EDITORIAL

Dear readers!

This issue of the journal *Corporate Ownership and Control* delivers to the reading audience the most important issues of corporate governance, such as corporate governance and firm valuation, stock options, internal audit, corporate ownership and performance, managerial ownership and firm valuation, family ownership and performance, mergers and acquisitions, corporate law and regulation.

As a part of good tradition we have focused on a wide international representation of contributions. We have contributions made by authors from many countries of the world both developed and developing. These are papers by authors from Japan, the USA, Spain, Australia, Taiwan, Qatar, Brazil, Denmark.

In this issue we were fortunate in composing a section devoted to corporate governance in a particular region with application to Japan. This is the first time for our journal to publish the special section on corporate governance in Japan. This is a result of efforts undertaken by us to get and develop very good and future-oriented relationships with corporate governance experts from Japan. I think you will enjoy reading the papers on corporate governance in Japan.

In this issue of the journal we came back to the traditional issue of corporate governance – ownership structure as a special section. Major attention is paid to the link between ownership structure and performance. Our contributors were fortunate in generating new ideas and made new findings in this way.
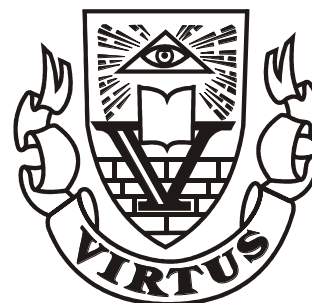
Our strategic purpose is to develop the new concepts and practices how to overcome the financial crisis with the corporate governance toolkit including mechanisms, instruments and participants. Your contributions on this issue would be very valuable for us.

We are open for your suggestions in the new fields the books could be written and hope for the new contributions to the journal!

CORPORATE OWNERSHIP & CONTROL
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Ai-Fen Cheng, Tao-Hsien Dolly King

Bondholder governance through the use of bond covenants and the interactions between shareholder and bondholder governance mechanisms has been recently highlighted in the corporate governance literature. In this paper, we study bondholder governance mechanisms through takeover-related bond covenants (i.e., poison puts), confirm with agency theory on the characteristics of firms that are more likely to use these covenants, and emphasize the importance of bondholder governance in the overall structure of corporate governance. We find that poison puts are often bundled with asset sale, payout, and financing restrictions, which is consistent with agency theory. We also find that high growth firms, large, profitable, low-leverage firms are more likely to use poison puts. In addition, our results on free cash flow, insider and institutional ownership provide support for agency explanation. Lastly, we find that poor bond market performance and good equity market performance are likely to motivate the incidence of poison put bond issuance. Volatility of interest rate and volatility of bond index returns motivate more issues of poison put debt. Finally, greater market term and default premiums promote the use of poison puts.

Ohannes George Paskelian, Stephen Bell

We examine the determinants and implications of Chinese corporate cash holdings in the 1993- 2006 period. Agency theories assert that firms with a large controlling shareholder have relatively large cash holdings because of the greater ability of the controlling shareholder to extract private benefits from the cash holdings. Our findings show a very strong inverse relationship between cash holdings and firm valuation in high government ownership firms. Also, we find that in firms with high government ownership, dividend payouts are highly valued. We conclude that Chinese investors see government ownership as a factor that reduces firm value. They prefer relatively higher dividends from firms having high government ownership. Conversely, investors assign much higher value to firms with relatively low government ownership and they tend to be neutral about the dividends payouts of such firms. Also, investors value highly the presence of foreign investors in Chinese firms and tend to be neutral about dividend payouts of firms with high foreign ownership concentration.

Bruce A. Rosser, Jean M. Canil

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Marion Hutchinson, Mazlina Mat Zain

This study explores whether the relation between internal audit quality and firm performance is associated with firm characteristics of information asymmetry and uncertainty (growth opportunities) and certain governance controls (audit committee effectiveness). The results from this preliminary study of 60 Malaysian companies show that the association between internal audit quality and firm performance is stronger for firms with high growth opportunities and that this positive association is weakened by increasing audit committee independence. These findings demonstrate the internal auditors conflicting roles and question the governance recommendations that require all members of the audit committee to be non-executive directors.

Andre Carvalhal, Julia Nicolau

This study analyzes whether the mandatory bid rule has an impact on firm valuation, liquidity and volatility. Using data from Brazilian firms that have voluntarily granted the bid rule, we provide evidence of a positive relation between bid rule, firm valuation and liquidity. In contrast, the bid rule does not decrease firm volatility. Our results support the hypotheses that the bid rule strengthens the protection for minority shareholders.

SECTION 2. OWNERSHIP STRUCTURE

Wenjuan Ruan, Gary Tian, Shiguang Ma

This paper extends prior research to examine the managerial ownership influences on firm performance through the choices of capital structures by using a new sample of S&P 500 firm in 2005. The empirical results of OLS regressions replicate the nonlinear relationship between managerial ownership and firm value. However, we found that the turning points had moved up in our sample compared with previous papers, which implies that the managerial control for pursuing self-interest, and the alignment of interests between managers and other shareholders can only be achieved now by management holding more ownership in a firm than that found in the previous studies. Managerial ownership also drives the capital structure as a nonlinear shape, but with a direction opposite to the shape of firm value. The results of simultaneous regressions suggest that managerial ownership affects

capital structure, which in turn affects firm value. Capital structure is endogenously determined by both firm value and managerial ownership; while managerial ownership is not endogenously determined by the other two variables.

Carmen Galve-Górriz, Vicente Salas-Fumás

This paper helps to theorize the link between family generation and the characteristics, behaviour, management and governance of the firm. The paper also answers the question: to what extent is competitive position affected by each generation? The paper overcomes the limitation of the cross-sectional data, since the investigation is applied to data from Spanish firms during the period 1994 to 2005, which is much more appropriate when discussing developmental models. Our results confirm the greater degree of complexity of the family firm, as the ownership and the running of the business is passed to future generations. However, and contrary to all expectations, family firms in the sample have a high degree of concentration of ownership, regardless of the generation and a greater complexity in the business does not give rise to the incorporation of external partners in the company's share capital. In fact, third generation companies have no external partners, with 100% capital remaining in the family.

Rami Zeitun

This paper examines the non-linear effects of ownership structure (variables) on corporate performance. The data used in this study are derived from 167 publicly traded companies quoted on the Amman Stock Exchange (ASE), over the period 1989-2006. The ownership structure is measured by the percentage of shares held by each type of owner (state, institution, foreign concentrated owners, and individuals). Results in this study confirm earlier findings of a curvilinear relationship reported for larger markets. The results also show that the relationship between government ownership and ROA and MBVR is a hump-shaped curve. The value of a firm increases when government ownership is low, but the value of a firm decreases when it is high. As the government reduces its stake in a privatised company to below a specific point, perhaps market monitoring become ineffective and this increases the agency costs. The results also document that the relation between institutional ownership and ROA and Tobin's Q is a hump-shaped curve. When institutional ownership increases above a specific point, institutional shareholders negatively influence a firm's activities. Findings in this study contribute to the growing body of international evidence that the non-linear cubic relationship between ownership structure and corporate performance is robust to differences in governance structures across markets.

SECTION 3. CORPORATE GOVERNANCE IN JAPAN

Nobuyoshi Yamori, Kozo Harimaya

With the number of bank consolidations increasing around the world since the 1990s, several studies have examined what factors drive banks to consolidate, and some argue that bank managers who have a motive of empire buildings choose mergers. In this study, we deal with mergers among Japanese small mutual banks (credit associations or Shinkin banks) during the period 1996 to 2005. Japanese credit associations have been experiencing an unprecedented wave of consolidation, with their number decreasing from 410 (March 1996) to 292 (April 2006). Interestingly, unlike stock companies, mutual companies are often expected to be weak in terms of

disciplining managers. If so, mutual banks tend to choose inefficient mergers at the expense of other stakeholders. Here, we use the stochastic frontier approach (SFA) to obtain "cost efficiency" proxy. We find that while the efficiency of acquiring credit associations decreases during the merger period, mergers do ultimately improve efficiency. Based on our results we find that raising efficiency, not for building empires, is an important goal for such credit association mergers.

Kosuke Seino, Fumiko Takeda

This article investigates stock market reactions to announcements related to the introduction of the Financial Instruments and Exchange Law or the so-called Japanese Sarbanes-Oxley Act (J-SOX), which was enacted to reinforce corporate accountability and responsibility. We find that the announcements leading to the passage of the J-SOX raised stock prices of firms listed on the First Section of the Tokyo Stock Exchange. Another finding is that firms with a high ratio of foreign shareholders or leverage experienced more positive stock price reactions. By contrast, whether the firm was audited by Big 4 audit firms did not seem to matter to investors. In addition, large firms tended to have more negative stock price reactions than small firms.

Timothy A. Kruse, Kazunori Suzuki

This paper examines the new development of hostile takeovers and shareholder activism in Japan. The hostile bidders claim that the threat of takeover which they pose on the management of a poorly managed company is not only to their benefit, but also to that of the target company in general, because the management will run the company better to maximize its value. Nearly a decade having passed since the first-ever hostile TOB attempt in Japan by M&A Consulting (MAC), an investment fund led by Mr. Yoshihiro Murakami in January 2000, we examine the stock price and operating performance of the companies whose shares were bought by the MAC. We find that the shareholders of the target companies indeed enjoyed large positive abnormal returns in the two years following the news. We report, however, that their operating performance declined over the four fiscal years following such news. There is little evidence so far that the threat of a hostile takeover improved the actual operating performance of the target firm.

SECTION 3. PRACTITIONER'S CORNER

Jesper Lau Hansen

**SECTION 1
ACADEMIC
INVESTIGATIONS
& CONCEPTS**

CORPORATE GOVERNANCE AND FINANCIAL CONTRACTING: BONDHOLDER TAKEOVER DEFENSES IN POISON PUTS

Ai-Fen Cheng, Tao-Hsien Dolly King***

Abstract

Bondholder governance through the use of bond covenants and the interactions between shareholder and bondholder governance mechanisms has been recently highlighted in the corporate governance literature. In this paper, we study bondholder governance mechanisms through takeover-related bond covenants (i.e., poison puts), confirm with agency theory on the characteristics of firms that are more likely to use these covenants, and emphasize the importance of bondholder governance in the overall structure of corporate governance. We find that poison puts are often bundled with asset sale, payout, and financing restrictions, which is consistent with agency theory. We also find that high growth firms, large, profitable, low-leverage firms are more likely to use poison puts. In addition, our results on free cash flow, insider and institutional ownership provide support for agency explanation. Lastly, we find that poor bond market performance and good equity market performance are likely to motivate the incidence of poison put bond issuance. Volatility of interest rate and volatility of bond index returns motivate more issues of poison put debt. Finally, greater market term and default premiums promote the use of poison puts.

Keywords: Corporate Governance, Bondholder Takeover Defense, Poison Put

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I. Introduction

For the past several decades, corporate governance has been a field that attracts many academic researchers, practitioners, and policymakers. In the survey paper by Shleifer and Vishny (1997), corporate governance is broadly defined as the structure through which capital suppliers make certain to obtain a fair return on their investment. From this perspective, corporate governance consists of mechanisms and structure through which investors can align the incentives of managers with their own goals. Current literature suggests the following categories of governance controls: (1) corporate governance mechanisms include external bonding and monitoring by regulatory and enforcement environment at the country/market

level (Albuquerue and Wang (2008)) and internal controls such as independent directors on the board, corporate charters and by-laws, and bank monitors (Dow, Gorton, and Krishnamurthy (2005)); and (2) financial contracting such as debt in capital structure, executive compensation, and incentive contracts. On the theoretical front, Albuquerue and Wang (2008) and Dow, Gorton, and Krishnamurthy (2005) present theoretical models on how imperfect corporate control and agency conflicts affect asset pricing. On the other hand, there has been an extensive strand of literature on various governance controls on equity and bond prices. For example, Gompers, Ishii and Metrick (2003) create a governance index of anti-takeover defenses and other provisions and find that firms with a stronger shareholder protection (a lower governance index) have higher equity and firm values.

In a recent paper, Cremers, Nair, and Wei (2007) highlight the importance of bondholder governance through the use of bond covenants and present the interactions between shareholder and bondholder governance mechanisms. More specifically, they focus on three bond covenants that are closely related to takeover defenses: net worth restrictions, leverage restrictions, and poison puts. Their study is among the first to show that bondholder governance is an important element in corporate governance. Cremers, Nair, and Wei (2007) suggest that bondholder governance helps mitigates potential conflicts between shareholders and bondholders and interactions between shareholder and bondholder governance affect bond prices. Thus, the net impact of the overall governance structure (rather than a single element) consisting of shareholder and bondholder governance on management decisions and asset prices is an important issue (King and Wen (2009)). In this paper, we study bondholder governance mechanisms through the takeover-related bond covenants and the characteristics of firms that are more likely to include these covenants in their bonds. In particular we focus on poison puts and the triggers associated with the puts, which are the covenants that are closely related to takeover defenses. Our goal is to explore bondholder governance through the use of takeover-related defenses and to highlight the importance of bondholder governance in the overall structure of corporate governance.

