hedgers with foreign sales and cross listing.

3.3.3 Hedging under the principles of I.F.R.S.s – the role of hedging instruments.

The paper also studies the possible characteristics for firms that implement corporate hedging under I.F.R.S.s in contrast to corporate hedging under UK G.A.A.P., and tries to define the post adoption effects, hence certain adopters' characteristics for the year 2006 The two logistic regressions integrate one dummy variable, 1 denotes normal adopters for the year 2005 and 0 denotes non adopters for the year 2004 and for the second logistic regression 1 denotes hedgers for the year 2006 and 0 denotes normal adopters for the year 2005. The hypotheses that are tested are the following:

H_{04} There are no differences in financial characteristics for firms that implement corporate hedging under the principles and demands of I.F.R.S.s in contrast to firms that implement corporate hedging under the principles and demands of UK G.A.A.P. The alternative hypothesis is that firms that implement corporate hedging under the prerequisites and demands of I.F.R.S.s exhibit better financial performance.

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H_{05} There are no differences in financial characteristics between normal adopters that implement corporate hedging (2005) and financial characteristics for adopters that implement corporate hedging for the year 2006. The alternative hypothesis is that adopters who implement corporate hedging for the year 2006 exhibit better financial performance.

The paper continues with the differences in financial performance for firms that implement corporate hedging via different financial instruments such as Caps and Collars, Options, Swaps, Interest Rate Swaps and Futures and Forwards. More accurately the paper, firstly, tests the possible differences in financial characteristics through the use of descriptive statistics for each hedging instrument individually. Secondly, the paper attempts to define possible financial characteristics for hedgers who use Interest Rate Swaps versus non hedgers as well as possible financial characteristics for hedgers implementing Futures and Forwards versus non hedgers. The dummy variables used in the regression consists of two values for each case, where 1 stands for hedgers implementing Interest Rate Swaps as a hedging instrument and 0 stands for non hedgers and vice versa for Futures and Forwards as a hedging instrument. The hypothesis that is tested is the following:

H_{06} There is no difference in financial characteristics between hedgers that use Interest Rate Swaps and hedgers that use Futures and Forwards versus firms that do not implement corporate hedging (non hedgers). The alternative hypotheses is that firms which implement Interest Rate Swaps or Futures and Forwards as hedging instrument demonstrate better financial characteristics in contrast to non hedgers.

3.3.4 Hedging and Earnings Management

The research examines whereas hedging is associated with the likelihood of reducing the scope for earnings management. More specifically, the paper focuses mostly on hedgers and non hedgers for the year 2006. The study is initiated through the help of the analysis of variance, using F-test and descriptive statistics in order to denote possible

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differences between hedgers and non hedgers. In order to identify whether hedging encourages or discourages the scope for earnings management hence the firm's tension to influence financial performance (Leuz et al, 2003; Messod, 2001), the paper employs a number of tests. The first test investigates the volatility of the change in net profit scaled by total assets (ΔNP) as well as the volatility of the change in net profit to net profit (ΔNP) to the change in operating cash flows (ΔCF). The second test examines the possible relationship for hedgers and non hedgers between accruals and cash flows via a correlation test. To continue with, the paper uses a linear regression based on the research of Tendeloo and Vanstraelen (2005). The regression model that is employed is the following:

$ACCR_{it} = a_0 + a_1 \text{ Profitability}_{it} + a_2 \text{ Leverage}_{it} + a_3 \text{ OCF}_{it} + a_4 \text{ Size}_{it} + a_5 \text{ HEDG}_{it} + a_6 \text{ HEDG}_{it} \times \text{OCF}_{it} + \text{HEDG}_{it} \times \text{OPM}_{it} + \text{HEDG}_{it} \times \text{EPS}_{it} + \text{HEDG}_{it} \times \text{NPM}_{it} + \text{HEDG}_{it} \times \text{NAVSH}_{it} + \text{HEDG}_{it} \times \text{RESTAS}_{it} + \text{HEDG}_{it} \times \text{SALESHA}_{it} + \text{HEDG}_{it} \times \text{TLSFU}_{it} + \text{HEDG}_{it} \times \text{CGEAR}_{it} + \text{HEDG}_{it} \times \text{DSFU}_{it} + e_{it} \text{ (X).}$

Where:

ACCR = accruals scaled by total assets; accruals equal earnings minus cash flows from operating activities (Dechow and Ge, 2006).

OCF = operating cash flows scaled by total assets

HEDG = dummy variable indicating firms that implement corporate hedging or not; 1 for firms that implement corporate hedging (hedgers) and 0 for firms that do not implement corporate hedging (non hedgers).

HEDG x OCF = a variable that investigates the impact of hedging on accruals and cash flows.

HEDG x OPM
HEDG x EPS = variables denoting the impact of hedging on accruals /profitability.
HEDG x NPM

HEDG x NAVSH
HEDG x RESTAS = variables denoting hedging impact on accruals/size.
HEDG x SALESHA

$$
\left.\begin{array}{l} \textbf{\textit{HEDG x TLSFU}} \\[2em] \textbf{\textit{HEDG x CGEAR}} \\[2em] \textbf{\textit{HEDG x DSFU}} \end{array}\right\} = \text{variables denoting the impact of hedging on accruals/leverage}
$$

Each of the rest variables consist ratios, (Appendix B).

The last test, through a logistic regression, examines the firm's aptitude to affect accounting numbers so as to present small positive profits instead of losses (Leuz et al, 2003; Sevin and Schroeder, 2005). Additionally, the test examines the firm's capability not to present regularly large losses (Ball et al, 2000). The aforementioned model is the following:

$$RR_{it} = a_0 + a_1 \text{ Profitability}_{it} + a_2 \text{ Growth}_{it} + a_3 \text{ Leverage}_{it} + a_4 \text{ Liquidity}_{it} + a5 \text{ Size}_{it} + a_7 CS_{it} + a_8 \text{ SPP}_{it} + a_9 \text{ LNL}_{it} + e_{it}(x).$$

Where:

SPP = a dummy variable denoting a measure of small positive profits. Dichotomous, 1 if net profit scaled by the total assets is from 0 to 0,01 and 0 otherwise (Lang et al, 2003; Barth et al, 2005).

LNL = dummy variable denoting a measure of timely loss recognition (Large Negative Losses). Dichotomous variable, 1 if net profit scaled by total assets is less than – 0, 20 and 0 otherwise (Lang et al, 2003; 2005).

Each of the rest variables consist ratios (Appendix B).

The hypotheses that are tested are the following:

H_{07} *Corporate hedging is likely to introduce volatility in income statement and balance sheet values.*

H_{08} *Hedging is likely to reduce the scope for earnings management.*

3.3.5 Corporate Hedging and Risk Exposure

The paper completes its research goals by attempting to denote financial characteristics for hedgers and non hedgers in association with the firms' risk exposure (risk grade and beta coefficient). In details, the paper attempts to identify possible characteristics between:

i)   Hedgers with high risk grade versus non hedgers with high risk grade.

ii)   Hedgers with high beta coefficient versus non hedgers with high beta coefficient.

iii)   Hedgers with high risk grade versus hedgers with low risk grade.

iv)   Hedgers with high beta coefficient versus hedgers with low beta coefficient.

The investigation uses the median in order to categorise firms with low or high risk grade as well as beta coefficient. The logistic regressions employ dichotomous, dummy variables; 1 stands for hedger firms with high risk grade and high beta coefficient and 0 for non hedger firms with high risk grade and beta coefficient. In the same way, the dummy variable for the second regression adopts 1 for hedgers with 0 for non hedgers with low risk grade and low beta coefficient. The hypothesis that is tested is the following:

H_{09} *There are no differences in the financial characteristics between hedgers with high risk grade and beta coefficient as well as hedgers with low risk grade and beta coefficient and non hedgers with high risk grade and beta coefficient or low risk grade and low beta coefficient.*

Chapter 4 Research findings and discussion

4.1 Factors that affect the early or post adoption of I.F.R.S.s.

Table 1 (see Panel A) shows that adopters of I.F.R.S.s tend to display higher size measures (SALESHA) in comparison with non adopters. Large firms adopt I.F.R.S.s more quickly in order to achieve visibility in market and in order to develop proper exposure for customers, competition as well as the government. Moreover, adopters tend to exhibit higher growth measures (PEG), higher profitability measures (NPM) and higher liquidity measures (CUR). It seems that firms that combine the high performance of the aforementioned measures, under the principles of I.F.R.S.s, tend to attract a wider base of investors, who feel more confident for the validity of the company's accounting and financial statements, as well as the company's financial performance. Also, adopters exhibit higher leverage measures (IGEAR), which reflects the higher financial obligations for larger companies (Minton and Wruck, 2001). More particularly, firms with high profitability and liquidity measures have to timely meet their financial obligations (Dziobek et al., 2000), thus the presence of higher leverage measures are reasonable. Under this perception, hypothesis H_{01} can be rejected

Furthermore, comparing early adopters and non adopters for the year 2004, the empirical results suggest that firms which are externally audited by the Big Five auditing firms, firms that are cross listed in different international stock exchanges and firms which have foreign sales (or external) in other countries, tend to adopt I.F.R.S.s more quickly. Table 1 (see Panel B), shows that early adopters (2004) tend to be larger companies (RESTAS), (CAPEMP), so as to secure the proper visibility in international markets and stock exchanges as well as to attract the interest of the Big Five auditing firms, which can infuse validity and objectivity for a company's financial appraisal (Chaney et al., 2003). Additionally, early adopters tend to exhibit higher growth measures (DIVYI) as well as higher profitability measures (OPM), (EPS).The above signify that firms that perform well financially, tend to adopt I.F.R.S.s more quickly so as to appear more reliable for

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customers and investors whereas firms that exhibit lower financial performance tend to be reluctant to change its financial regime and subject to the principles and demands of I.F.R.S.s, providing detailed information about the financial position that holds (Kaznik, 1999). Early adopters exhibit high leverage measures (CGEAR) in order to answer the high level of obligations that have to be settled promptly (Nissim and Penman, 2001). Liquidity seems to be lower for early adopters, which is a fact that can be regarded as reasonable if it can be regarded as a means of confronting the high leverage measures. Finally, the dummy variable Big Five, referring to the firms that are externally audited by the Big Five auditing firms, is positive and statistically significant for early adopters, thus hypothesis H_{02} can be rejected.

Similar characteristics for early adopters with foreign sales can be concluded (Table 1, Panel C). More particularly, firms with foreign sales are large firms (SALETAS), (RESTAS), tend to exhibit higher growth measures (EPSG) and higher profitability measures (EPS). Additionally, although early adopters exhibit higher leverage measures tend to exhibit high measures of liquidity as well, showing that adoption of I.F.R.S.s has not adversely influenced firms' liquidity, despite the high leverage which carries additional cost. Again, the dummy variable FOREIGN SALES seems to be positive and statistically significant for early adopters. Hence, once again hypothesis H_{02} is rejected.

Therewithal, firms that are cross listed, tend to adopt I.F.R.S.s more quickly, enhancing the aforementioned conclusions. More specifically, (Table 1, Panel D) early adopters with cross listing tend to exhibit higher growth measures, higher leverage measures and once again higher liquidity measures. Hence, hypothesis H_{02} can be rejected. Unfortunately, the dummy variable for early adopters (FOREIGN SALES) although seems to be positive, is statistically insignificant, but this fact cannot invalidate the aforementioned empirical results.

To continue with, comparing early adopters for the year 2004 with normal adopters for the year 2005, the empirical analysis offer similar conclusions for the time of adoption in relationship with foreign sales, cross listing and Big Five auditing firms. More specifically, in Table 2(see Panel A, Panel B, Panel C), it becomes clear that early adopters with Big Five auditors tend to be larger firms (SALETAS), (RESTAS), show higher growth (EPSG), profitability (NPM) and leverage measures (TLSFU) as well as higher liquidity

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measures (CFM), although the quick ratio (liquidity) seems to be negative, this can be reasonable, taking into account the high levels of leverage which demand extra cost, thus, lower liquidity. Attempting to considerate the empirical results for foreign sales and cross listing, the conclusions are similar; adopters with foreign sales and cross listing adopt I.F.R.S.s more quickly and exhibit better financial performance, thus, H_{02} can be rejected once again.

4.2 Special characteristics of hedgers with cross listing and foreign sales.

Table 3 (see Panel A), shows that hedgers that have foreign (external) sales in foreign markets seem to be large firms (SALESHA), in order to have visibility and strengthen their presence in global markets, exhibit higher measures of growth (DIVSHG), (DIVCOV), (PEG), higher measures of profitability (ROSF), (OPM) as well as higher measures of liquidity (CASH) and leverage (DSFU). Indeed, firms that are interested in foreign markets have to gather each one of the aforementioned characteristics, in order to be robust so as to overcome entry barriers in global markets and take advantage of opportunities. Additionally, foreign sales can satisfy the demands and cost of corporate hedging (Oyola, 2000). The dummy variable (FOREIGN SALES) is statistically significant, enhancing in that way the conclusions. Therefore hypothesis H_{03} can be rejected.

In accordance with foreign sales, Table 3 (Panel B) stretches similar empirical results. It seems that hedgers that are cross listed in various stock exchanges are large companies (NAVSH), (SALETAS) and exhibit higher measures of growth (PEG), profitability (OPM), liquidity (CASH) and leverage (CGEAR). It is regarded as a fact that firms which implement corporate hedging seek extra capital in order to meet the high demands in liquidity, thus the additional cost that hedging instruments carry. Thus, hypothesis H_{03} can be rejected.

4.3 Financial characteristics of firms that implement corporate hedging under the requirements of I.F.R.S.s.

Table 4 (see Panel A), describes the differences between normal adopters of I.F.R.S.s that implement corporate hedging for the year 2005, in comparison with non adopters (G.A.A.P.) who also implement corporate hedging. The empirical results indicate that firms which implement corporate hedging under the requirements of I.F.R.S.s and especially under the principles and demands of International Accounting Standard 29 (I.A.S. 29) as well as International Accounting Standard 32 (I.A.S. 32), tend to be large firms (SALESHA) in order to present a well built exposure to customers and investors; hence in order to preserve their visibility. Moreover, these firms tend to exhibit higher measures of growth (DIVYI), of profitability (NPM) and leverage (DSFU), (CLSFU). Indeed, companies with high growth, leverage and profitability measures tend to implement corporate hedging, willing to secure by all means the aforementioned high financial performance, and overcome certain obstacles such as risks associated with price volatility, instabilities in monetary policies or rapid and unpredictable economic changes (Triki, 2005; Graham and Rogers, 1999). To continue with, the empirical results also suggest that, despite the higher measures of liquidity, generated by higher quick ratios (QUI), on the whole, liquidity for those firms seems to be lower (CUR), (CFM). In practice, high measures of leverage in large firms and additional costs of hedging techniques, reversely affect a firm's liquidity; higher demands for cost and the demand for prompt payments and higher obligations in general, undoubtedly affect a firm's liquidity to a great extent. Therefore, hypothesis H_{04} can be rejected.

Furthermore, Table 4 (see Panel B), denotes the empirical results for the post adoption effects on corporate hedging between normal adopters of 2005 and adopters for the year 2006. The empirical results indicate that adopters for the year 2006 tend to exhibit higher profitability measures (NPM) as well as higher liquidity measures (CUR). It seems reasonable that for the year 2006, after a complete financial year, since the compulsory adoption of I.F.R.S.s, profitability and liquidity is high since the leverage measures (DSFU) are lower. Moreover the company does not suffer additional costs from loans and such obligations, which is a fact that can excuse the high levels of profitability and liquidity measures. The empirical findings denote the fact that adopters for the year 2006 exhibit lower measures of growth and more particularly measures referring to the dividend policy of those firms, (DIVSHG), (DIVYI), and (DIVCOV). Above from the restrictive

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borrowing policy, the dividend policy of those firms also appears to be restrictive and austere for future periods, following the dividend growth per share (DIVSHG). The reasonable explanation is that those firms may reinvest their high profits (NPM) for future periods in order to achieve future prosperity. Thus, hypothesis H_{05} can be rejected.

4.4 The role of hedging instruments.

The empirical analysis shed its interest in the role of the various hedging instruments. Via the use of descriptive statistics for the years 2004, 2005 and 2006, for the main five categories regarding the specific sample firms of the study (Caps and Collars, Options, Swaps, Interest Rate Swaps and Futures and Forwards), it was attempted to identify possible volatility in income provoked by the use of each instrument. Tables 5 to 9, analyse the mean and the standard deviation for each category of firm's ratios (size, growth, profitability, liquidity and leverage).

Analysing the measures for each hedging instrument individually, it seems that Caps Collars (Table 5) and Options (Table 6) present the highest volatility in their financial measures, taking into consideration the mean and standard deviation, especially in liquidity and leverage measures, whereas Swaps (Table 7) present the lower volatility in financial measures. Additionally Interest Rate Swaps (Table 8) and Futures (Table 9) exhibit high volatility, but reward its users by being larger and by exhibiting higher profitability measures. Thus, it cannot be regarded as random the fact that in the specific sample of hedgers for the three aforementioned years, hedgers prefer vastly the use of Interest Rate Swaps and the use of Futures and Forwards as a means of hedging their open market positions in order to ensure their financial performance against financial risks (see Figure 1.1). Although each of the hedging instrument can be used in accordance with the specific demands of each company (Brock et al., 2006; Gay et al., 2000), it seems that firms with high visibility and exposure, prefer the aforementioned instruments as a means of hedging since they offer significant risk protection, especially when firms use a combination of both techniques. This superiority that those instruments offer to the hedgers is robust to

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using a variety of well-established techniques for estimating financial risk (Chen and Sutcliffe, 2007).