Poison puts were introduced as a result of the waves of corporate restructuring in the mid 1980s. Poison put is designed to guard the bondholders against takeovers, buyouts, and other events. Poison put gives bondholders a right to redeem a bond, usually at par value, when the takeover provision is triggered. Triggers are clearly defined in the covenant and often include leverage and net worth triggers. In this study, we empirically examine poison puts and their embedded triggers in U.S. corporate bonds. In particular, we explore the following issues. First, Billett, King, and Mauer (2007) show that there exists evidence of correlation among covenants. We examine if bonds with poison puts are more likely to be

bundled with certain types of covenants for governance purposes. Due the option to exit, fewer other covenants may be needed on a bond with a poison put so as to design an efficient and effective bondholder governance structure. Studies on convertible bonds indicate that there are fewer covenants in convertibles than in straight debt since conversion option makes the convertible bond a hybrid investment consisting of a debt and an equity component. Due to the equity component, fewer covenants are required to address the agency conflicts between bondholders and equityholders. Kahan and Yermack (1998) find that convertible debt issues have virtually no covenants, suggesting that for high growth firms the conversion feature is a more effective contracting mechanism than restrictive covenants in addressing stockholder–bondholder conflicts. Anderson (1999) finds consistent evidence for Brazilian debt. Therefore, design of bondholder governance is an important issue to examine. We find that poison puts are often bundled with asset sale, payout, and financing restrictions, which is consistent with agency theory. Firms with greater free cash flows (Jensen (1986)) are more likely to over-invest in negative NPV projects and therefore have higher agency costs. In addition, firms with a higher credit risk are more likely to have higher agency costs. Therefore, to design an effective debt contract, controls for agency conflicts should be strengthened for firms with high agency costs that stem from over-investment, credit risk, and takeover possibilities.

Second, we examine the characteristics of firms that are more likely to issue bonds with poison puts. Based on a comprehensive sample, we perform a cross-sectional analysis of firm characteristics that lead to the use of poison puts in bondholder governance. We find that high growth firms, large, profitable, low-leverage firms are more likely to use poison puts. In addition, firms with a higher percentage of fixed assets have a greater probability to issue poison put bonds. Free cash flow has a positive impact on the inclusion of poison puts, which is consistent with the agency prediction. Our findings on insider and institutional ownership provide support for agency explanation.

Third, we examine time series factors that affect the use of poison puts. We find that bond market and equity market performance has a significant impact on the inclusion of poison puts. In particular, poor bond market performance and good equity market performance are likely to motivate the incidence of poison put bond issuance. The better the performance of bond market is, the less motivated the investors demand poison put to protect them. On the other hand, the better the equity market performance, the more motivated the investors to demand for poison puts. We also find that the volatility of interest rate and volatility of bond index returns motivate more issues of poison put debt. Finally, greater market term and default premiums promote the use of poison puts.

Several recent studies link bondholder takeover

defenses, e.g., poison puts, to corporate governance. For example, Cremers, Nair, and Wei (2007) examine the effects of shareholder governance mechanisms on bondholders. They find that **bondholder takeover defenses** reduce the credit **risk** associated with strong shareholder governance. They suggest that, without bond covenants, shareholder governance and bondholder interests diverge. Hartley and Kendall (2005) indicate that bondholder demands for poison puts have increased after buyout deals showing losses on covenant-free bonds. This trend has recently extended to the sterling and euro corporate bond markets. King and Wen (2009) examine how the overall corporate governance structure consisting of shareholder governance (measured by anti-takeover provisions) and bondholder governance (measured by bond covenants) affect management risk-taking behavior.

Earlier studies on poison puts focus on the pricing of these covenants by examining the yield differentials between bonds with and without poison puts (Crabbe (1991), Field, Kidwell, and Klein (1994), and Torabzadeh, Roufagalas, and Woodruff (2000)). Another strand of studies focus on the effects of poison puts on shareholder and/or bondholder wealth. Cook and Easterwood (1994) show that issuance of poison put bonds affects existing stockholders negatively and bondholders positively, whereas the issuance of bonds without such covenants has no effects. Bae, Klein, and Padmaraj (1994) on the other hand show that the announcement effects on shareholders are significantly higher for poison put debt issuance than for straight debt issuance. They suggest that firms with greater agency costs of debt and smaller size would benefit most from poison put debt issuance and therefore experience higher abnormal returns at issuance.[1] Roth and McDonald (1999) find that poison puts have a negative impact on shareholder wealth when management ownership is low, and that firms with higher free cash flow are more likely to issue debt containing poison puts.

This study makes the following significant contributions to the literature. First, we explore an important, but less-studied, internal controls in corporate governance, namely, takeover-related debt covenants. We examine the design of covenants by showing that poison puts are often bundled with payout and financing restrictions. Second, we show the unique set of firm characteristics that motivates the probability of including a poison put. We use a large sample over a long time period and find very interesting implications, which are mostly consistent

with the agency theory. Third, we show how macroeconomic factors play a role in determining the decision for an issuer to include a poison put in the covenant structure.

The rest of the paper is structured as follows. Section II describes the data sample. Section III presents the empirical results. Section IV concludes.

II. Data

In this study, we obtain the sample of bonds from the Fixed Income Securities Database (FISD). FISD is the most comprehensive and publicly available collection of bond data on publicly offered U.S. Treasury, agency, and corporate bonds. FISD reports detailed information on debt issue characteristics, documents over 50 different types of covenants, and includes 134,755 public issues from 1894 to 2003. Of the 134,755 issues, 5,113 bonds issues have poison puts. We collect information on the issue and issuer, including coupon, maturity, credit rating, put schedule, industry codes, covenant information, and other characteristics. In addition, we construct an overall sample of corporate debt representing the population of the corporate debt issues. To provide a complete analysis on bonds with poison puts, we present the poison put sample from the following aspects: bond basic features, options and seniority, industry groups, and frequency of issues. Table 1 reports the descriptive statistics for the sample of 5,113 poison put bonds issued from 1980 to 2003. In particular, we present the descriptive statistics of the offering amount, coupon, and original maturity on the bonds. Table 1 shows that the median offering amount is $160.00 million and median coupon rate is 9.63%. In general, the debt issues are of intermediate maturity with an average maturity of 10.00 years. Table 2 shows the poison put by convertibility, seniority, industry, and decade respectively. Panel A shows that the vast majority (81.03%) of poison put bonds are nonconvertible. In addition, poison put debt is evenly distributed between senior (45.77%) and senior secured (44.26%) levels, indicating that most poison put bonds have the highest seniority level. This finding provides evidence for the considerations in the design of debt contracts and bondholder governance.

Panel B of Table 2 presents poison put bonds by industry. The results show that 89.15% of the poison put bonds are issued by industrial firms, the most dominant industry group in the sample. Poison puts are much less popular in the financial (7.35%) and utility (3.03%) sectors. The reason may be that agency conflicts is higher for industries that are not subject to extensive regulations (industrial group) than for industries that are (utility and finance). Consequently, the need for bondholders of industrial firms to include poison puts in bondholder governance to guard against such risks is great. Panel C of Table 2 presents the sample by decade. The panel shows that poison put is a much recent invention with the issues starting in 1985. As discussed earlier, the creation of

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[1] Bae, Klein, and Padmaraj (1997) examine the relationship between firm characteristics and the likelihood of event risk covenants in bond indentures. They suggest that the likelihood of event risk covenants in bond indentures is related to the agency costs of debt and the potential for takeover. However, their results do not support the financial distress costs hypothesis.

poison puts is motivated by the RJR Nabisco buyout event and other buyouts in the merger wave at the end of the 1980s. It is interesting to see that a significant portion (70.35%) of the poison put bonds is issued in the 1990s. There also has been a quite active market (24.83%) for poison debt issues in the early 2000s.

Based on all corporate debt issues from FISD over the period from 1980 to 2003, we collect firm characteristics on these corporate issuers from Compustat. The resulting sample for our cross-sectional analysis of firm characteristics contains 12,486 valid firm-year observations.[2] If an issuer issues more than one bonds in a given year, we summarize across the issues the decision to include a poison put. If the issuer offers at least one poison put bond in a given year, we classify this issuer in that year as issuing poison debt. For the time series analysis, we use 60,694 bond-year observations, i.e., each observation is on a bond-year basis rather than a firm-year basis. We collect information on interest rates from the Federal Reserve Bank in St. Louis FRED database.

III. Empirical Results
A. Bondholder Governance Structure: Poison Put and Other Covenants

Based on the agency theory of debt, there are potential conflicts of interests between bondholders and stockholders. Jensen and Meckling (1976) and Myers (1977) provide the pioneering work in this area. In particular, there are four major sources of conflicts: dividend payment, claim dilution, asset substitution, and underinvestment. If the firm consistently pays an unreasonably large dividend to stockholders, it might dampen the firm's ability to meet its debt payments and consequently negatively affect the bondholders' wealth. If the firm issues additional debt, it would dilute the claim of the current bondholders. If the management takes on projects of extremely high risk after debt issuance, the value of the bonds decreases. As the inherent risk of the assets increases, the coupon rate on the debt set prior to the risk-taking behavior is insufficient to compensate for the risk. In the case of underinvestment, if accepting certain projects benefits the bondholders, management may be motivated to pass up positive net present value projects.

Based on the conflicts of interests between shareholders and bondholders, and if we assume that management acts in stockholders' interests, bondholders would require protection against potential events or actions by the management/shareholders. Bond covenants in debt contracts are a way to control these conflicts and reduce agency costs. A bond covenant is a clause which restricts an issuer from performing certain actions. Billett, King, and Mauer

(2007) show there exists certain amount of correlation among various covenants. In addition, Cremers, Nair, and Wei (2007) suggest that the effects of shareholder governance mechanisms on bond prices are related to bondholder takeover defenses such as poison puts. Thus, one can view bond covenants as an important internal control. It is interesting to examine if the poison put covenant is related to other covenants, from a control design point of view. Covenant bundling may exist due to firm characteristics for the purpose of reducing agency costs. In other words, an effective design of internal controls (i.e., takeover defenses and other covenants) should include takeover defenses and other covenants that are mostly related to agency conflicts. We explore the relation between poison puts (takeover defenses) and other covenants and provide explanations from agency theory.

To examine the pattern of covenant bundling, we perform two analyses. First, we examine the frequency and percentage of various covenants in the poison put bond sample. Table 3 presents the results. In particular, we examine a total of 12 covenants to see if the inclusion of the covenants relates to poison puts. Negative pledge is a covenant that limits the issuer to issue secured debt unless it secures the current issue on a pari passu basis. Cross default is designed to activate default in the issue if an event of default has occurred in any other debt by the same issuer. Dividends restriction limits payments (and subsidiaries' payments) to shareholders or other entities. Share repurchase restriction prohibits the issuer from making payments (other than dividend payments) to shareholders and other claimholders using share repurchases or other cash distribution methods. Indebtedness limits the total indebtedness of the issuer and subsidiaries. Funded debt prohibits the issuer and subsidiaries from issuing additional funded debt. Senior debt issuance limits issuer's ability to issue senior debt. Subordinated debt issuance limits the issuer's ability to issue junior or subordinated debt. Investments clause prohibits the issuer from making risky investments. Asset sale restricts the issuer's ability to sell assets or requires the issuer to use proceeds to redeem the bonds. Sale and leaseback restricts the issuer and subsidiaries to the type or amount of property used on a sale leaseback transaction. Stock issuance limits the issuer's ability to issue additional common stock.

The results show that poison put bonds tend to have the asset sale clause. In particular, 94.17% of poison put bonds have an asset sale clause. According to Billett, King, and Mauer (2007), asset sale clause is one of the most frequently included covenants in bonds with 64.50% of their sample containing such a covenant. The much higher occurrence of asset sale clause in the poison put sample (94.17%) than that in the general corporate bond sample (64.50%) indicates that there is possible linkage between poison puts and asset sale. We also observe that poison put debt tend to include covenants related to indebtedness. Specifically, 71.68% of bonds

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[2] We exclude 296 firm-year observations for issue in the 1970s from the sample used in earlier versions of this study. The sample of 12,486 firm-year observations is an updated sample used in this version.

with a poison put have the total indebtedness limit on the issuer and it subsidiaries, which is much higher than the percentage in the overall corporate bond sample (30.4%). In addition, 70.58% of the bonds with a poison put contain a clause limiting share repurchases and 67.01% contains a clause limiting dividends. For comparison, Billett, King, and Mauer report that the general corporate bond sample has 22.60% with a share repurchase restriction and 27.00% with a dividend restriction. The significantly higher percentage of poison put bonds containing indebtedness, share repurchase restriction, and dividend restriction relative to the general corporate bond sample suggest that there is an efficient design of covenants based on characteristics of issuers that require takeover defenses like poison puts.