Figure 1.2 Hedging instrument usages for years 2004 – 2006.
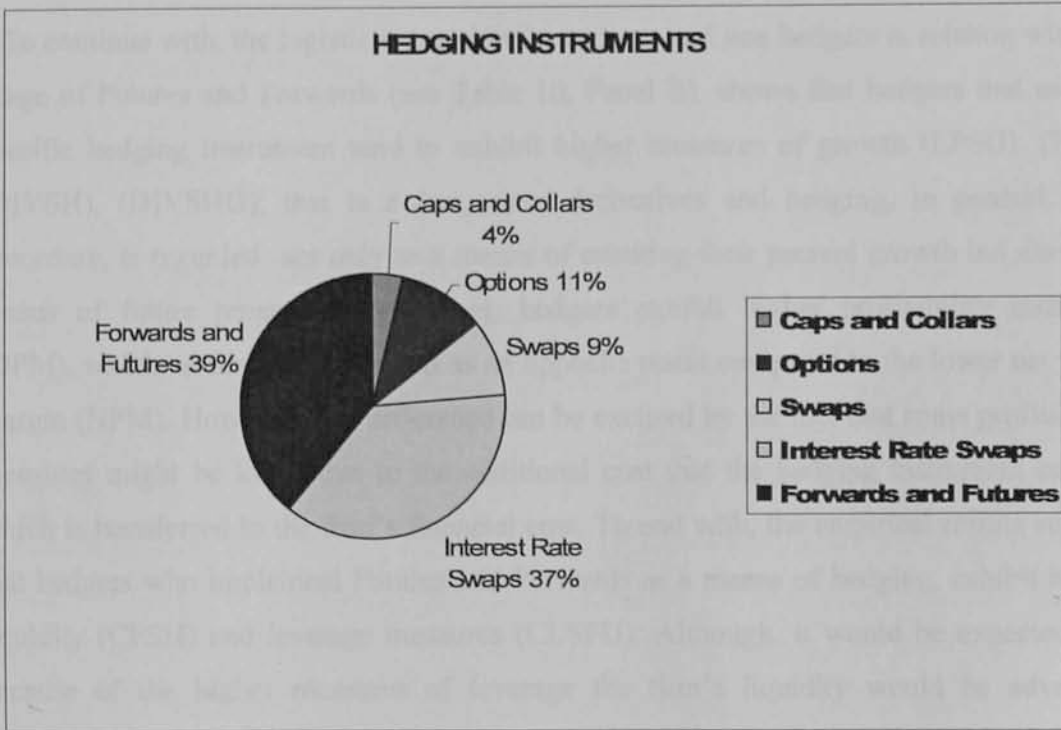
Moving further, the empirical analysis attempted to denote possible differences in firms' financial performance related with the use of Interest Rate Swaps and the use of Futures and Forwards referring to hedgers and non hedgers for the year 2006. More accurately, the logistic regression for hedgers and non hedgers in relation with the usage of Interest Rate Swaps (see Table 10, Panel A), shows that hedgers that use the specific hedging instrument tend to be larger companies (SALETAS), thus have a good exposure in the various international markets. The findings also denote that hedgers exhibit higher measures of growth (DIVSHG) and that can be regarded as a fact since those firms need the use of derivatives in order to ensure their development and prosperity (Fong et al., 2005).

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Additionally, hedgers tend to exhibit higher measures of profitability (ROCE), (EPS); in that way firms ensure the positive cash flows required in order to answer the also high demands of leverage (CGEAR). Finally, the empirical results confirm that hedgers tend to exhibit lower measures of liquidity (CUR), (CASH); the aforementioned result can be excused by the fact that Interest Rate Swaps as a means of hedging carry additional cost which does not affect the profitability measures (Hwang and Jensnen,2005). Hence, hypothesis H_{06} can be rejected.

To continue with, the logistic regression for hedgers and non hedgers in relation with the usage of Futures and Forwards (see Table 10, Panel B), shows that hedgers that use the specific hedging instrument tend to exhibit higher measures of growth (EPSG), (PEG), (DIVSH), (DIVSHG); that is a fact, since derivatives and hedging, in general, as a procedure, is regarded not only as a means of ensuring their present growth but also as a means of future prosperity. Moreover, hedgers exhibit higher profitability measures (OPM), which, at first glance, seems as an opposite result compared to the lower net profit margin (NPM). However, this difference can be excused by the fact that some profitability measures might be lower due to the additional cost that the hedging instrument carries, which is transferred to the firm's financial cost. To end with, the empirical results suggest that hedgers who implement Futures and Forwards as a means of hedging, exhibit higher liquidity (CFSH) and leverage measures (CLSFU). Although, it would be expected that because of the higher measures of leverage the firm's liquidity would be adversely affected, the empirical findings suggest that firms who implement corporate hedging through the use of Forwards and Futures, employ an effective way of managing financial obligations and demands, in order to be more creditable as well as in order to strengthen its financial position (Realdon, 2007). Therefore, hypothesis H_{06} can be rejected.

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4.5   The case of earnings management.

At this part, the study concentrated on identifying possible relationship between corporate hedging and earnings management. Basically, the analysis denotes, through the use of descriptive statistics for hedgers and non hedgers for the year 2006, whether corporate hedging can be responsible for certain volatility in income statement and balance sheet values, since such a relationship would be associated with lower earnings management (Hunton et al., 2004). Table 11, employs a comparison between hedgers and non hedgers and uses a pair wise t- test for the equality of means as well as a pair wise F-test for the equality of variance, so as to confirm the values' statistical significance.

To continue with, descriptive statistics indicate that hedgers tend to exhibit higher measures of size, investment, growth, profitability and leverage. The difference is identified in liquidity measures, which are marginally higher for non hedgers; this is not peculiar since firms that implement corporate hedging have to suffer an additional cost for the various hedging instrument used.   Additionally, descriptive statistics denote that accruals (ACCR) are higher for the non hedger rather than hedgers; the aforementioned observation implies that non hedger firms have the tendency to interfere in procedures of transforming their accounting numbers at their own benefit, hence tend to manage their earnings (Cheng Tan and Hamal, 2007). Firms that do not implement corporate hedging seem to be more vulnerable to risk exposure, thus cannot protect their open market positions or volatilities in prices. As a result, all the above are reflected on their financial performance, thus financial statements. Therefore, hypothesis H_{07} holds, taking also into consideration that hedgers exhibit higher large negative losses (LNL) as well as lower small positive profits (SPP), which is an extra indicator of volatility in income statement and balance sheet values, hence lower earnings management tendency for hedgers.

The empirical study also employed a number of statistical tests in order to define whereas hedging reduces the scope for earnings management. In the first test, Table 12 (Panel A, Panel B), the study tries to identify existing volatility in the change of net profit (ΔNP) as well as volatility in the change of net profit to the change in operating cash flows (ΔNP)/(ΔCF), since high volatility for hedgers would imply lower earnings management and low volatility for non hedgers would be a proof of earnings management (Cheng and Warfield, 2004). Indeed in Panel A, it seems that hedgers exhibit higher volatility in (ΔNP) as well as in (ΔNP)/(ΔCF). Due to the fact that the statistical values are not statistically

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significant, the study employs another F-test for hedgers versus non hedgers for the year 2005, which offers the same findings, but statistically significant ones. Both of the aforementioned tests denote the fact that hedgers do not use earnings management, thus hypothesis H_{08} holds.

In the second test, the study employed a correlation in order to define whereas accruals can be associated with firms' cash flows, in order to conclude for existence or not of earnings management. Normally, if an association of the aforementioned measures (accruals and cash flows) present an interrelationship with a negative coefficient which tends to be close to 1, signifies that hedging does not reduce the scope for earnings management (Barth et al, 2001). However, Table 12 (Panel C) presents the correlation between accruals and cash flows for hedgers and non hedgers; the results, unfortunately cannot offer a safe conclusion on the one hand, but on the other hand the results cannot also influence the empirical analysis, since although the fact that the correlation coefficient for both hedgers and non hedgers is negative and higher for the non hedgers, it is statistically insignificant.

Moreover, the empirical analysis employed a linear regression (Table 12, Panel D) among accruals (dependent variable) and a variety of measures, attempting to denote the impact of corporate hedging on accruals and cash flows (HEDG x OCF), accruals and profitability, accruals and size as well as accruals and leverage, by creating dummy variables for each category of financial measures, such as HEDG x NAVSH, HEDG x OPM, HEDG x CGEAR etc. In practice, Panel D exhibits the results; it seems that corporate hedging has a definite impact on accruals and cash flows since the coefficient is positive and statistically significant (HEDG x OCF), suggesting that hedgers do not have the tendency to be involved in earnings management, since they present lower accruals, thus higher volatility in income and financial terms (Pajgocal and Pincus, 2002; Pajgocal and Pincus, 2000).