Table 3 also shows the Pearson correlation of poison put and other covenants. The results provide further confirmation to the results on the frequency and percentage of covenants in the poison put sample discussed above. In particular, we find that the correlation coefficient between poison put and asset sale is 0.53362. The indebtedness covenant is highly correlated with poison puts with a correlation coefficient 0.73093. Poison put is also highly correlated with the share repurchase restriction (correlation of 0.77322) and with the dividend restriction (correlation of 0.76272). The correlation between poison put and the remaining covenants is relatively low, with most of the correlation coefficients well below 0.50.

Overall, the result indicates that a majority of poison put bonds are issued with an asset sale clause, indebtedness, share repurchase restriction, and dividend restriction. The results are consistent with the agency theory that takeover defenses are bundled with other covenants to prevent asset substitution. In addition, takeover defenses are also more likely to be combined with financing and cash payouts restrictions. Firms with more growth opportunities (which require more frequent financing) and/or greater free cash flows have higher agency costs. Therefore, firms with higher agency costs tend to issue debt containing covenants that are designed in an efficient way to reduce agency costs by including covenants on financing and payout restrictions. Below we explore firm characteristics of issuers of poison put bonds to examine if the issuers have significant agency costs compared to the other issuers in the corporate sector.

B. Firm Characteristics and Poison Puts

In this section, we explore the characteristics of issuers that are more likely issue bonds with a poison put. Following Bae, Klein, and Padmaraj (1997), we examine the firm characteristics that are related to growth opportunity, firm size, and agency cost. As the growth opportunity increases, the firm is more likely to take on riskier projects. Therefore, bondholders require more protection in bond contracts

to guard such against risk-shifting events. We use R&D expenditure and market to book ratio to measure growth opportunity. We expect a positive relation between R&D expense (or market to book ratio) and the probability of including a poison put. We also examine if firm size has an impact on the probability of including a poison put. Finally, we test if the inclusion of poison puts is related to the agency costs. When the agency cost is high, the need to issue bonds with poison puts in hopes to reduce the agency cost is greater. We employ free cash flow, insider and institutional ownership measure the level of agency costs. In particular, we predict that the higher the free cash flow, the higher the agency cost. In addition, we expect that the lower percentage ownership of insider, the greater the agency cost. Institutional ownership is considered because institutional investors, who are major players in the bond markets, usually provide active monitoring of the issuers. This monitoring activity is generally considered effective in reducing agency cost. We expect a negative relation between institutional ownership and agency cost.

Therefore, we employ the following model to examine the characteristics of issuers that are more likely to issue bonds with a poison put,

$$POISONPUT = \alpha + \beta_1 RD \ (or \ \beta_1 MV\_BV) + \beta_2 SIZE + \beta_3 LEVERAGE + \beta_4 FIXA$$
$$+ \beta_5 PROFIT + \beta_6 RATE + \beta_7 FCF + \beta_8 INSIDER + \beta_9 INSTITUTION + \varepsilon$$
$$(1)$$

The dependent variable (POISONPUT), a dummy variable for the poison put covenant, equals one if the bond includes a poison put covenant and zero otherwise. As discussed above, we include the following independent variables. Research and development expense (RD) is measured by the research and development expenses dividing by total sales. Market to book value ratio (MV_BV) is measured by market value of assets divided by the book value of assets, where market value of assets equals the book value of assets minus book value of equity plus market value of equity. Market value of equity equals stock price per share times the number of shares. Firm size (SIZE) is measured by the total value of assets in million of dollars. We include several firm characteristics that are related to capital structure, fixed assets, and profitability as control variables. First we include leverage (LEVERAGE) measured by the book value of total debt divided by market value of assets, where total debt equals total long term debt plus debt in current liabilities. Second, we use the percentage of fixed assets to total assets (FIXA) and it is calculated by net plant and property equipment divided by book value of assets. Lastly, we measure profitability (PROFIT) by the ratio of EBITA to book value of assets. For time series effects, we use the level of interest rate to measure the interest rate environment. Interest rate (RATE) is measured by the yield on 6-month Treasury bills in percent. Finally, we include three explanatory variables to proxy for the level of agency costs as discussed above. Free cash flow (FCF) is measured

by the operating income before depreciation adjusted for income taxes, change in deferred taxed, interest expense, preferred dividends, and common stock dividends. Insider ownership (INSIDER) is measured by the percentage ownership of insiders including top management and directors. Institution ownership (INSTITUTION) is measured by the percentage ownership of institutional investors. We use the 12,486 firm-year observations to perform the cross-sectional analysis.

Table 4 presents the results of the logistic regressions linking the inclusion of poison puts to explanatory variables. We use four models that consist of various combinations of explanatory variables. In model 1, we find that R&D expense has a positive but insignificant effect on the decision to add a poison put. However, in model 2 through 4, we find that growth opportunities measured by market to book ratio (MV_BV) has a negative and significant effect on the probability of including a poison put option in a bond. Firms with more growth opportunities are more likely to issue bonds with poison puts. This is consistent with the previous prediction: firms with greater growth opportunities are more likely to face riskier projects and consequently bondholders would require protection. Furthermore, across all models the results suggest that issuers with a larger size (SIZE), lower leverage (LEVERAGE), higher percentage of fixed assets (FIXA), and more profitable (PROFIT) are more likely to include a poison put. Contrary to our expectations, firms that are considered "safer" as depicted by the characteristics of firm size, leverage, fixed assets, and profitability are more likely to issue poison put debt. This may be due to that large and reputable firms are more likely to attract demands by institutional investors to include the takeover defense covenant. Empirical evidence suggests that large and profitable firms tend to choose low financial leverage, which is inconsistent with traditional capital structure theories. The result on interest rate (RATE) shown in model 3 and 4 suggests that the level of interest rate has a negative and significant impact on the decision to include a poison put. In other words, the lower the interest rate, the higher the probability of including a poison put. Lower interest rates can lead to more debt issues in general and also controls for the buyout waves. For agency considerations, we find interest results that are generally consistent with agency theory. Across all models, we find that free cash flow has a positive and significant impact on the probability of poison puts. This finding is consistent with the agency theory prediction: agency conflicts stemming from more free cash flows may lead to a greater need to include a poison put. In addition, the model 4 result on insider and institutional ownership provides support for the agency explanation. In particular, insider or institutional ownership is negatively and significantly related to the probability of poison puts. In other words, the lower the insider (or institutional) ownership, the greater the agency cost and therefore the higher the probability to include a poison put.

Therefore, the result suggests that issuers with greater agency cost are more likely to use poison puts to help reduce the costs.

The analysis suggests several issuer characteristics that are related to the probability of poison puts on a bond. We find that high growth firms are more likely to issue bonds with a poison put. On the other hand, the results suggest that large, profitable, and low leverage firms are more likely to include poison puts. In addition, firms with a higher percentage of fixed assets have a greater probability to issue bonds embedded with poison puts. Finally, and most importantly, we find evidence supporting agency theory for the type of firms that are more likely to include takeover defenses in their debt. In particular, firms with a high free cash flow are more likely to include poison puts in debt issues, which is consistent with the prediction of agency theory. The negative relation between inside (or institutional) ownership and the inclusion of poison puts provides strong and further support for the agency explanation.

C.   Time Series Factors on the Decision to Issue Poison Put Bonds

In this section, we study the time series factors on the decision to issue poison put bonds. We use macroeconomic factors including bond market index and volatility, equity market index and volatility, interest rate level and volatility, slope of the term structure, and market default risk premium. We use the level and volatility of broad market indices of debt and equity to proxy for the performance of these security markets. For example, bond market index provide market participants a benchmark for the performance of the bond market. If the bond market is performing well, investors have less desire to require poison puts for protection against the drop in bond value due to unfavorable events. We also include the three main variables to describe the term structure of interest rates: level and volatility of interest rate, and the slope of yield curve. The structure of interest rates is an important benchmark for economic conditions. If the economy is going into a recession, we would expect that bondholders are more likely to prefer bonds with poison puts to bonds without. On the other hand, if the economy is in a boom, bondholders have less of an incentive demand poison puts. Furthermore, if the volatility of interest rate is relatively high, investors are motivated to buy bond with poison puts to get better protection from market uncertainty. The slope of the interest rates is included as a control variable. It may be that future expectations of interest rates reflected in the slope have an impact on the decision to include poison puts. Lastly, we examine if the general level of default risk and the compensation demanded by the market have an impact on the inclusion of poison puts. If default risk premium is high, that means investors in general are concerned about defaults and consequently are asking for a higher compensation. Therefore, investors

have a greater incentive to buy bond with poison puts to guard against unfavorable credit events (e.g., rating downgrades). To examine the time series factors that motivate the issuance of poison put bonds, we use following model.

$$POISONPUT = \alpha + \beta_1 BONDINDX + \beta_2 VOL\_BINDX + \beta_3 EQUITYINDX$$
$$+ \beta_4 VOL\_EINDX + \beta_5 RATE + \beta_6 VOL\_RATE$$
$$+ \beta_7 TERMPREM + \beta_8 DEFAPREM + \varepsilon$$

(2)

The dependent variable (POISONPUT), a dummy variable for poison put covenant, equals one if the bond contains a poison put covenant and zero otherwise. We include the following macroeconomic factors as independent variables. Bond index return (BONDINDX) is measured by the total monthly return of the Lehman Brothers Aggregate Bond Index. Volatility of the bond index return (VOL_BINDX) is measured by the standard deviation of BONDINDX during the 12-month period immediately prior to bond issuance. Equity index return (EQUITYINDX) is measured by the monthly returns of various equity indices. We use eight different equity indices including the S&P500 (value- and equal-weighted), NASDAQ (value- and equal-weighted), NYSE (value- and equal-weighted), and Amex (value- and equal-weighted) index. Volatility of equity index return (VOL_EINDX) is measured by the volatility of EQUITYINDX during the 12-month period prior to the issue date. Interest rate (RATE) is measured by yield on the 6-month Treasury bill. Volatility of interest rate (VOL_RATE) is measured by the volatility of RATE during the 12-month period prior to the issue date. Term premium (TERMPREM) is measured by difference between the yield on the 10-year Treasury note and the yield on the 6-month Treasury bill. Finally, default risk premium (DEFAPREM) is measured by the yield differential between AAA and BBB corporate bonds. We use the 60,694 bond-year observations to perform the time series analysis.

We obtain similar results when different equity indices are used to measure the return on equity index (EQUITYINDX) and to calculate the volatility of equity return (VOL_EINDX). Table 5 reports the result based on the return on the S&P500 value-weighted index. The results suggest several interesting implications. First, the incidence of poison puts is negatively and significantly related to bond index returns (BONDINDX). This result suggests that issuers tend to include a poison put on its debt issues when the bond market is performing poorly. Poor performance of the bond market may convey a higher risk inherent in bond investments, triggering a greater demand to protection. To further strengthen our argument, we find that the incidence of poison puts is positively and significantly related to volatility of bond index returns (VOL_BINDX). The more volatile the bond market performance, the greater the need for the bondholders to demand protection on the bonds.

For equity market variables, we find that the

equity index return (EQUITYINDX) has a positive impact on the incidence of poison puts. The volatility of equity index returns (VOL_EINDX), on the other hand, does not have a significant effect. These findings suggest that issuers are more likely to issue poison put debt when the equity market is performing well. The activities in the equity market may link to the likely events in the market for corporate control and therefore the inclusion of a poison put on debt issues.

For term structure variables, we find that the level of interest rate (RATE) has a negative effect on the inclusion of poison puts. However, the parameter estimate is not significantly different from zero. The level of interest rate has been declining from the mid-1980s where the buyout wave started to the late 1990s. Using the Treasury 5-year constant maturity rates as a benchmark, the rate averages from 8.47% during 1985-1989 to 6.75% in 1990-1994.[3] It may be that during the higher interest rate environment, the need to include a poison put is less due to the higher borrowing cost in the market for corporate control. It is interesting to note that the volatility of interest rates (VOL_RATE) has a significant and positive impact on the incidence of poison puts. The term premium (TERMPREM), on the other hand, has a positive and significant effect. The results suggest that the volatility of interest rates may motivate the demand to include poison puts whereas the term premium has a similar, but weaker, effect on the inclusion of poison puts. Lastly, consistent with our expectation, default premium (DEFAPREM) has a positive and significant impact on the inclusion of poison puts. This result suggests that general market sentiments toward default risk, which is reflected in default risk premium, promote the incentives for the use of poison puts.

Overall, we find that bond market and equity market performance has a significant impact on the inclusion of poison puts. In particular, poor bond market performance and good equity market performance are likely to motivate the incidence of poison put bond issuance. The better the performance of bond market is, the less motivated the investors demand poison put to protect them. On the other hand, the better the equity market performance, the more motivated the investors to demand for poison puts. Market volatility also has a positive and significant impact on the inclusion of poison puts: volatility of interest rate and volatility of bond index returns motivate the use of poison puts. Finally, term and default premiums promote the inclusion of poison puts, protecting bondholders from interest rate and credit risks.

IV. Conclusion

As Cremers, Nair, and Wei (2007) point out the importance of bondholder governance through the use

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[3] 5-year Treasury constant maturity rates are obtained from the Federal Reserve Bank in St. Louis FRED database.

of bond covenants and the interactions between shareholder and bondholder governance mechanisms, the role of bondholder governance in corporate governance is highlighted. Therefore, how the overall governance structure consisting of shareholder and bondholder governance (or investor protection) affects management decisions and asset prices is an important issue (King and Wen (2009)). In this paper, we study bondholder governance mechanisms through the takeover-related bond covenants and the characteristics of firms that are more likely to include these covenants in their bonds. In particular, we focus on poison puts and the triggers associated with the puts, which are the covenants that are closely related to takeover defenses. We examine bondholder governance through the use of takeover-related defenses and emphasize the importance of bondholder governance in the overall structure of corporate governance.

In this study, we empirically examine poison puts in U.S. corporate bonds. We present the following interesting implications. First, we examine if bonds with poison puts are more likely to be bundled with a given set of covenants for governance purposes. Due the option to exit and the characteristics of issuers, certain covenant(s) may be included on a bond with a poison put so as to design an effective bondholder governance structure. We find that poison puts are often bundled with asset sale, payout, and financing restrictions, which is consistent with agency theory. Firms with greater free cash flows (Jensen (1986)) are more likely to over-invest in negative NPV projects and therefore have higher agency costs. In addition, firms with a higher credit risk are more likely to have higher agency costs. The results suggest that, to design an effective debt contract, controls for agency conflicts are strengthened for firms with high agency costs that stem from over-investment, credit risk, and takeover possibilities.

Second, we examine characteristics of issuers that are more likely to issue bonds with poison puts. We perform a cross-sectional analysis of firm characteristics that lead to the use of poison puts in bondholder governance. We find that high growth firms, large, profitable, low-leverage firms are more likely to use poison puts. In addition, firms with a higher percentage of fixed assets have a greater probability to issue poison put bonds. Our findings on free cash flow, insider and institutional ownership provide support for agency explanation.

Lastly, we examine time series factors that affect the use of poison puts. We find that poor bond market performance and good equity market performance are likely to motivate the incidence of poison put bond issuance. We also find that the volatility of interest rate and volatility of bond index returns motivate more issues of poison put debt. Finally, greater market term and default premiums promote the use of poison puts.

The structure of bondholder governance (or protection) is an important area of study in corporate governance. However, so far it has received limited attention in the literature. Our study, following Cremers, Nair, and Wei (2007) and Billett, King, and Mauer (2007), provides findings that further understanding of bondholder protection and its design. Future research is needed to study the interactions among bondholder, shareholder protection, and other elements of corporate governance.

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Appendices

Table 1. Descriptive Statistics of Poison Put Bonds

The table presents the descriptive statistics on offering amount, coupon rate, and original maturity for the 5,113 bonds with poison puts. Stdev denotes the standard deviation of variable, Q1 is the first quartile, and Q3 is the third quartile. Offering amount is presented in $ million, coupon rate in percent, and original maturity in years.

Poison Put Bonds (n=5,113)

Bond Characteristics	Mean	Median	Max	Min	Stdev	Q1	Q3
Offering Amount ($million)	237.29	160.00	5,442.08	1.00	282.07	100.00	275.00
Coupon (%)	8.83	9.63	19.75	0.00	3.51	7.50	11.00
Maturity (year)	8.53	10.00	35.00	1.00	2.04	7.00	10.00

Table 2. Poison Put Bonds by Convertibility, Seniority, Industry, and Decade

The table presents the frequency and percentage of 5,113 poison put bonds by convertibility, seniority, industry, and decade.

Panel A. By Conversion and Seniority

By Conversion Option	No. of Bonds	% of Total No.
Convertible	970	18.97%
Nonconvertible	4,143	81.03%
By Seniority		
Senior Secured	2263	44.26%
Senior	2340	45.77%
Senior Subordinate	427	8.35%
Subordinate/Junior	25	0.49%
Not Specified	58	1.13%

Panel B. By Industry

Industry	No. of Bonds	% of Total No.
Industrial	4,558	89.15%
Financial	376	7.35%
Utility	155	3.03%
Miscellaneous	24	0.47%
Total	**5,113**	**100.00%**

Panel C. By Decade

Year	No. of Bonds	% of Total No.
1985-1989	246	4.81%
1990-1999	3,597	70.35%
2000-2003	1,270	24.84%
Total	**5,113**	**100.00%**

Table 3. Poison Put Provision and Other Covenants

This table examines the frequency and percentage of various covenants in the 5,113 poison put bonds. We include a total of 12 covenants. Negative pledge is a covenant that limits the issuer to issue secured debt unless it secures the current issue on a pari passu basis. Cross default is designed to activate default in the issue if an event of default has occurred in any other debt by the same issuer. Dividends restriction limits payments to shareholders or other entities. Share repurchase restriction prohibits the issuer from making payments (other than dividend payments) to shareholders and other claimholders using share repurchases or other cash distribution methods. Indebtedness limits the total indebtedness of the issuer. Funded debt prohibits the issuer from issuing additional funded debt. Senior debt issuance limits issuer's ability to issue senior debt. Subordinated debt issuance limits the issuer's ability to issue junior or subordinated debt. Investments clause prohibits the issuer from making risky investments. Asset sale restricts the issuer's ability to sell assets or requires the issuer to use proceeds to redeem the bonds. Sale and leaseback restricts the issuer to the type or amount of property used on a sale leaseback transaction. Stock issuance restriction limits the issuer's ability to issue additional common stock.

Covenant	Number and Percentage of Poison Put Bonds Containing Other Covenants		Pearson Correlation of Poison Put and Other Covenants	
	No Poison Put Bond with Covenant	% Poison Put Bond with Covenant	Correlation	P value
Negative Pledge	2,799	55.28	0.37019	<.0001
Cross Default	67	1.34	0.00478	0.0792
Dividends Restriction	3,297	67.01	0.76272	<.0001
Share Repurchase Restriction	3,537	70.58	0.77322	<.0001
Indebtedness	3,592	71.68	0.73093	<.0001
Funded Debt	47	0.96	0.02935	0.0001
Senior Debt Issuance	199	3.97	0.17219	<.0001
Subordinated Debt Issuance	922	18.40	0.39397	<.0001
Investments	406	8.15	0.22959	<.0001
Asset Sale	4,768	94.17	0.53362	<.0001
Sale and Leaseback	1,662	32.83	0.30715	<.0001
Stock Issuance Restriction	312	6.23	0.21399	<.0001

Table 4. Issuer Characteristics of Firms issuing Poison Put Bonds

The table reports the results of the logistic regression of the probability of including a poison put on its cross-sectional determinants. The sample includes 12,486 firm-year observations that contained valid firm information from Compustat and issued from 1980 to 2003. The dependent variable (POISONPUT) is a dummy variable for poison put covenant, equals one if the bond contains a poison put covenant and zero otherwise. We include the following independent variables. Research and development expense (RD) is measured by the research and development expenses dividing by total sales. Market to book value ratio (MV_BV) is measured by market value of assets divided by the book value of assets, where market value of assets equals the book value of assets minus book value of equity plus market value of equity. Market value of equity equals stock price per share times the number of shares. Leverage (LEVERAGE) is measured by the book value of total debt divided by market value of assets, where total debt equals total long term debt plus debt in current liabilities. Fixed assets (FIXA) is measured by net plant and property equipment divided by the book value of assets. Profitability (PROFIT) is measured by EBITA divided by the book value of assets. Interest rate (RATE) is measured by the yield on 6-month Treasury bills in percent. Free cash flow (FCF) is measured by the operating income before depreciation adjusted for income taxes, change in deferred taxed, interest expense, preferred dividends, and common stock dividends. Insider ownership (INSIDER) is measured by the percentage ownership of insiders including top management and directors. Institution ownership (INSTITUTION) is measured by the percentage ownership of institutional investors.

Variable	Model 1 Estimate	Model 1 p value	Model 2 Estimate	Model 2 p value	Model 3 Estimate	Model 3 p value	Model 4 Estimate	Model 4 p value
RD	0.0055	0.5872						
MV_BV			0.1233	<.0001	0.1659	<.0001	0.2776	<.0001
SIZE	0.3022	<.0001	0.3592	<.0001	0.3465	<.0001	0.5476	<.0001
LEVERAGE	-1.3335	<.0001	-2.2576	<.0001	-2.3815	<.0001	-3.8265	<.0001
FIXA	-0.1455	0.2552	0.5562	<.0001	0.5755	<.0001	0.6376	<.0001
PROFIT	1.6744	<.0001	1.7035	<.0001	1.4276	<.0001	2.3459	<.0001
RATE					-0.0084	0.2582	-0.1251	<.0001
FCF	0.0002	<.0001	0.0001	<.0001	0.0001	<.0028	0.0002	<.0050
INSIDER							-0.0098	<.0001
INSTITUTION							-0.0005	0.6470
Likelihood Ratio		<.0001		<.0001		<.0001		<.0001
Sample Size		5,662		12,486		10,665		6,356

Table 5. Time Series Analysis of the likelihood of Issuing Poison Put Bonds

The table reports the regression results of the probability of including a poison put and various time series factors. The sample includes 60,694 bond-year observations from 1980 to 2003. The dependent variable (POISONPUT) is a dummy variable for poison put covenant, equals one if the bond contains a poison put covenant and zero otherwise. We include the following macroeconomic factors as independent variables. Bond index return (BONDINDX) is measured by the total monthly return of the Lehman Brothers Aggregate Bond Index. Volatility of the bond index return (VOL_BINDX) is measured by the standard deviation of BONDINDX during the 12-month period immediately prior to bond issuance. Equity index return (EQUITYINDX) is measured by the monthly returns of various equity indices. We use eight different equity indices including the S&P500 (value- and equal-weighted), NASDAQ (value- and equal-weighted), NYSE (value- and equal-weighted), and Amex (value- and equal-weighted) index. Volatility of equity index return (VOL_EINDX) is measured by the volatility of EQUITYINDX during the 12-month period prior to the issue date. Interest rate (RATE) is measured by yield on the 6-month Treasury bill. Volatility of interest rate (VOL_RATE) is measured by the volatility of RATE during the 12-month period prior to the issue date. Term premium (TERMPREM) is measured by difference between the yield on the 10-year Treasury note and the yield on the 6-month Treasury bill. Default risk premium (DEFAPREM) is measured by yield difference between AAA and BBB corporate bonds.

Variable	Estimate	p value
BONDINDX	-0.0514	0.0020
VOL_BINDX	0.6667	<.0001
EQUITYINDX	1.1692	0.0054
VOL_EINDX	0.0899	0.9528
RATE	-0.0315	0.2941
VOL_RATE	0.9269	<.0001
TERMPREM	0.0762	0.0046
DEFAPREM	0.0468	0.0050
Likelihood Ratio		<.0001
Sample Size		60,694

CORPORATE GOVERNANCE AND FIRM VALUATION – THE CASE OF CHINA

Ohannes George Paskelian*, Stephen Bell**

Abstract

We examine the determinants and implications of Chinese corporate cash holdings in the 1993- 2006 period. Agency theories assert that firms with a large controlling shareholder have relatively large cash holdings because of the greater ability of the controlling shareholder to extract private benefits from the cash holdings. Our findings show a very strong inverse relationship between cash holdings and firm valuation in high government ownership firms. Also, we find that in firms with high government ownership, dividend payouts are highly valued. We conclude that Chinese investors see government ownership as a factor that reduces firm value. They prefer relatively higher dividends from firms having high government ownership. Conversely, investors assign much higher value to firms with relatively low government ownership and they tend to be neutral about the dividends payouts of such firms. Also, investors value highly the presence of foreign investors in Chinese firms and tend to be neutral about dividend payouts of firms with high foreign ownership concentration.