Similar conclusions can be derived from the rest of the variables; to be more specific, it seems that there is a negative and statistically significant interrelationship between accruals and size (HEDG x SALESHA), (HEDG x NAVSH), (HEDG x RESTAS), (SALETAS), (RESTAS), which implies that hedgers are larger companies with satisfactory visibility in the market (which can be also documented by the descriptive

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statistics, Table 11), hence those firms are less motivated to manage their earnings so as to present better financial performance, because a move like that could have opposite effects against their wide base of investors and would ruin their well built reputation. In the same context, the empirical findings underling the adverse and statistically significant association between accruals and profitability (HEDG x OPM), (HEDG x NPM), (HEDG x EPS), (OPM), (EPS). Firms that incorporate hedging activities tend to exhibit higher profitability measures (see also Table 11), in comparison with non hedgers, hence they are less motivated to change their financial measures and accounting numbers in order to demonstrate higher income and better financial performance.

Moving further, the results indicate that the relationship between accruals and leverage is positive and statistically significant, suggesting that firms that exhibit higher measures of leverage, (HEDG x DSFU), (HEDG x TLSFU), (HEDG x CGEAR), (DSFU), (CLSFU), tend to be more likely to increase their accruals in order to demonstrate better financial performance, trying to preserve their credibility and reliability, mainly on their debtors.

For the last step in order to test the validity of hypotheses H_{08}, the study employs a binary logistic regression which concentrates mostly on the behavior of two specific variables, SPP, which forms a measure of small positive profits and LNL, which forms a measure of large negative losses or else, a measure of timely loss. Further more, Table 12 (Panel E) indicates that the variable SPP has a negative coefficient, statistically significant; that finding suggests that firms that have implemented corporate hedging, do not manage their financial statements, hence their accounting measures, in order to avoid presenting losses. On the contrary, hedgers are more eager to present losses rather than small positive profits. Taking into consideration the fact that they do not present small positive profits frequently in contrast to non hedgers, it appears that hedgers are influenced by the principles of the I.F.R.S.s, which demand the total and reliable disclosure of every possible loss or profit (Barton, 2001). The aforementioned empirical finding is totally harmonized with the result for the LNL variable, (see Table 12, Panel F), whose coefficient is positive and statistically significant as well. Hedgers seem to recognize possible losses timely in their financial statements, when they occur, according to the requirements of I.F.R.S.s in contrast to non hedgers who attempt to postpone the accounting recognition of losses, willing to exhibit better financial performance. Therefore, the empirical analysis denotes

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that hypothesis H_{08} holds, thus hedging is indeed likely to reduce the scope for earnings management.

4.6 Corporate hedging and risk exposure.

The study completes the empirical analysis investigating the relationship between hedgers with high risk grade and high beta coefficient versus hedgers with low risk grade and high beta coefficient as well as between hedgers with high risk grade and beta coefficient versus non hedgers with high risk grade and beta coefficient. At this point the study attempts to underling possible differences in financial performance between hedgers and non hedgers under the perspective of financial risk.

It should be mentioned that the study employed the use of median as a statistical tool in order to define the level of high and low risk grade and beta coefficient. More precisely, the categorization for the sample used for the specific investigation, indicated that firms included in the empirical analysis demonstrate the same levels of risk grade and beta coefficient; for instance, firms that exhibit high risk grade, exhibit also high beta coefficient and vice versa. Taking into consideration the aforementioned, the empirical analysis (see Table 13, Panel A) denotes that hedgers that present high risk grade and beta coefficient tend to be larger firms (SALESHA) and exhibit higher growth measures (DIVSHG) as well as profitability measures (ROSC). Indeed, in practice, larger firms with increased growth characteristics, hence with higher risk, since they are more complex firms dealing in markets with high competition (Brown and Toft, 2001), implement hedging techniques in order to protect their financial position and performance. In addition, these firms also exhibit higher leverage measures (DSFU), (GEARING RATIO), since hedging that is used systematically requires high levels of cost commitment.

To continue with, attempting to compare hedgers and non hedgers with high risk grade and beta coefficient, the empirical findings (see Table 13, Panel B), suggest that firms that

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implement corporate hedging tend to be larger firms (SALESHA), since larger companies are more inclined to adopt hedging techniques in order to protect and secure their financial performance and their open position in risky markets and operations. Moreover, hedgers exhibit higher leverage (EDEBT) and higher profitability measures (CFTL) but adversely lower liquidity measures (CASH), (CFM). Higher leverage measures have an adverse effect on the firm's liquidity since hedging as a technique is costly procedure which affects liquidity by binding certain cash flows (Mello and Parsons, 1999; Ozertuk, 2003). To end with, more profitable firms are more inclined to incorporate hedging procedures in order to face financial risks and preserve the high levels of income generating activities.

Chapter 5 Conclusions and Implications

Corporate hedging has definitely changed since the implementation of International Financial Reporting Standards. The principles of the standards, which are regarded by far more strict than UK G.A.A.P., in order to achieve reliability and comparability, demand a more reliable and thorough presentation of the hedging instruments in the financial statements through an objective disclosure of information on gain and losses related with the use of each individual hedging instrument as well as information on cost requirements and usage period (Horton and Serafeim, 2007).

The study, through the interpretation of the empirical findings, primarily is focused on adoption rate effects. It appears that adopters of I.F.R.S.s exhibit higher financial measures for the year 2006. Similar conclusions are suggested at the point where the empirical analysis examined which are the characteristics of firms that tend to adopt the I.F.R.S.s earlier than the year 2005, when the adoption is compulsory and more specifically the analysis is concentrated on firms that are cross listed in stock exchanges internationally, firms that have foreign sales (or external sales) in other countries apart from England and firms that are externally audited by the Big Five auditing firms and how the aforementioned fact is associated with early or normal adoption of I.F.R.S.s. The findings show that indeed those firms tend to adopt I.F.R.S.s more quickly, exhibiting higher financial performance.

Moving further, the study describes how cross listing and foreign sales influence corporate hedging. The empirical findings suggest that corporate hedging is affected by the fact that hedger firms have presence in various markets, in different countries either via cross listings or foreign sales. The above underlines the need that those firms have in order to secure their financial performance through the implementation of corporate hedging in order to face the high financial risk (Hankins, 2007).

The study also offers significant insights for firms that implement corporate hedging under the principles of I.F.R.S.s. in contrast to firms that implement hedging under the

requirements of UK G.A.A.P. The empirical findings denote the fact that, referring to the post adoption effects on corporate hedging, once again hedgers present higher financial measures; it appears that one significant post adoption effect is the fact that adopters follow a strict dividend policy, preferring to reinvest their profits for future prosperity and future higher performance. To end with, another post adoption effect is the also strict borrowing policy that is followed from adopters denoting that adopters are more capable of using efficiently their share capital, avoiding the increasing external finance.

Hedging instruments do affect the way firms implement corporate hedging as well as the financial performance of those firms, since each hedging instrument can affect different financial measures apart from a firm's liquidity measures. The findings suggest that two of the most preferable hedging instruments are Interest Rate Swaps as well as Futures and Forwards, since they influence positively the firm's financial measures. The study identifies that firms who implement Interest Rate Swaps as a hedging instrument, exhibit lower liquidity measures, indicating that either Futures or Forwards are considered to be less costing hedging instruments or that they are more efficiently used by companies, using every valuable economic information properly.

Empirical findings also shed light upon the relationship between hedging and earnings management and more precisely, the study comes to the conclusion that corporate hedging is likely to reduce the scope for earnings management by introducing volatility in income and financial statements. More specifically the empirical findings for the year 2006, suggest that firms that implement corporate hedging as a means of manipulating risk, tend to avoid managing their accounting numbers and financial statements in order to exhibit higher financial performance; this can be proved by the fact that hedgers, under the principles of I.F.R.S.s, neither attempt to postpone the accounting recognition of losses, nor attempt to present small positive profits instead of losses. Again, the empirical findings suggest that hedgers present income volatility, which is regarded as an extremely important factor that denotes reduced earnings management or even a shortage of earnings management (Acharya and Bisin, 2002; Hankins, 2007).

The paper completes the research by investigating the financial characteristics for hedgers and non hedgers in association with the firms' level of risk grade and beta coefficient. Empirical evidence denotes the fact that firms which are less risk averted present better financial performance, since, in contrast to non hedgers, that are risk averted, they are able to disperse external and internal risks associated with their operating activities.