Keywords: Cash Holdings, Ownership Structure, Corporate Governance, Chinese Firms, Dividend Policy, Government Ownership

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Introduction

The cash holding decision is a prominent theme in the agency relationships between shareholders and managers (Jensen, 1986). According to the agency theory, controlling shareholders should focus on increasing shareholders' wealth rather than taking advantage of the minority shareholders. However, when corporate governance circumstances are poor within a firm, controlling shareholders can derive substantial private benefits at the expense of minority shareholders (Dyck and Zingales, 2004; Nenova, 2003).

There are restively few accurate estimates of the magnitude of private benefits obtained by controlling shareholders. All of the evidence concerning this point is indirect and is based on the assumption that minority shareholders are better protected when private benefits of control are curbed and financial development is enhanced (La Porta et al., 1997).

Liquid assets can be converted into private benefits at lower cost than other assets, since it will be easy to use cash in non-value enhancing ways (Myers and Rajan, 1998). It stands to reason that controlling shareholders would tend to overinvest in liquid assets (Dittmar et al., 2003; Kalcheva and Lins, 2004 and Pinkowitz et al., 2006). If controlling shareholders do not maximize firm value and hold more liquid assets

in countries in which it is easier to appropriate such private benefits, then minority shareholders should value liquid assets in those countries less than they do in countries where it is more difficult for controlling shareholders to do so (Pinkowitz et al., 2006). If investors discount the value of cash holdings because they expect controlling shareholders to partly consume such holdings as private benefits, then they value dividends in that country at a premium (Pinkowitz et al., 2006).

Ownership of most listed companies in China is heavily concentrated in government hands (Xu and Wang, 1999). The Chinese government is usually the controlling shareholder. Thus, being a large majority shareholder in Chinese firms, the government can use its controlling position to dictate its own agenda on firm's managers. Cash holdings in Chinese firms become a very important factor for the future profitability of the firm, since Chinese financial regulations require that firms raising capital from outside sources (mainly by issuing new stock) need to maintain a certain level of return on equity (ROE) over the past three year period (Wang et al., 2006), it would be easier for the firm to invest its own cash in profitable projects without requiring to raise new capital by selling new stock. However, cash can be used also to serve the needs of the controlling shareholder in non-value enhancing manners for the

firm; examples include over-employment, acquisition of other firms for no reasons, investment in non-profitable assets, etc.

In this paper, we investigate 1) how agency problems affect the level of cash holdings in listed Chinese companies; 2) The effect of Chinese corporate governance, in particular the presence of majority government ownership, on investor valuation of cash and dividends. To measure agency problems, we use multiple governance measures of ownership concentration (managerial ownership, government ownership, institutional holdings, and percentage of foreign shareholders). In addition, we investigate the impact of Chinese ROE regulatory requirement on cash holdings of Chinese firms.

The remainder of the paper is organized as follows: Section 2 is the literature review of previous studies related to equity offerings. Section 3 discusses the regulatory characteristics of the Chinese market. Section 4 covers the empirical hypotheses to be tested in the paper. Section 5 reports the empirical results. Section 6 concludes the paper.

Literature Review

The free cash flow hypothesis asserts that shareholders will want to limit managers' access to free cash flow in order to reduce agency conflicts over its use (Jensen, 1986 and Stulz, 1990). The primary tradeoff is providing sufficient internal capital for managers to efficiently fund all good projects, while not providing excess internal capital which would allow managers to fund projects and do perquisite consumption benefitting managers to the detriment of shareholders. If control is lacking, it is difficult, if not impossible, to convince self-interested managers to allow cash reserves to flow as benefits to shareholders.

Previous studies on cash reserves in the U.S. provide mixed evidence about the impact of large cash reserves on shareholders. Managers may hold cash as part of a precautionary motive (Opler et al., 1999). Similarly, Mikkelson and Partch (2003) find that large cash holdings may enhance firm value; do not cause poor performance and conflict of interests between managers and shareholders. Alternatively, Harford (1999) concludes that cash-rich firms are more likely to make value-decreasing acquisitions. Dittmar and Mahrt-Smith (2006) find that shareholders assign lower value to cash reserves when it is likely that significant agency problems will be present at the firm.

Faleye (2004) finds that the presence of significant excess cash reserves is more likely to lead to proxy contests which subsequently result in executive turnover followed by cash distributions to shareholders. This evidence suggests that there is a strong incentive for managers to avoid accumulations of large reserve excess cash.

Dittmar, et al. (2003) find in a several-country comparison that firms hold less cash in countries where shareholders rights are greater and where there

are relatively higher developed external capital markets. This reflects the motivation of shareholders to reduce the cash reserves subject to managerial control when they have the power to do so. In countries with low investor protection, it has been found that minority shareholders value cash holdings less (Pinkowitz, Stulz and Williamson, 2004). This is consistent with the hypothesis that poor shareholder protection enables management and controlling shareholders to appropriate cash holdings for their private benefit at the expense of minority shareholders. Lins and Kalcheva (2004) study how country-level investor protection affects cash holdings. They find that firms with relatively weak shareholder rights hold more cash which reinforces the thought that such increased cash holdings can be abused by managers and/or controlling shareholders.

Review of Chinese Stock Market Regulations

Regulations on equity financing have continuously changed since the Chinese stock markets were created in the early 1990s. In December 1993, the China Securities Regulatory Commission (CSRC) issued its first regulatory document on rights offerings. Firms in need of external financing could do so only by employing the rights offering method. This meant that firms in need of external financing gave their existing shareholders the right to subscribe in the new equity issue. Initially, in order to meet the rights offering requirements, firms had to be profitable for two consecutive years and could not have offered rights in the past twelve months. In 1994, the CSRC increased the ROE requirement for rights offerings by requiring that only firms with an average ROE of ten percent or higher for the past three consecutive years were qualified for rights offerings.

The ROE requirements set forth by the SRC may provide incentives to firms to stockpile internally generated cash in order to finance future investments.

Hypothesis Development

According to LaPorta et al. (1999), firms controlled by large shareholders can encounter agency problems which pit the controlling shareholder against other minority shareholders. The controlling shareholder attempts to maximize his welfare by influencing the decision of management. When the controlling shareholder's interests are perfectly aligned with the interests of outside investors, then the outside investors benefit when the controlling shareholder takes actions which maximizes his welfare. However, when the interests of the controlling shareholder and outside investors are not perfectly aligned, then agency problems arise causing the controlling shareholder to maximize his welfare while at the same time harming the interests of outside investors. The benefits that the controlling shareholder extracts at the expense of other investors are referred to as the private

benefits of control. The level of such benefits is in large part dependent on how well the interests of outside investors are protected in the firm's country. It should be noted that as a controlling shareholder obtains more private benefits, the outside investors' assessment of firm value falls.

In China, the government is the large controlling shareholder in large number of Chinese firms, thus we hypothesize the following:

H_1: The higher the level of government ownership in firms, the lower the firm value since the government will try to extract private benefits of control based on its relatively large ownership of firms.

In a world of perfect financial markets and no contracting costs, firms invest in all available positive net present value projects. They pay out the funds they cannot invest in such projects to shareholders. Funds paid to shareholders are funds that controlling shareholders cannot employ to further their own self interests. Controlling shareholders would alternatively use these distributed funds to increase their own personal wealth or to improve their controlling position in the firm. Thus, controlling shareholders prefer to keep funds in liquid assets because liquid assets can more readily be converted to private benefit of control. Liquid assets can immediately be invested in projects that provide personal benefit to controlling shareholders. As Myers and Rajan (1998) point out, it is easier to make cash disappear than to make a plant disappear. Therefore, we propose the following hypothesis:

H_2: The higher the degree of government ownership in Chinese firms, the higher the likelihood of holding relatively higher levels of cash.

According to LaPorta et al., (2000b) firms experience greater pressure to pay dividends in countries providing poor investor protection because firm resources are more likely to be subject to controlling shareholders' private benefit expectation. In firms in a country with poor investor protection, shareholders gain when the firm pays out liquid assets in the form of dividends because such dividends can then be invested at a rate outside the firm which will be higher than the rate of return on the liquid assets invested inside the firm. This is due to the fact that the rate of return on assets invested inside the firm is reduced when the controlling shareholder extracts part of such assets in the form of private benefits of control. From here, we hypothesize:

H_3: Higher dividends payout will have positive impact on firm value.

Data and Methodology

The sample of firms used in this study is comprised of all the Chinese firms present in the CSMAR database during the period 1993-2006. In our sample, we excluded financial sector firms (banks, insurance companies, etc.) since their cash policies and accounting procedures differ from that of other industrial sectors. The sample consists of 1164 firms over a 14 year time span.

In order to investigate whether liquid assets are valued more in firms with lower government concentration or with higher concentration of foreign ownership, and whether dividends are valued more, a regression model is needed that reflects the relationship between firm value and firm characteristics. Fama and French (1998) develop a valuation regression that performs well under different testing procedures. This model is ad hoc in that it does not specify a functional form resulting directly from a theoretical model; however, it is well suited for our purpose because it explains well cross-sectional variation in firm values. The basic regression specification is as follows:

$$V_{i,t} = \alpha + \beta_1 E_{i,t} + \beta_2 dE_{i,t} + \beta_3 dE_{i,t+1} + \beta_4 dNA_{i,t} + \beta_5 dNA_{i,t+1} + \beta_6 RD_{i,t} + \beta_7 dRD_{i,t}$$
$$+ \beta_8 dRD_{i,t+1} + \beta_9 I_{i,t} + \beta_{10} dI_{i,t} + \beta_{11} dI_{i,t+1} + \beta_{12} D_{i,t} +$$
$$\beta_{13} dD_{i,t} + \beta_{14} dD_{i,t+1} + \beta_{15} dV_{i,t+1} + \beta_{16} dL_{i,t} + \beta_{17} dL_{i,t+1} + \varepsilon_{i,t}$$

(1)

Where, X_t is the level of variable X in year t divided by the level of assets in year t; dX_t is the change in the level of X from year t − 1 to year t, $X_t − X_{t-1}$, divided by assets in year t; dX_{t+1} is the change in the level of X from year t to year t+1, $X_{t+1} − X_t$, divided by assets in year t; V is the market value of the firm as the sum of the market value of equity, the book value of short-term debt, and the book value of long-term debt; E is earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits; NA is net assets defined as total assets minus liquid assets and L corresponds to liquid asset holdings; RD is research and development (R&D) expense I is interest expense; and D is dividends defined as common dividends paid. When R&D is missing, we set it equal to zero.

We expect the change in liquid asset holdings to contribute less to firm value in high government ownership firms, so that β_{16} should be lower in the subsample of such firms. Also, we expect the change in dividends to have a positive impact on firm value in high government ownership firms since higher dividend payout ratios will result in less cash holdings. This means that the Chinese government, as controlling shareholder, will receive less private benefits of control.

Descriptive Statistics

The descriptive statistics for the sample are contained in Table 1 including the mean, median, standard deviations of all the different variables used in the study. The cash holdings variable, the primary variable in the study, has a mean of 18.7%, a median of 14.2% with a standard deviation of 9.4%. The sample has little skewness. Government ownership is 21.4% while insiders own an average of 2.8% of the outstanding shares. The government ownership variable is highly skewed because some of the

Chinese listed companies have high government ownership while others have very little. The board independence variable reflects a mean of 54.7% and a median of 81.4%. The average firm in the sample has sales of approximately $4 billion Yuan; assets of approximately $4.7 billion Yuan; a leverage ratio of 21.7%; market to book ratio of approximately 2.64; cash flows to assets of approximately 17%; capital expenditures to assets of about 5.1%; and acquisition to assets of approximately 1.8%. The percentage of revenue devoted to R&D is about 1.7% and the percentage of the working capital from the total assets is approximately 7.1%. The percentage of firms' shares owned by foreign investors has a mean of 11.7%. This variable is skewed since the median value of foreign ownership percentage is 40.5%. In our sample, the firms have a relatively low payout ratio which is 2% on average. The average earnings per share ratio is 2.6%.

Table 1 about here

Table 2 contains the correlation coefficients between cash holdings, governance proxies, and firm size. Cash holding is positively related to government ownership and the companies' assets. Cash holding is negatively related to insider ownership and board independence. Insider ownership is negatively related to government ownership while it is positively related to board independence and firm size. Overall, a more independent board, with higher insider ownership tends to have lower cash holdings. High government ownership firms tend to have low independence and high cash holdings.

Table 2 about here

Multivariate Regression Analysis

Our study examines the relation between cash holdings and various controls for firm specific variables in a multivariate setting using cross-sectional regressions. The dependent variable is cash holdings, i.e. the log of cash to assets ratio. The independent variables are governance-related variables and firm specific factors affecting cash holdings. The regression coefficients of the different variables address the predictions of our hypotheses relating governance to cash ratios.

Table 3 about here

Models 1 through 3 of Table 3 provide the analysis of the relation between corporate cash holdings and governance/company specific variables. The results in Models 1 and 3 suggest that the government ownership is positively and significantly related to cash holdings. Higher government ownership leads to larger corporate cash holdings. Also, there is a negative relationship between the board independence variable and the cash holdings

which is consistent with our hypotheses; firms with more independent board tend to hold less cash. The results in Model 2 suggest that the firms with higher future investments opportunities and lower cash flow volatility tend to have higher cash holdings. We do not find any significant relationship between the firm's ROE level and its cash holdings, thus suggesting that the regulatory requirement is not an important factor in determining the level of cash holdings in Chinese firms.

Table 4 about here

In Table 4, we examine the impact of corporate governance variables and firm specific variables on the firm valuation using multivariate cross-sectional regressions. In all three models, the value of the firm is defined as the sum of the market value of equity, the book value of short-term debt, and the book value of long-term debt. The results show that government ownership has a negative effect on firm value; investors value firms with high government ownership levels at lower rates than firms with low government ownership levels. The payout ratio has a positive effect on firm valuation; investors' value firms higher when the payout ratio in those firms is higher than average. On the other hand, investors value firms lower when the payout ratio in those firms are lower than average. Both results are consistent with our hypotheses. Also, we find a significant positive relationship between the board independence variable and firm valuation which is also consistent with our hypotheses. The Model 2 results suggest that firms with higher future investment opportunities and lower cash flow volatility tend to have higher values. Finally, we do not find any significant relationship between the firm's ROE level and the firm value. This suggests that regulatory impact is not as important as firm specific variables in determining Chinese firm value.

Market Value of Cash Holdings

To further test our hypotheses and provide more robust results, we estimate the regression model given by equation (1). We deflate all variables by total assets to control for heteroskedasticity. We follow Fama and French (1998) and estimate equation (1) using Fama–MacBeth (1973) regressions.

Table 5 shows our regression estimates based on the Fama and French (1998) model. We use two subsamples with the first divided by the government ownership concentration. The 35% median value of government ownership is the dividing point of the two samples due to the large degree of skewness present in the data. The second subsample is divided by the level of foreign investors in Chinese firms. The median value of 40% is employed as the dividing point.

Table 5 about here

We find that cash contributes significantly more to the firm value in firms with lower government ownership and higher foreign investor concentration. Our regression allows us to isolate the impact of a change in cash holdings while keeping all other variables in the regression unchanged. Consequently, we can evaluate the impact of an increase in cash that brings about an increase in total assets by the same amount as opposed to an exchange of fixed assets for cash. In high government concentration firms, a one Yuan increase in cash holdings results in an increase in firm value of 0.18 Yuan. In low government concentration firms, a one Yuan increase in cash holdings results in an increase of 0.86 Yuan. We find that a one Yuan increase in non-cash assets is associated with an increase of 0.34 Yuan in firm value in high government ownership firms while the same increase in the non-cash assets results in an increase of 0.68 Yuan in firm value for low government ownership firms. The regression is consistent with a greater discount for cash than for fixed assets for firms with high levels of government concentration. A 1 Yuan of cash contributes 0.70 Yuan less to firm value for high government ownership firms while a 1 Yuan of fixed assets contributes 0.34 Yuan less. The regression provides no evidence that earnings are valued more in low government ownership firms.

The second regression reported in Table 5 divides the subsamples by utilizing the percentage of foreign investors out of the total number of investors. The results show that firms with relatively more foreign investors show a stronger relationship between changes in cash and firm value. We find that an additional 1 Yuan of cash accumulated over the most recent year results in a 0.21 Yuan change in firm value for firms with low foreign investor concentration. The same 1 Yuan change in cash accumulated over the most recent year results in a change of 0.91 Yuan in firms with high foreign investor concentration. Thus we conclude that increases in other assets are discounted less in countries with poor investor protection than are increases in cash. However, in contrast to the regression that uses the government ownership, firms with higher foreign ownership are valued more regardless of firm characteristics. In sum, the two regressions displayed in Table 5 strongly support hypotheses 1 and 2. Further, both regressions in Table 5 support hypothesis 3. If cash is valued less in high government ownership firms, we would expect payouts to be worth more. In the regression utilizing government ownership as the criterion, high government concentration firms had a dividend payout of 7.95 while low government concentration firms had a dividend payout of only 3.44. The difference between the two coefficients is significant at better than the 1% level. In the regression using foreign ownership concentration the dividend payout for low foreign investor firms is 10.23 and only 5.12 for high foreign investor firms.

Conclusions

In this paper, we examine factors affecting the cash holdings of Chinese firms. We also examine the effect of the Chinese government in its role as majority stockholder, on private benefit extraction in firms it controls and the effect such extraction has on firm valuation. We test three main hypotheses. First, minority shareholders value cash holdings less in high government ownership firms. Second, high government ownership negatively affects the firm value. Third, minority shareholders value dividends more in high government ownership firms. In order to test for robustness, we also employed the foreign investor concentration variable in testing hypothesis 3. All three hypotheses are grounded in agency theories that state that controlling shareholders will extract more private benefits from firms they control if investor protection is weak. Our results strongly support all three hypotheses. We find that high government ownership negatively affects firm value. Investors discount the value of cash holdings in high government ownership firms and prefer instead to receive larger dividend payouts from those firms. Conversely, investors assign higher value to cash holdings in low government ownership firms and do not prefer large dividend payouts when compared to high government ownership firms. We also find similar effect for the presence of foreign ownership concentration in Chinese firms. Investors discount the value of cash holdings firms with low foreign ownership concentration and instead prefer to receive larger dividend payouts from those firms. Conversely, investors assign higher value to cash holdings in high foreign ownership concentrated firms and do not prefer larger dividends when compared to low foreign ownership concentrated firms.

Overall, our results indicate a strong inverse relationship between firm value and government ownership concentration in Chinese firms. Also, our results indicate that investors do not think that the presence of large cash holdings in high government concentrated firms will have positive impact on the firm's future profitability, thus they require higher dividend payouts from such firms. Our paper sheds light on one of the most important aspects of corporate governance i.e. the impact of government ownership on firm valuation and its effect on minority shareholders.

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Appendices

Table 1. Descriptive Statistics

This table provides summary statistics for the sample. The dataset comprises 1164 firms covering the period from 1993 to 2006. The descriptive statistics include: ratio of cash to assets (Cash Holdings), equity ownership of the top five officers (Inside Ownership), government ownership, ratio of independent directors on the board to total directors (Board Independence, non-government representative), sales, total assets, firm leverage (Leverage), ratio of the market value to book value of assets (Market-to-Book), ratio of cash flow to net assets (CF/Assets), ratio of net working capital to net assets (Working Capital/Assets), standard deviation of cash flows for the past five years (CF Volatility), ratio of research and development to sales (R&D/Sales), ratio of capital expenditures to net assets (CapEx/Assets), and ratio of acquisition to sales (Acquisition/Sales), the percentage of the dividends distributed to the shareholders (Payout ratio), earnings before extraordinary items plus interest, deferred tax credits and investment credits (Earnings), the total assets minus cash (Net assets), the interest expense, and percentage of foreign investors in the company (Foreign).

	Mean	Median	Standard Deviation
Cash Holdings	0.187	0.142	0.094
Inside Ownership	0.028	0.351	1.681
Government Ownership	0.214	0.351	2.374
Board Independence	0.547	0.814	0.184
Sales (Millions of Yuan)	3,987	1,587	11,471
Assets (Millions of Yuan)	4,748	1,684	15,369
Leverage	0.217	0.197	0.157
Market-to-Book	2.64	1.95	1.32
Cash Flow/Assets	0.172	0.157	0.145
Working Capital/Assets	0.071	0.057	0.139
CF Volatility	0.087	0.062	0.041
R&D/Sales	0.017	0.001	0.127
CapEX/Assets	0.051	0.048	0.042
Acquisition/Sales	0.018	0.001	0.043
Payout Ratio	0.019	0.030	0.034
Earnings	0.026	0.036	1.136
Net Assets	3,861	2,917	10,524
Interest Expense	156	67	127.34
Foreign	0.117	0.405	2.361

Table 2. Correlations

This table provides data on the correlations between cash holdings, governance variables, and firm size. The dataset comprises 1164 firms covering the period from 1993 to 2006.

	Cash Holdings	Inside Ownership	Government Ownership	Board Independence
Inside Ownership	-0.141**			
Government Ownership	0.214***	-0.028*		
Board Independence	-0.057**	0.374**	-0.518***	
Assets (Millions of YUAN)	0.236*	0.196**	-0.174*	0.241**

*, ** and *** are significant at 10%, 5% and 1% respectively.

Table 3. Regression Analysis – Cash Holdings

This table provides regression results of the determinants of cash holdings; three different specifications are used, the first using only governance variables as the independent variables, the second using accounting variables, and the third using both governance and accounting variables.

	Cash Holdings	Cash Holdings	Cash Holdings
Intercept	0.069	0.051	0.084
Inside Ownership	0.014*		0.011*
Government Ownership	0.041***		0.032***
Board Independence	-0.015*		-0.021
Sales (Millions of Yuan)		0.185	0.019
Net Assets (Millions of Yuan)	0.171***	0.0168**	0.0145**
Leverage		-0.145*	-0.095*
Market-to-Book		0.251	0.341
Cash Flow/Assets		0.051**	0.044*
Working Capital/Assets		0.041*	0.032*
CF Volatility		-0.019**	-0.022**
R&D/Sales		0.0174	0.084
CapEX/Assets		0.0185*	0.036*
Acquisition/Sales		0.0391	0.0486
ROE		-0.015	-0.024
Payout Ratio		-0.271**	-0.317**

*, ** and *** are significant at 10%, 5% and 1% respectively.

Table 4. Regression Analysis – Firm Value

This table provides regression results of the determinants of the firm value; three different specifications are used, the first using only governance variables as the independent variables, the second using accounting variables, and the third using both governance and company specific variables. The firm value is defined as the market value of equity plus the book value of debt.

	Firm Value	Firm Value	Firm Value
Intercept	0.374	0.514	0.611
Inside Ownership	-0.250**		-0.315**
Government Ownership	-0.687***		-0.487***
Board Independence	0.269**		0.614**
Sales (Millions of Yuan)		0.748	
Net Assets (Millions of Yuan)	0.374**	0.359**	
Leverage		-0.276*	
Market-to-Book		0.354**	0.571***
Cash Flow/Assets		0.036**	
Working Capital/Assets		0.011*	
CF Volatility		-0.344**	
R&D/Sales		0.251	
CapEX/Assets		0.289	
Acquisition/Sales		0.151	
ROE		0.514	0.817
Payout Ratio		0.415***	0.698***

*, ** and *** are significant at 10%, 5% and 1% respectively.

Table 5. Fama and MacBeth (1973) Regressions

This table presents the regressions of firm value using Fama and MacBeth (1973) method. Regressions are estimated independently for each subsample. The firm value is defined as the market value of equity plus the book value of debt. The firm value is found for two samples: government ownership concentration and foreign ownership percentage – government ownership sample being divided by the median value of 35%; above 35% is high government ownership, below 35% is low government ownership; foreign ownership being divided by the median value of 40%; above 40% is high foreign ownership while below 40% is low foreign ownership.