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Concluding, the study attempted, through a thorough empirical analysis, to define certain characteristics firstly for adopters of International Financial Reporting Standards, secondly for firms that implement corporate hedging and thirdly a possible association between corporate hedging and adoption of I.F.R.S.s. The findings suggest valuable conclusions that denote the importance of adoption and more specifically early adoption, which enabled better financial performance for large firms that operate in more complex environments (for instance, firms that have presence in international markets). The study also denotes the post adoption effects, indicating the adopters' tendency to reinvest profits for future growth, following strict dividend and borrowing policy. To end with, the study underlines the important association between corporate hedging and I.F.R.S.s.; findings indicate higher financial performance for firms that implement corporate hedging under the principles and requirements of I.F.R.S.s, emphasising on the market's need for reliability of the presentation and use of hedging techniques in the company's financial statement as well as the need for disclosure of the necessary information on the procedures followed to manage those financial instruments in accordance with International Accounting Standards.

Chapter 6 Reflection on learning

Attempting to build this dissertation, offered the opportunity to learn on how an empirical research is planned, organised and realised. More specifically this dissertation offered valuable knowledge on how to acquire secondary data, how to process them, transform them into ratios and turn them into sources of significant financial information as well as how to statistically examine the data in order to be in position of inferring scientifically sound empirical findings on corporate hedging and International Financial Reporting Standards.

On the other hand, if it was something to be changed in this dissertation, this would be firstly examination of corporate hedging for previous years (for instance, 2000-2003) in order to identify additional characteristics for those years and secondly better time management.

Future research should concentrate on identifying specific financial at most, characteristics that are associated with various types of hedging behaviour and can be helpful in forming and structuring hedge-accounting rules that will allow firms to reflect the economic implications of their hedging strategies and choices. Additionally, future research could also be focused on the post adoption effects of I.F.R.S.s. attempting to define those characteristics properly.

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TABLES

Table 1

Panel A Logistic Regression of variables on Firm Financial Measures
(Firms presenting their financial statements with IFRS and firms presenting their financial statements with UK GAAP: 2006)

Variables	Coefficients	
SALESHA	0,8399	***
	(0.2579)	
PEG	0,6082	*
	(0.3640)	
NPM	1,0558	*
	(0.5806)	
IGEAR	3,0133	**
	(0.5809)	
CUR	0,4031	**
	(0.1789)	
Constant	-1,1249	
	(0.6818)	
x^2	2,869	
Percentage of correctly classified	83,5%	
Sample size	N=229	

Panel B Logistic Regression of variables on Firm Financial Measures
Early adopters versus Non adopters externally audited by the Big Five auditing firms:2004

Variables	Coefficients	
BIGFIVE	2,5792	***
	(1.0283)	
CGEAR	1,0568	***
	(0.4109)	
DIVYI	103,7294	**
	(43.2388)	
OPM	34,4323	***
	(10.0371)	
CUR	-2,6909	***
	(1.0011)	
RESTAS	9,3183	***
	(3.2927)	
CAPEMP	0,0012	**
	(0.007)	
EPS	11,832	**
	(5.5254)	
Constant	-3,4953	
	(1.5872)	
x^2	0,961	
Percentage of correctly classified	73,6%	
Sample size	N= 229	

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nel C Logistic Regression of variables on Firm Financial Measures
rly adopters versus Non adopters with foreign sales:2004

riables	Coefficients	
DREIGN SALES	0,133	***
	(1.5476)	
ALETAS	2,7351	**
	(1.0731)	
ESTAS	6,7041	***
	(2.2742)	
PSG	1,5593	**
	(0.7322)	
PS	3,4004	***
	(1.3165)	
FM	15,5033	***
	(4.7091)	
SFU	14.977	***
	(4.5751)	
onstant	-7,4911	
	(1.9711)	
	1,699	
rcentage of correctly classified	62%	
mple size	N=369	

nel D Logistic Regression of variables on Firm Financial Measures
rly adopters versus Non adopters with cross listings in stock exchanges:2004

riables	Coefficients	
ROSSLISTING	3,4107	
	(1.6625)	
GEAR	0,5854	**
	(0.2787)	
PM	19,3486	**
	(8.2757)	
VSH	9,6027	**
	(5.6503)	
onstant	-1,7512	
	(0.8949)	
	1,282	
rcentage of correctly classified	72,1%	
mple size	N=229	

*, ** and * indicate statistical significance at the 1%, 5% and 10% level
two-tailed) respectively.

Table 2

Panel A Logistic Regression of variables on Firm Financial Measures	
Normal adopters versus Early adopters externally audited by the Big Five auditing firms:2004-2005	

Variables	Coefficients
SALETAS	1,1171 ***
	(0.3952)
RESTAS	5,2296 ***
	(1,5170)
EPSG	0,5611 **
	(0.2615)
NPM	4,5184 **
	(2.0553)
QUI	-0,8333 **
	(0.3847)
CFM	2,7979 **
	(1.2467)
TLSFU	15,5788 *
	(3.2621)
Constant	-2,7547
	(0.8909)
x^2	0,136
Percentage of correctly classified	50,3%
Sample size	N=369

Panel B Logistic Regression of variables on Firm Financial Measures	
Normal adopters versus Early adopters with foreign sales:2004-2005	

Variables	Coefficients
FOREIGN SALES	0,1462 **
	(0.1225)
SALETAS	1,5422 **
	(0.6131)
RESTAS	5,4271 ***
	(1.8235)
ROCE	2,7634 *
	(1.0253)
CFM	12,1148 ***
	(3.6189)
TLSFU	12,5869 ***
	(3.6877)
EPSG	11,4561 *
	(2.5641)
Constant	-5,4878
	(1.3314)
x^2	1,505
Percentage of correctly classified	62%
Sample size	N=369

Panel C Logistic Regression of variables on Firm Financial Measures
Normal adopters versus Early adopters with cross listings in stock exchanges :2004-2005

Variables	Coefficients	
CROSSLISTINGS	0,7361	
	(0.8920)	
NAVSH	0,1909	*
	(0.1149)	
SALETAS	0,8185	*
	(0.4270)	
NPM	5,0943	*
	(2.4579)	
CASH	-1,8113	**
	(0.7685)	
EDEBT	0,1316	**
	(0.0667)	
Constant	-0,4876	
	(0.5921)	
x^2	1,122	
Percentage of correctly classified	60,9%	
Sample size	N=369	

*** , ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively.

Table 3

Panel A Logistic Regression of variables on Firm Financial Measures
Hedgers versus Non Hedgers with foreign sales:2006

Variables	Coefficients	
FOREIGNSALES	2,2607	***
	(0.8469)	
DIVSHG	4,5385	**
	(2.1302)	
SALESHA	0,2064	**
	(0.0979)	
PEG	0,901	**
	(0.4421)	
DIVCOV	0,3988	***
	(0.1515)	
OPM	1,6128	**
	(0.7559)	
ROSF	0,0145	**
	(0.0069)	
CASH	2,2262	*
	(1.2919)	
DSFU	1,1136	**
	(0.5145)	
Constant	-2,4889	
	(1.1133)	
x^2	2,116	
Percentage of correctly classified	73,1%	
Sample size	N=229	

Panel B Logistic Regression of variables on Firm Financial Measures
Hedgers versus Non Hedgers with cross listing in stock exchanges:2006

Variables	Coefficients	
NAVSH	0,4117	**
	(0.2012)	
SALETAS	1,3499	*
	(0.6932)	
PEG	0,3909	*
	(0.2074)	
OPM	2,4562	*
	(1.3103)	
CASH	2,0692	**
	(0.8371)	
CGEAR	0,1499	***
	(0.0485)	
Constant	-6,6586	
	(1.8726)	
x^2	0,125	
Percentage of correctly classified	71,8%	
Sample size	N=133	

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively.

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Table 4

Panel A Logistic Regression of variables on Firm Financial Measures
Hedging under I.F.R.S.s versus hedging under G.A.A.P:2004-2005

Variables	Coefficients	
SALESHA	0,1925	**
	(0.1003)	
DIVYI	93,5399	**
	(40.8397)	
NPM	12,6776	*
	(6.8359)	
CUR	-3,3159	**
	(1.3145)	
QUI	3,7263	**
	(1.5032)	
CFM	-10,8515	***
	(4.4043)	
DSFU	28,1814	***
	(6.2974)	
CLSFU	27,1338	***
	(6.1812)	
Constant	4,7432	
	(1.7183)	
x^2	1,002	
Percentage of correctly classified	63,8%	
Sample size	N=266	

Panel B Logistic Regression of variables on Firm Financial Measures
Post adoption effects on hegding:2005-2006

Variables	Coefficients	
NPM	4,9884	***
	(1.3548)	
CUR	0,5441	*
	(0.2971)	
DIVYI	-54,9491	*
	(29.72062)	
DIVCOV	-0,2489	**
	(0.1218)	
DIVSHG	-2,9201	***
	(1.0319)	
DSFU	0,5258	**
	(0.2332)	
Constant	1,4106	
	(0.9223)	
x^2	1,934	
Percentage of correctly classified	70,0%	
Sample size	266	