	High Government	Low Government	p-value of Difference	Low Foreign	High Foreign	p-value of Difference
Intercept	0.81 (0.041)	0.84 (0.043)	0.3841	0.62 (0.015)	0.79 (0.051)	0.0000
E_t	2.36 (0.517)	1.96 (0.329)	0.3751	3.15 (0.436)	4.02 (0.218)	0.1574
dE_t	-0.69 (0.421)	-0.32 (0.205)	0.1241	-0.78 (0.308)	-0.41 (0.119)	0.0068
dE_{t+1}	1.21 (0.621)	1.84 (0.241)	0.2869	0.38 (0.284)	1.32 (0.145)	0.0001
dNA_t	0.34 (0.024)	0.68 (0.084)	0.0041	0.38 (0.251)	1.16 (0.173)	0.0011
dNA_{t+1}	0.23 (0.051)	0.31 (0.071)	0.4185	0.05 (0.076)	0.18 (0.048)	0.2958
RD_t	-4.05 (1.573)	5.21 (0.841)	0.0000	0.61 (0.712)	4.89 (0.887)	0.0000
dRD_t	7.23 (3.982)	3.82 (2.373)	0.1574	4.25 (1.527)	4.64 (1.387)	0.8194
dRD_{t+1}	5.31 (3.721)	7.56 (2.043)	0.6521	4.52 (1.814)	9.11 (1.402)	0.0314
I_t	-3.81 (0.854)	-2.63 (1.025)	0.0000	-0.68 (0.517)	-3.07 (0.923)	0.0004
dI_t	1.39 (0.597)	-0.82 (0.769)	0.0023	0.51 (0.891)	-0.44 (0.499)	0.1841
dI_{t+1}	-1.36 (0.782)	-2.86 (0.567)	0.0115	-0.91 (0.668)	-2.17 (0.428)	0.0602
D_t	7.95 (2.341)	3.44 (1.694)	0.0011	10.23 (2.188)	5.12 (1.856)	0.0017
dD_t	-1.07 (0.674)	0.87 (0.536)	0.0574	-2.57 (1.547)	0.65 (0.436)	0.0024
dD_{t+1}	2.67 (0.841)	1.76 (0.718)	0.9517	4.52 (1.748)	-0.85 (1.188)	0.0118
dV_{t+1}	-0.23 (0.087)	0.12 (0.013)	0.1423	0.04 (0.185)	0.03 (0.041)	0.9053
dL_t	0.18 (0.175)	0.86 (0.176)	0.0004	0.21 (0.206)	0.91 (0.185)	0.0015
dL_{t+1}	0.28 (0.117)	0.71 (0.204)	0.0000	0.31 (0.157)	0.47 (0.138)	0.3984

EVIDENCE THAT STOCK OPTIONS WORK FOR CEOS – BUT NOT FOR INCENTIVE REASONS

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Abstract

We document the first evidence of a structure of timing returns, award discounts/premia and CEO dilution costs relative to shareholders set at award and before the CEO invests marginal effort. All three factors affect CEOs' effective exercise price and hence incentive to expend marginal effort. Exercised options, which exhibit the highest CEO and shareholder returns, are characterized by CEO acceptance of high dilution cost and high sensitivity to award premiums. CEO and shareholder returns for lapsed options and annual/biannual awards show high dependency on the dilution cost factor. Irregular awards are characterized by active pre-effort positioning by shareholders *to reduce CEO opportunism*.

Keywords: Executive compensation, CEO performance, stock option awards, discounted options, award timing

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Introduction

Meulbroek (2001) and Hall & Murphy (2000, 2002) show that risk-averse and undiversified executives exposed to total firm risk but rewarded only for the systematic component of that risk value non-tradeable stock options below their market (or Black-Scholes) value, which is the opportunity cost of the option to shareholders. A valuation divergence or 'gap' impairs stock options' effectiveness as incentive-aligning devices, and also reduces their effectiveness relative to stock ownership *(see endnote 1)*. This gap widens as the difference between the market value of these granted instruments and the value executives place on them as substitutes for cash compensation widens. Using simulations, Hall & Murphy (2002) show that awards (or grants) of at-the-money options maximise incentive when stock options are an add-on to existing compensation packages, while restricted stock is preferred when awards are a cash-substitute.

Stock options create incentive by virtue of their design, but as the gap widens, lose their effectiveness relative to other forms of equity-compensation. From the viewpoint of the CEO, any contractual provisions that raise the effective exercise price, while decreasing the cost to shareholders, depress executives' own valuation and hence their effectiveness in reducing agency costs of equity. Provisions that potentially do this include awards of premium options, exercise restrictions generally (including vesting periods, hurdle prices and rationing of volumes exercised) and lower dilution protection relative to shareholders, as well as denial of the right to reprice in the event of substantial stock price declines. Given a valuation gap, it is important to realise that granting or awarding options at-the-money (using market value of Black-Scholes valuation as a benchmark) is in effect an award of premium options relative to executives' lower valuation. For analytical purposes, incentive may be defined as the partial derivative of the executive's value (V) with respect to the stock price (P). Hence, any contracting provision that raises (lowers) $\partial V/\partial P$ is an incentive (disincentive).

In addition to these considerations, allowing executives the right to *time* their awards allows executives to take advantage of information asymmetry. Even for annual awards there is some scope for varying the award date by a few weeks or months to precede anticipated stock price runups *(see endnote 2)*. Yermack (1997) infers 'good' timing from the tendency of US firms to time awards *prior to* quarterly earnings increases, but interprets this as 'bad' for shareholders because the options are

effectively discounted which makes exercise more likely, perhaps through luck. While this may be so, discounted options also narrow the valuation gap and therefore increase the efficiency of options as incentive devices.

In this paper we report evidence on the trade-offs or exchanges that take place at the time of award, which has not hitherto been reported. Subsequent risk-return exchanges that are contingent on stock performance, such as repricing of deep out-of-the-money options, are excluded from the study *(see endnote 3)*. The trade-offs examined include option premia, dilution protection, exercise restrictions and award timing. All require exercise to be activated. The extent of dilution protection relative to shareholders' and any exercise restrictions are likely to have been incorporated in the stock option plan when first adopted by shareholders, but even so these provisions remain part of the set of trade-offs for any given award and are likely to influence option premia and award timing. The actual cost of inferior dilution protection accepted by executives is not known until later capital changes (specifically, rights and bonus issues and capital reconstructions) actually occur, so executives necessarily accept this cost in anticipation of such events. The structure of trade-offs identified at award is then related to subsequent CEO and shareholder returns in order to infer incentive consequences. We are able to observe shareholder (and CEO) returns over the life of option contracts because Australian companies are required to disclose comprehensive information about both awards (as in the US) and outcomes (unlike the US), in many cases enabling identification of the exercise date. In common with the incentives literature we focus upon stock options awarded to CEOs rather than the entire board.

Our main findings are as follows. We document evidence that exercised options are awarded at-the-money (with some tendency to a discount), have the lowest dilution protection (incentive decreasing), and show no timing gains or losses. In contrast, lapsed options are found to be granted at a premium (incentive decreasing), but have the highest dilution protection (incentive increasing relative to exercised options) and show timing gains (incentive increasing). Exercised and lapsed options are important sub-groups because they represent cases where the posterior probability of incentives having worked is high and low, respectively. Of course, exercise through good luck (noise) or private information (affecting the prior probability of exercise) cannot be ruled out. At-the-money awards are predicted by Hall and Murphy (2000) because they

maximize pay/performance incentives for risk averse, undiversified executives when stock options are an *add-on* to their existing sources of compensation. If they are right, then our observation of at-the-money grants for exercised options implies that stock options are add-ons and not cash substitutes. However, these regularities do not mirror the valuation consequences. Shareholder returns across both sub-groups are found to be decreasing in both relative dilution protection and award returns, with some substitutability between the two according to the sub-group. Timing returns and exercise restrictions have no impact. In other words, shareholder returns are *highest* when dilution protection is lowest and options are granted at a premium (both incentive *decreasing*). Both effects are opposite to those predicted by Hall and Murphy because both factors would reduce executives' valuation of their granted options.

The only explanation that fits the data is that exercised options have a higher prior probability of exercise in the first place, and hence a higher executive's valuation. Information asymmetry is present to the extent that shareholders do not have access to the same information as executives. Although premium options and inferior capital dilution protection are both incentive decreasing, CEOs rationally will always prefer relatively lower dilution protection to an award premium because the cost to the CEO of inferior dilution protection is contingent on the specified capital changes occurring in the future, while a premium option locks in a higher exercise price from the start across all states. We test the proposition that CEOs accept lower dilution protection when no capital changes are expected. An absence of timing gains on exercised options is further evidence in support of our conjecture that CEOs do not need incentives when the prior probability of exercise is already high. A major implication is that CEOs value subsequently exercised options at higher values than surmised (but not observed) by Meulbroek (2001) and Hall & Murphy (2000, 2002).

By corollary, lapsed options (for which shareholder returns are around zero) are those for which the prior probability of exercise must have been lowest. Although some lapsed options in our sample were granted at higher premia (incentive reducing), most were granted at-the-money and had higher relative dilution protection and also exhibited 'good' timing (both incentive increasing). If just out-of-the-money or 'marginal' lapsed options had a higher prior probability of exercise than options lapsing deep out-of-the-money, then CEOs may have been expected to bargain for higher incentives. The evidence (albeit thin, $n=19$) is exactly the opposite:

'marginal' lapsed options have lower dilution protection and lower timing gains than deep out-of-the-money lapsed options, suggesting these disincentive effects may have been crucial in contributing to the lapsation.

We conclude that stock options as incentive devices *do not work*, although they remain effective vehicles for delivering bonuses to CEOs. If stock options are expected to be add-ons, as suggested by Hall and Murphy (2002), then it also follows that most exercised stock options represent wealth transfers to CEOs from shareholders.

The paper is organised as follows. The next section reviews the evidence, identifies opportunities for exchanging risks at award (or earlier on adoption) and defines the ensuing returns. Section II explicates CEO and shareholder return measures. Section III details the sample and provides descriptive statistics. Analysis is performed in Section IV, which is followed by summary and conclusions in the final Section.

I.   Review and Analysis

Evidence suggesting that stock options are effective in aligning incentives is surprisingly sparse. DeFusco, Johnson and Zorn (1990) document higher stock price variance following adoption of stock option plans, implying a wealth transfer from bondholders to stockholders. Yermack (1997) documents increasing abnormal stock returns following awards to CEOs, which are linked to earnings improvements. Successful incentives will generate these outcomes, but so will "good timing" where CEOs influence awards to occur before good news known to themselves. Yermack infers award timing from the tendency in U.S. companies for awards to precede quarterly earnings increases, which implies *de facto* awards of discounted ESOs *(see endnote 4)*. Several competing explanations, including insider trading, problems in writing compensation contracts, taxation, CEO manipulation of news releases, and out-of –the-money awards are dismissed on *a priori* grounds. Jin & Meulbroek (2002) report that long-dated stock options retain their incentive-aligning power (through delta arguments) even in years when stock indexes fall, provided volatility increases as stock prices fall. A positive association between voluntary liquidations and CEO stock/option ownership reported by Mehran, Nogler and Schwartz (1998) is consistent with the incentive-aligning motivation of stock options.

Contrary evidence is more extensive. Lambert, Lanen and Larcker (1989) report lower than expected dividends after adoption of stock option plans, while

Fenn and Liang (2001) find an inverse relation between stock option holdings and dividend payouts (but a positive association with stock repurchases). In apparent contrast to Yermack (1997), Gerety, Hoi and Robin (2001) document zero stock market reaction to proposals for equity-linked incentive plans for CEOs. There is also sporadic evidence of executive compensation contracts appearing to increase agency costs, including diversion of cash windfalls to increase executive compensation (Blanchard, Lopez-de-Silanes, and Shleifer (1994)), lower than expected dividends after executive stock option (ESO) adoptions (Lambert, Lanen and Larcker (1989)), an inverse relation between ESO holdings and dividend payouts but a positive association with stock repurchases (Fenn and Liang (2001)), and lower special dividend payouts for optioned *versus* non-optioned firms (Hollis (2001)).

In this paper we focus on trade-offs observed at or before award that impact on the effective exercise price, *X*. The trade-offs or exchanges observed are: option premia, timing returns, exercise restrictions and protection against capital dilution relative to that of shareholders. Premium (discount) options are created when the exercise price exceeds (is less than) the market price on the award date. Since exercise prices are often set in relation to stock prices over the preceding five trading days, some discounts (premia) may be observed because stock prices in the preceding week were below (above) the stock price at award. However, in contrast to Lambert, Lanen and Larcker (1989), there is such a wide distribution of award discounts/premia in our sample (with a central tendency of zero) that we are pressed to doubt a 'prior-week' explanation *(see endnote 5)*. Discounts to market directly reduce the exercise price or, equivalently, imply acquisition of underpriced stock. Premium options have the reverse properties.

CEO timing returns are positive (i.e., timing gains) when there has been a pre-award stock price rundown. Conversely, a pre-award runup creates a timing loss for the CEO. Timing gains are a deadweight cost to shareholders when the CEO expends no effort in return. Their existence would imply that either CEOs are able to influence award terms and conditions through their compensation committees, or shareholders are willing to grant timing rights in exchange for other concessions. Exercise restrictions may also be costly to CEOs either by prohibiting exercise outright until a hurdle stock price is reached, or capping the quantity of options that may be exercised per period, which amounts to deferral of exercise with respect to some or all options that are presently in-the-money (and may not remain so).

However, while such restrictions limit take-home gains, they do not impinge on the exercise price, and as a consequence CEO incentive should be unaffected.

The level of CEO dilution protection relative to shareholders' is specified in the stock option plan as approved by shareholders, and applies to all subsequent awards under the plan until varied by shareholders. The return consequences depend on whether capital changes for which protection is not granted occur during the life of the awarded options. When protection is afforded for all capitalization changes, the CEO suffers no dilution on exercise *vis à vis* shareholders. Inferior dilution protection always reduces a CEO's return relative to shareholders. When uninsured capitalization changes occur, the CEO suffers a dilution cost (or negative return) that effectively increases the exercise price or, equivalently, requires the CEO to purchase overpriced stock. In Australia, CEOs are typically afforded protection against some or all of bonus issues, rights issues and capital restructures, but not dividends.