*** , ** and * indicate statistical significance at the 1%, 5% and 10%
(two-tailed) respectively level.

Table 5

CAPS AND COLLARS	MEAN			STDV		
	2004	2005	2006	2004	2005	2006
SALESHA	5,49890	5,35439	6,44650	7,23235	9,11060	11,28173
NAVSH	2,66322	2,60730	1,79527	1,76529	1,47960	2,85060
SALETAS	0,97030	0,66572	0,78618	1,03422	0,81696	1,03411
RESTAS	0,22125	0,24431	0,21516	0,29536	0,27855	0,23055
RESSFU	4,01037	0,25267	0,76373	8,06130	1,50794	0,42918
INVTA	0,11842	166,64071	0,36925	0,25094	408,16303	0,39701
EPSG	0,93276	1,39518	0,50200	1,11423	1,77069	0,97050
PEG	2,56000	1,57500	0,82500	4,89878	2,76451	0,66521
DIVYI	0,01150	0,01813	0,02283	0,01425	0,01687	0,02240
DIVCOV	3,00750	9,05204	6,42250	2,69779	6,11242	5,07871
DIVSH	0,14177	0,07523	0,21625	0,06464	0,09199	0,27393
DIVSHG	0,05632	1,25511	0,18430	0,07157	2,19048	0,11113
ROCE	0,07358	0,07790	0,11010	0,34313	0,23827	0,18315
OPM	0,14674	0,44301	0,58501	0,30439	0,51784	1,03314
NPM	0,05798	0,26529	0,43604	0,19695	0,27482	0,75650
EPS	0,22507	0,46142	0,42855	0,22804	0,25104	0,27698
PE	13,38985	8,08200	-233,86136	5,94670	4,52872	603,19528
ROSC	2,46013	0,34114	4,72043	5,60283	0,09054	24,82128
PLOWB	0,22516	-0,12612	0,96619	0,82746	0,84933	0,42918
REASFU	8,55834	-0,03938	0,28004	18,54196	0,25223	0,33312
CFSH	1,49530	0,37807	0,31568	2,43116	0,42938	0,44922
CEXTA	0,19219	-0,11402	-0,02419	0,00000	0,26909	0,03983
CUR	1,58595	1,22312	1,05168	1,37411	0,81809	0,87510
QUI	1,13645	1,10352	0,90839	1,03148	0,77662	0,76611
CASH	0,75663	0,65925	0,41866	1,18101	0,90844	0,78614
CFM	0,30673	0,10716	0,09829	0,38548	0,21054	0,24741
WCR	3,54225	1,87335	-3,17666	12,47738	11,98835	18,59628
CFTL	0,47596	0,04514	0,03447	0,89874	0,10381	0,11233
DSFU	-0,40909	1,31763	0,70082	2,73766	0,89562	0,59011
EDEBT	0,83533	0,07554	6,35450	1,38051	0,08468	15,28790
ETL	0,10726	0,08525	0,07851	0,09545	0,12630	0,11272
CLSFU	-11,32316	2,15999	3,40767	28,98391	3,93734	5,80422
INTCOV	-3,33374	-6,57230	-10,23100	4,31165	4,12562	16,83085
TLSFU	-11,78792	3,27497	4,20835	31,98184	3,45983	5,50964
IGEAR	-0,21366	-0,28709	-0,27316	0,31127	0,32301	0,74553
CGEAR	-0,09491	0,56451	2,61729	3,31875	1,61870	6,40297

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Table 6

OPTIONS	MEAN			STDV		
	2004	2005	2006	2004	2005	2006
SALESHA	3,92083	5,08605	6,16648	6,53272	9,69112	8,86588
NAVSH	1,23899	1,45980	0,75297	1,42729	1,50276	1,26649
SALETAS	1,06910	1,03543	1,07516	0,94131	0,84178	0,96952
RESTAS	0,39529	0,46921	0,60152	0,24379	0,25223	1,26591
RESSFU	0,78864	0,82039	0,86749	0,30968	0,27904	1,39506
INVTA	0,11528	0,09215	0,08420	0,27113	0,22101	0,20811
EPSG	0,13900	0,43706	0,47833	0,40048	0,61416	0,66239
PEG	2,80000	1,51250	1,11909	4,96445	1,95041	1,60487
DIVYI	0,01319	0,01353	0,01700	0,01443	0,01603	0,01560
DIVCOV	3,25778	4,90388	3,25495	2,38974	6,65766	1,79147
DIVSH	0,14933	0,07512	0,20387	0,11275	0,11041	0,37038
DIVSHG	0,07493	0,30773	0,14704	0,09472	0,59117	0,07283
ROCE	0,17638	-0,05837	0,18718	0,74284	0,52219	0,49854
OPM	-1,81376	4,13667	-11,45507	5,32618	19,68363	67,94584
NPM	-0,73079	3,15363	-12,24021	2,40813	15,29300	65,15028
EPS	0,17206	0,27800	0,47799	0,26383	0,34648	0,67916
PE	43,01000	8,53375	-96,32051	74,16647	3,20496	396,73949
ROSC	0,08897	-0,13080	16,24661	0,36313	1,17604	87,48881
PLOWB	0,53614	0,36390	0,51424	0,65567	0,58218	2,41047
REASFU	-0,64625	0,13513	0,36785	1,85311	0,21005	0,36252
CFSH	0,33469	0,39424	0,49020	0,33991	0,40816	0,56243
CEXTA	-0,08515	-0,10511	-0,07256	0,12337	0,11289	0,09158
CUR	2,65482	2,50963	2,71400	3,95630	2,78749	2,27756
QUI	2,30713	2,25790	2,24607	4,01324	2,84736	2,18745
CASH	1,39647	1,48145	1,24215	3,90283	2,70346	1,89829
CFM	-4,21608	-1,19558	15,00046	14,66408	3,75397	57,61862
WCR	1,78565	0,45736	-0,31688	8,47778	11,74801	11,13168
CFTL	-0,49616	-0,48405	-0,75748	1,91023	2,60291	2,65064
DSFU	0,69534	1,96452	1,56708	0,14178	5,27549	5,05801
EDEBT	18,84516	1,48703	3,69867	58,51535	3,29872	13,60650
ETL	0,98410	0,28710	0,32065	2,34852	0,46290	0,73878
CLSFU	0,73044	0,90360	0,63816	0,80249	1,06032	0,85878
INTCOV	-32,20130	20,39649	22,75782	57,86984	138,00440	14,62004
TLSFU	1,32362	2,66928	2,64590	1,28944	5,88749	5,86719
IGEAR	0,01482	0,00874	0,06301	0,41999	0,18463	0,20970
CGEAR	0,32680	0,95842	1,02765	1,97596	2,17951	1,54092

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Table 7

SWAPS	MEAN			STDV		
	2004	2005	2006	2004	2005	2006
SALESHA	4,00168	3,10771	5,25377	2,90419	1,89368	5,47404
NAVSH	2,78971	2,92837	3,97653	2,48832	3,26386	6,96257
SALETAS	0,80153	0,68126	0,70720	0,54718	0,56726	0,61493
RESTAS	0,24809	0,26893	0,18190	0,19103	0,15421	0,16699
RESSFU	0,69378	0,81817	0,53177	0,39463	0,15894	0,71486
INVTA	0,10807	0,09343	0,17023	0,17733	0,20625	0,00687
EPSG	0,00107	0,10065	0,29308	0,33817	0,32158	0,59789
PEG	4,59195	0,55003	1,37778	10,69221	0,71761	1,99235
DIVYI	0,02979	0,02540	0,02500	0,02342	0,01766	0,01630
DIVCOV	2,22207	3,84325	2,41362	1,35933	1,06636	1,57073
DIVSH	0,17600	0,11577	0,51607	0,02404	0,11885	0,90598
DIVSHG	0,08093	0,11005	0,12324	0,17847	0,20870	0,13190
ROCE	0,00577	-0,57426	-0,12931	0,52001	2,99691	1,50360
OPM	0,21228	0,49914	0,61192	0,27379	0,91494	0,93462
NPM	0,13456	0,43043	0,60080	0,19907	0,73990	1,10758
EPS	0,32784	0,30892	0,59977	0,25361	0,24407	0,51340
PE	16,95125	11,06888	17,01429	7,63675	3,29796	8,10326
ROSC	0,22379	0,24498	4,47096	0,15441	0,53405	115,42600
PLOWB	0,10353	1,31052	0,82020	0,36078	8,40363	2,50927
REASFU	-0,08283	0,15647	0,49553	1,28667	0,10803	0,62483
CFSH	0,71983	0,48619	0,67238	0,50756	0,34088	0,71685
CEXTA	-0,07147	-0,23122	-0,00422	0,11602	0,38466	0,14645
CUR	1,20597	0,89029	1,02872	0,78387	0,41748	1,02550
QUI	0,83147	0,75835	0,74137	0,44743	0,32847	0,52213
CASH	0,25398	0,29108	0,27404	0,37260	0,33940	0,28618
CFM	0,27350	0,16369	0,15593	0,24790	0,13839	0,20530
WCR	-30,06096	-12,86265	0,31728	83,07944	23,28455	10,79507
CFTL	0,19726	0,12308	0,11579	0,15764	0,11213	0,14328
DSFU	0,89877	2,47684	3,64218	0,64637	2,99409	9,31323
EDEBT	0,10587	0,07257	1,13793	0,08138	0,06350	3,81945
ETL	0,04174	0,04059	0,03612	0,03351	0,02974	0,02892
CLSFU	1,14959	1,82124	1,16879	1,10730	1,84381	4,25511
INTCOV	0,59233	-4,41254	-15,28846	12,41464	15,74849	28,71903
TLSFU	2,42867	4,28864	6,83979	2,07907	4,47507	12,28587
IGEAR	-0,25293	-0,17943	-0,18825	0,31232	0,20570	0,16450
CGEAR	1,53937	-3,79810	-0,43984	0,97096	21,96785	8,42374

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Table 8

INTEREST RATE SWAPS	MEAN			STDV		
	2004	2005	2006	2004	2005	2006
SALESHA	4,47557	4,47557	5,51953	5,10806	4,82083	3,13912
NAVSH	1,95748	1,95748	2,53216	2,16535	2,31881	6,27071
SALETAS	0,96227	0,96227	0,91242	0,72348	0,51513	0,37569
RESTAS	8,36939	8,36939	0,25737	56,97303	0,76809	0,04040
RESSFU	0,77422	0,77422	0,82382	0,40745	0,37504	0,14772
INVTA	0,35145	0,35145	0,10751	1,74357	0,25992	0,26665
EPSG	0,18541	0,18541	0,33569	0,48154	147,37370	1,97941
PEG	1,52428	1,52428	1,30952	2,38061	3,78857	1,69185
DIVYI	0,03159	0,03159	0,02052	0,01902	0,02240	0,01297
DIVCOV	2,24639	2,24639	2,65667	1,85142	3,41288	1,61201
DIVSH	0,14990	0,14990	0,23614	0,13237	0,13071	0,15167
DIVSHG	0,94006	0,94006	0,31772	6,24475	0,30292	0,92673
ROCE	0,07537	0,07537	0,60026	1,14731	1,55211	2,32818
OPM	-0,05961	-0,05961	0,29100	2,08203	0,08609	0,10549
NPM	0,76204	0,76204	0,27109	0,04739	0,55370	0,07300
EPS	0,26156	0,26156	18,83648	0,28253	0,25216	0,42324
PE	35,81139	35,81139	-41,86146	45,30290	17,21825	323,41224
ROSC	-0,14571	-0,14571	-16,39940	0,18707	3,27317	118,34498
PLOWB	-0,00810	-0,00810	4,06305	0,46368	3,96369	14,73485
REASFU	1,59775	1,59775	0,56025	9,56817	0,12197	0,14772
CFSH	0,51321	0,51321	0,43598	0,45337	0,03536	0,45976
CEXTA	-0,00403	-0,00403	-0,06814	0,22076	1,39596	0,12224
CUR	1,22741	1,22741	1,34840	0,72384	1,79858	2,03502
QUI	1,43860	1,43860	0,75720	3,38712	1,34844	0,46245
CASH	0,26907	0,26907	0,23035	0,49315	0,39708	0,30416
CFM	-0,29553	-0,29553	0,08802	2,98987	0,25934	0,09273
WCR	6,25422	6,25422	-1,27144	92,45857	22,75623	18,98218
CFTL	0,19133	0,19133	0,09831	0,15166	34,07163	0,13788
DSFU	-1,22971	-1,22971	0,79150	15,59391	1,27404	2,70333
EDEBT	0,94298	0,94298	2,27421	3,71740	0,09146	7,55702
ETL	-1,32460	-1,32460	0,08526	10,71515	0,02610	0,30951
CLSFU	0,69458	0,69458	1,41739	5,11583	1,81403	3,23225
INTCOV	-3,90941	-3,90941	-15,74403	11,01495	2,10150	92,16673
TLSFU	0,95723	0,95723	2,78236	1,26150	2,67266	4,95835
IGEAR	5,14201	5,14201	-0,20777	3,70194	0,10634	0,38366
CGEAR	2,08435	2,08435	1,89514	5,61281	11,91822	5,81807

Table 9

FUTURES AND FORWARDS	MEAN			STDV		
	2004	2005	2006	2004	2005	2006
SALESHA	4,28007	3,92480	5,26090	4,94065	6,28338	6,71315
NAVSH	1,42149	1,56033	0,87824	1,68277	1,58850	2,28814
SALETAS	1,22387	1,08945	1,12317	0,68754	0,62665	0,71369
RESTAS	0,76113	0,47162	0,34110	3,26098	0,74617	0,04559
RESSFU	1,11651	0,80714	0,59491	2,60731	0,59598	0,10649
INVTA	0,10218	0,07076	0,09624	0,23488	0,08307	0,19392
EPSG	0,24313	0,19014	0,31314	0,40435	0,08307	0,90682
PEG	1,46270	2,27788	1,50512	1,22637	3,39241	3,56830
DIVYI	0,02087	0,02206	0,02042	0,02125	0,01570	0,01496
DIVCOV	3,53696	4,66849	3,58057	3,86510	5,35481	3,52167
DIVSH	0,12034	0,12056	0,14751	0,09812	0,13163	0,19673
DIVSHG	0,10970	0,20169	0,32748	0,27326	0,32728	0,90449
ROCE	0,31160	0,19657	-0,14059	1,48273	0,25894	5,34149
OPM	0,07529	-0,12822	-4,16256	0,20559	1,85493	35,32447
NPM	0,26578	-0,10526	-3,99892	1,82650	1,51271	31,47206
EPS	0,22126	0,23852	0,41722	0,21233	0,27386	0,31703
PE	24,70436	16,83467	-685,55680	45,76716	17,22799	406,09172
ROSC	0,46005	0,64498	-9,08404	1,79810	3,16370	126,99166
PLOWB	1,08941	0,20320	-3,03443	1,01922	0,40255	21,33559
REASFU	1,01244	0,06849	0,42970	0,27748	0,18232	0,10649
CFSH	0,41582	0,32931	0,32222	0,41197	0,40347	0,34647
CEXTA	-0,06333	-0,04901	-0,08500	0,10017	0,21834	0,09557
CUR	1,57070	1,80020	2,41513	1,14941	3,16611	3,07864
QUI	1,69553	1,69858	1,73839	3,57124	3,23569	3,92102
CASH	0,47524	0,92061	0,94618	1,04268	3,02138	2,28850
CFM	0,11896	-0,04901	4,28444	0,19903	1,19471	29,23878
WCR	0,39993	-10,46697	-11,94704	21,47734	103,62897	101,37306
CFTL	0,20824	4,09159	16,82002	0,43355	31,63311	130,19227
DSFU	0,23084	1,13195	0,33921	1,87439	0,39281	0,35120
EDEBT	6,00500	0,86907	7,46350	15,91660	0,06367	18,43456
ETL	0,33509	0,26804	0,33996	0,03934	0,03287	0,24431
CLSFU	-0,32534	1,08687	1,09383	10,18102	1,73421	2,06013
INTCOV	7,19101	3,43589	-5,75004	169,32494	73,60078	50,07272
TLSFU	0,03294	1,64527	1,75645	10,36186	2,08958	2,25084
IGEAR	3,41866	25,68920	-0,02827	25,01931	194,37486	0,84652
CGEAR	1,75117	1,23220	1,54692	5,44270	1,12962	5,61344

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Table 10

Panel A Logistic Regression of variables on Firm Financial Measures	
The use of Interest Rate Swaps-Hedgers versus non hedgers:2006	
Variables	Coefficients
SALETAS	0,6738 **
	(0.9225)
DIVSHG	23,2049 **
	(11.9192)
ROCE	2,5733 *
	(1.6676)
EPS	14,324 *
	(11.5182)
CUR	-0,2541 *
	(0.2992)
CASH	-1,2297 *
	(1.0568)
CGEAR	0,2241 *
	(1.1239)
Constant	0,0209
	(1.9812)
x^2	0,290
Percentage of correctly classified	52,3%
Sample size	N=126

Panel B Logistic Regression of variables on Firm Financial Measures	
The use of Futures and Forwards-Hedgers versus non hedgers:2006	
Variables	Coefficients
EPSG	5,8699 **
	(3.3637)
PEG	3,2062 **
	(1.6691)
DIVSH	8,3634 *
	(7.1547)
DIVSHG	5,9919 *
	(3.5453)
OPM	25,9622 *
	(15.74234)
NPM	-4,6874 **
	(5.6278)
CFSH	4,0097 **
	(1.7383)
CLSFU	0,3223 *
	(0.2835)
Constant	0,753
	(0.7767)
x^2	1,721
Percentage of correctly classified	51,8%
Sample size	N=126

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively.

Table 11: Hedgers versus Non Hedgers - Descriptive Statistics (2006)

	Panel A				Panel B Pair-wise t-tests for equality of means	Panel C Pair-wise F-test for equality of var.
	Hedgers		Non Hedgers		2006	2006
	Mean	Standard Deviation	Mean	Standard Deviation	Hedgers vs. Non Hedgers	Hedgers vs. Non Hedgers
Test variables						
LNL	0,1	0,0	0,1	0,4	***	*
SPP	0,1	0,0	0,1	0,1	***	**
OCF	0,2	0,1	0,0	0,2	*	
ACCR	-0,1	0,1	0,0	0,0	*	
Control variables						
Size						
SALESHA	1057,8	4098,1	370,3	1950,2		
NAVSH	79,8	273,6	21,1	77,6		
SALETAS	2794,0	12613,1	857,4	4834,8	**	
RESTAS	4,4	5,9	1,9	4,1		
RESSFU	1,5	4,1	0,8	2,3		
Investment						
INVTA	3613,5	11629,5	712,5	3484,1		
DIVYI	1,0	0,7	1,5	4,7	*	*
DIVCOV	0,3	0,6	0,5	1,9		
DIVSH	1415,8	4904,0	373,5	1780,7		
ROA	0,7	1,9	0,6	4,7		
PE	0,1	0,3	0,1	0,2		
Growth						
EPSG	0,3	0,7	2,1	12,3		**
MVBV	137,2	1128,2	61,6	139,8		
PEG	1,4	2,8	1,0	1,6		
DIVSHG	0,0	0,0	0,1	0,2	**	
Profitability						
ROCE	3,3	2,9	0,2	0,4		
OPM	0,2	0,4	-1,0	15,8		
NPM	0,3	0,7	-2,6	15,1		
EPS	0,9	10,9	-1,7	12,1		
ROSC	-1,1	22,7	0,4	1,3		
ROSF	0,7	0,8	0,0	0,0		
PLOWB	0,4	0,6	2,3	2,6	*	
REASFU	-328,8	3403,8	-552,2	2437,5		
Liquidity						
CFSH	-3,7	63,6	-2,5	65,4		
CUR	-9,2	47,2	0,1	4,4		
QUI	24,6	279,4	0,1	0,4		
CASH	0,8	17,0	0,0	0,2		
CFM	0,4	1,9	4,3	12,1		
WCR	0,4	0,5	4,6	10,7		**
CFTL	-0,1	0,1	3,5	10,5		
Leverage						
DSFU	1,8	2,3	-0,7	4,4		
EDEBT	1,3	1,9	12,8	73,2		
ETL	0,7	1,7	0,0	1,3		
CLSFU	2,0	19,7	0,4	1,3		
INTCOV	0,0	0,0	17,5	92,6		*
TLSFU	-0,1	1,5	0,4	1,5		
IGEAR	1,0	3,9	1,0	2,0		
CGEAR	3,9	13,1	1,5	6,0	*	

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In the above table, (*), (**), (***), indicate statistically significant factors at 10%, 5% and 1% level (two-tailed) respectively.

Table 12: Earnings Management – Hedgers versus Non Hedgers (2006)

Panel A Earnings Volatility	Hedgers	Non Hedgers	
	2006	2006	
	Standard deviation	Standard deviation	F-test
Volatility of ΔNP	2,0356	1,9714	
Volatility of ΔNP/ΔNCF	34,1252	1,5883	

Panel B Earnings Volatility	Hedgers	Non Hedgers	
	2005	2005	
	Standard deviation	Standard deviation	F-test
Volatility of ΔNP	3,9876	2,0234	*
Volatility of ΔNP/ΔNCF	67,122	1,9784	*

Panel C Correlation Between Accruals and Cash Flows

	Hedgers	Non Hedgers	
	2006	2006	
	Correlation Coefficient	Correlation Coefficient	Significance
Correlation of ACCR and OCF	-0,0779	-0,068	

Panel D OLS Regression of Accruals on Firm Financial Measures
(Hedges versus Non Hedgers:2006)

Variables	Coefficients	Significance
OCF	-0,064	*
	(0.049)	
HEDG	-0,001	*
	(0.022)	
HEDG x OCF	0,009	*
	(0.051)	
SALESHA	-0,005	*
	(0.008)	
NAVSH	-0,007	**
	(0.000)	
HEDG x OPM	0,005	**
	(0.008)	
HEDG x EPS	0,150	*
	(0.004)	
HEDG x NPM	0,130	*
	(0.010)	
HEDG x SALESHA	-0,010	*
	(0.009)	
HEDG x NAVSH	-0,130	*
	(0.012)	
HEDG x RESTAS	-0,660	***
	(0.009)	
HEDG x TLSFU	-0,020	**
	(0.013)	
HEDG x CGEAR	0,000	*

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	(0.229)	
HEDG x DSFU	-0,210	*
	(0.002)	
SALETAS	-0,019	*
	(0.022)	
RESTAS	-0,006	**
	(0.025)	
OPM	-0,035	**
	(0.018)	
NPM	0,009	*
	(0.022)	
DSFU	-0,003	**
	(0.012)	
EDEBT	0,000	**
	(0.000)	
CLSFU	-0,007	*
	(0.008)	
IGEAR	0,012	***
	(0.011)	
x^2	0,07	
Sample size	N=229	

Panel E Logistic Regression Extract: Small Positive Profits		
(Hedgers versus Non Hedgers:2006)		
SPP	-1,3457	***
	(0.0368)	
Panel F Logistic Regression Extract: Large Negative Losses		
(Hedgers versus Non Hedgers:2006)		
LNL	1,2346	***
	(0.1282)	

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively.

Table 13

Panel A Logistic Regression of variables on Firm Financial Measures	
Hedgers (high risk/beta) versus hedgers (low risk/beta):2006	

Variables	Coefficients	
SALESHA	0,1162	**
	(0.0461)	
RESTAS	6,3229	**
	(2.4823)	
DIVSHG	2,6774	**
	(1.1362)	
ROSC	0,0203	*
	(0.0111)	
DSFU	3,0198	***
	(1.0085)	
GEARINGRATIO	0,0046	**
	(0.0019)	
Constant	-3,5953	
	(1.0909)	
x^2	1,425	
Percentage of correctly classified	78,1%	
Sample size	N=130	

Panel B Logistic Regression of variables on Firm Financial Measures	
Hedgers (high risk/beta) versus Non Hedgers (high risk/beta):2006	

Variables	Coefficients	
SALESHA	0,0002	*
	(0.0001)	
EPSG	2,3066	*
	(1,2850)	
PEG	0,6398	*
	(0.3580)	
EDEBT	0,0866	*
	(0.0471)	
CFTL	7,1737	**
	(3.1208)	
CFM	-11,836	*
	(6.9421)	
CASH	-2,8706	*
	(1.5184)	
Constant	-3,7456	
	(1.1934)	
x^2	1,225	
Percentage of correctly classified	70,0%	
Sample size	N=87	

***, ** and * indicate statistical significance at the 1%, 5% and 10% level (two-tailed) respectively.

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Appendix A

INDUSTRY	Number of Companies
Chemicals	4
Support Services	27
Oil and Gas	17
Specialty and other finance	18
Media and Entertainment	15
Aerospace and Defence	7
Mining	12
Engineering and Machinery	11
Pharmaceuticals and Biotechnology	10
Software and Computer Services	21
Automobiles	3
Leisure entertainment and Hotels	7
Transport	7
Construction and Building Materials	17
Health	7
Tobacco	1
Real Estate	16
Telecommunications Services	4
Food producers and processors	3
Utilities, other	3
Healthcare and Pharmaceuticals	1
Information Technology Hardware	7
General Retailers	2
Household Goods and Textiles	1
Food and Drug Retailers	3
Personal Care and Household Products	1
Beverages	3
Electricity	1
TOTAL	**229**

Appendix B

Accounting ratios (measures) employed as explanatory variables.

Size	
SALESHA	Sales per share
SALETAS	Sales to total assets
RESTAS	Reserves to total assets
NAVSH	Net asset value per share
CAPEMP	Capital employed
Growth	
EPSG	Earnings per share growth
PEG	Price to earnings growth
DIVYI	Dividend yield
DIVCOV	Dividend cover
DIVSH	Dividend per share
DIVSHG	Dividend per share growth
Profitability	
ROCE	Return on capital employed
OPM	Operating profit margin
NPM	Net profit margin
EPS	Earnings per share growth
ROSF	Return on shareholder's funds
Liquidity	
CFSH	Cash flow per share
CUR	Current ratio
CASH	Cash ratio
CFM	Cash flow margin
CFTL	Cash flow to total liabilities
Leverage	
DSFU	Debt to shareholders' funds
CLSFU	Current liabilities to shareholders' funds
TLSFU	Total liabilities to shareholders' funds
IGEAR	Income gearing
CGEAR	Capital gearing