Although contingent on exercise, timing and award gains (losses) are potentially costly (beneficial) to shareholders because they combine to reduce the exercise price before marginal effort is expended. Shareholders do not benefit when timing and award gains do not induce extra CEO effort. Likewise, CEOs would not accept up-front timing and award losses because even full dilution protection and zero exercise restrictions would not provide higher returns than shareholders. Inferior dilution protection reduces the payoffs of exercise, so equivalently increases the exercise price and hence creates an incentive for a CEO to invest marginal effort to ensure exercise: the incentive is higher as the relative level of dilution protection is lower.

In the absence of exercise restrictions, shareholders face the risk of CEOs exercising their stock options before tendering marginal effort, i.e., on the first occasion the stock price peaks above the exercise price. The risk is presumably highest for awards made at a discount after a rundown and where CEOs have full dilution protection. Shareholders can limit the costs of early exercise by outright prohibition or by setting hurdle prices, but such restrictions do nothing to augment the incentive to tender marginal effort. Our evidence suggests that lower dilution protection relative to shareholders is the primary mechanism used to boost CEOs' incentive to cause exercise.

II. Measurement of CEO and shareholder returns

CEO and shareholder returns are measured directly. To do this, we require full information on the terms and conditions of an award, capital dilutions during the currency of the options and the dates and prices at which the options are exercised or lapse through expiry. We use Australian data on stock options grants to CEOs for which exercise dates are available. This means that CEO and shareholder returns for both exercised and lapsed (i.e., expired) options can be directly measured, which provides a more complete measure of valuation consequences than analysis of cumulative abnormal returns around award announcements, which as Yermack (1997, p. 457) notes are often deferred until release of the next earnings report.

The institutional and regulatory framework in Australia is similar to those of both the United States and the United Kingdom. In Australia, as in the United States, shareholders must approve ESO plans put to them by company compensation committees, usually in Annual General Meeting. During the sample period, Australian Stock Exchange (ASX) *Listing Rule* 10.14 prescribed shareholder approval by special resolution for issues of securities to related parties (which include CEOs) by way of employee incentive schemes. The resolution must have been passed at a general meeting held no earlier than the last annual general meeting of the company. Issues of ordinary securities (the American equivalent is common stock) or claims thereon through such schemes and without ordinary shareholders' approval were capped at 15% of outstanding ordinary share capital (*Listing Rule* 7.1). Irregular grants outside such schemes similarly required shareholder approval (*Listing Rule* 10.11), but the 15% cap did not apply. The Corporations Act (s. 205G) set a maximum period of 14 calendar days within which a company was to notify the ASX of any change, acquisition or disposal of company-issued securities held by directors, including stock options. A convenient source of announcements concerning awards and ASX notifications was provided by Huntleys' *Dat Analysis* service. Once shareholder approval is given, the compensation usually has discretion as to the frequency, size and timing of awards, as well as determination of the exercise price. CEOs are invariably not members of their compensation committees, but this does not preclude CEO influence over their deliberations *(see endnote 6)*.

In Australia, ESO award plans tie CEO rewards to the company's raw or non-risk-adjusted stock price, but often with protection against dilution caused by

rights issues, bonus issues and capital reconstructions, but not dividends. Some awards carry only partial protection against capitalization changes (for example, only reconstructions may be allowed for), so in these cases fewer adjustments are applied. Anti-dilution

$$\text{Timing return} = \frac{P_{-30} - P_0}{P_0} \text{, and}$$

$$\text{Award return} = \frac{P_0 - X_0}{P_0}.$$

P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price *(see endnote 7)*. The timing return is an *ex post* measure of the *opportunity* for timing. The timing return is positive (negative) when an award is made after a stock price rundown (runup). When an award is made (day 0), the timing return is already *ex post*, but is included in the aggregation of CEO returns because it is contingent on exercise along with the two other CEO returns. The award return is instantaneous and positive when an award is made at a discount to the stock price ($X_0 < P_0$), and negative when made at a premium ($X_0 > P_0$).

A CEO's holding return accrues from the award date until termination (through exercise or lapse). It is the same as that accruing to shareholders over the same period *plus* (*minus*) any option discount (premium), but *minus* the costs of lower relative dilution protection, both conditional on later exercise. The CEO holding return is also reduced by exercise restrictions. When dilution costs and exercise restrictions are present, the CEO holding return is likely lower than the shareholder return, unless timing and award gains are offsetting. The shareholder return over the same interval therefore reflects the wealth increments resulting from tendered CEO effort, while the CEO holding return yields insights into the incentive structure generating these shareholder returns.

A CEO's (*ex post*) holding return is measured as the stock return accruing from award to the earlier of exercise or lapse. Although exercise restrictions potentially reduce the dollar value of take-home gains available to a CEO, they do not impact on return calculations. For instance, rationing of exercised options to 25% per annum does not affect the return *per option*; likewise, a hurdle price might prevent exercise but it does not affect the CEO's holding return. The CEO holding return is the same as the shareholder return *plus* any award return and the effect of lower dilution protection for CEOs relative to shareholders, which we term the relative dilution cost factor. The shareholder return incorporating CEO dilution cost is given by

$$\frac{P_T - X_T}{P_0},$$

protection varies from the same level implicitly enjoyed by shareholders (all three sources of dilution) to zero protection. Three CEO returns and a shareholder return are calculated. Two of the CEO returns are determined at t_0, the award date:

where P_T is the stock price at the time of exercise or lapse (*T*) and is adjusted for all capitalization changes, and X_T is the exercise price at *T* adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan. Deducting the award return yields the CEO holding return:

$$\frac{P_T - X_T - (P_0 - X_0)}{P_0}.$$

When CEOs have no dilution protection, $X_T = X_0$; but as the level of CEO protection rises toward that of shareholders, $X_T < X_0$. Finally, the

$$\text{shareholder return} = \frac{P_T - P_0}{P_0}.$$

The CEO holding return is lower than the shareholder return whenever CEO dilution protection is less than shareholders'. When shareholder returns exceed CEO returns this means the relative dilution disadvantage faced by CEOs more than offsets any timing and award gains. A reverse inequality is therefore caused by timing and award returns outweighing CEOs' inferior dilution protection and exercise restrictions. For instance, if there are no capitalization changes during the CEO holding period and no conditions placed on exercise, then total CEO return will exceed shareholder return when timing and award returns are net positive.

Although the level of CEO protection is set at or before award, the effect on future CEO returns can be assessed only by tracking capitalization changes during the term of the options. To the extent CEOs are able to anticipate these changes, the realized dilution cost (relative to shareholders) matches its expected

value. Since CEOs almost certainly have ready access to private information, we proceed on this assumption. The relative dilution cost factor is therefore the cumulative shareholder return *minus* the cumulative stock return accruing to the CEO, where the difference is caused by the dilution factor as implied by an award never exceeding the dilution factor applicable to shareholders. The dilution cost factor is zero when CEO dilution protection matches that of shareholders, and positive (unbounded) otherwise.

III.   Sample and descriptive statistics

The sample consists of 207 awards made by 56 companies for fiscal 1985-1999; 158 awards were made by industrially-listed companies and the remainder by companies listed on the mining and oil board *(see endnote 8)*. Table I presents descriptive statistics. Irregular awards (n = 151) dominate the sample.

$129/207$ or 62.3% of all awards end up being exercised, with the remainder lapsing unexercised.

The percentage exercised is more than double the exercise rate commonly observed in the stock options market generally. The percentage of cases with exercise restrictions contained in award agreements is highest for lapsed options (48.7%) and lowest for exercised options (22.5%).

Unlike Yermack's (1997) sample, there is no evidence of awards being timed to precede earnings/investment increases. Earnings returns are computed by dividing bottom-line half-year earnings (which accrue to shareholders) by the market value of the company's outstanding stock at the start of the half-year period *(see endnote 9)*. Award timing is most likely to show up in irregular awards, but the pre- to post-award earnings changes for this and all other groups do not differ significantly from zero, although the median pre-award earnings return is lower than the preceding half-year earnings return for two groups. Raw earnings changes (not reported here) not standardized for the value of investment show a small but also insignificant increase pre- to post-award. To the extent that earnings revisions drive stock prices, timing returns as measured by pre-award stock price runups and rundowns are therefore expected to average approximately zero as well. The median intervals to exercise or expiry (measured in calendar days) are closely similar, implying infrequent early exercise.

Half-yearly, quarterly and monthly and 10 day timing returns are reported in Table II. Recall that the timing return

$$\frac{P_t - P_0}{P_0},$$

where P_t is a company's closing stock price adjusted for all capitalization changes t days pre-award, respectively, and P_0 is the stock price on the award date *(see endnote 10)*. Negative timing returns (stock price runups) are observed for exercised options and positive timing returns are observed (stock price rundowns) for lapsed options. The [-10, -30] differences are significant or nearly so for both exercised and lapsed options, but the [-30, -90] differences are not. The former difference appears driven by market anticipation of at least some awards, for the timing returns are increasing for exercised options but decreasing before awards of lapsed options. Since the timing returns for these groups do not differ for day −90 and day −30, and the difference tests for lapsed options suggest the day −180 returns are becoming unstable, timing returns are hereafter computed relative to the shorter period, viz., day −30.

Table III looks at CEO timing, award and holding returns together with shareholder returns for the whole sample and major sub-groupings. Relative dilution cost is also reported. For the whole sample, the median CEO holding return is 45.32% over a median holding term of 1216 days, which works out to a modest annualized return of 11.87%; for shareholders the annualized return is 13.08%. Several regularities are apparent. Timing returns tend to zero across the whole sample, so at an aggregate level there is no evidence of opportunistic timing of awards *(see endnote 11)*. However, small timing gains from pre-award rundowns are indicated for lapsed options. Award losses (exercise prices set at a premium to market) are indicated for some lapsed options and irregular awards; award discounts are absent. Thus, there is no evidence of opportunism, where CEOs receive "good deals", *viz.*, award discounts after a stock price rundown. CEO holding returns are negative only for the lapsed group and strongly positive elsewhere; the negative returns are lost to CEOs through non-exercise that is also in shareholders' interest. The association of lapsed options with pre-award stock price rundowns is consistent with the market already anticipating declining returns for this group, which has a shareholder return of −19.33% from award to expiry (more than three years). Option awards in this group appear to make little or no difference to this trend.

This is, of course, the scenario in which incentives are most needed, but at the same time the CEO may rationally have decided that extra effort will not alter the outcome (as already anticipated by the market). Options awarded annually/biannually are, on average, awarded at market with no timing gains *(see endnote 12)*. Not surprisingly, *ex post* selection guarantees that exercised options have the highest CEO holding and shareholder returns and lapsed options the lowest. None of the returns for annual/biannual *versus* irregular awards differ significantly (difference tests are not reported).

Relative dilution cost is at a maximum (median -.1635) for exercised options, and lowest for annual/biannual awards (-.0519), closely followed by lapsed options (-.0695). In other words, holders of exercised options accept the least dilution protection, while holders of annually/biannually awarded options have the highest dilution protection relative to shareholders. Table IV indicates that pre-effort bargaining is unevenly distributed across large and small issuing companies. CEOs of large companies accept much less dilution protection than small companies (in terms of median cost, -.1998 *versus* -.0013). There is some evidence of pre-award stock price falls for some small companies, which appear to be more than offset by award premiums. Exercise restrictions for large companies occur at about twice the rate for small companies. A similar inequality is observed for below-median award size *vis à vis* above-median award size. In contrast, relative award size is not a major source of differences. The strongest result from Table IV is that CEOs of large companies accept less dilution protection and bear more exercise restrictions, both of which serve to lower CEO holding returns. Since, as indicated, Top 100 companies have about half the total risk of non-Top 100 companies, this inequality is in the right direction.

IV. Analysis

Tables V and VI look at interactions between risk and award attributes. Table V partitions all returns into high and low risk categories, according to above- and below-median standard deviations of stock returns for one year pre-award *(see endnote 13)*. The CEO holding and total returns together with the shareholder return are higher for the high risk group than for the low risk group, which is an expected result. However, the relation breaks down for timing and award returns. Since there are more lapsed options in the high risk group (exercise rate = 60.6% *versus* 64.1% for the low risk group), the results presented

here are consistent with those for lapsed options in Table III, which possibly have a higher *prior* probability of non-exercise than awards in general. However, Table VI shows that group standard deviations (all of which differ significantly from zero) do not differ between exercised/lapsed options and regular/irregular awards. At this stage, risk differences appear not to be a major cause of return differences between these groups.

Table VII relates CEO holding returns to the pre-effort arguments. Exercise restrictions are excluded from the set of explanatory variables because they affect only realized or "take-home" returns and not CEO holding returns. All regression parameters are highly satisfactory. For the whole sample, CEO holding returns are decreasing in award returns but increasing in relative dilution cost. Award discounts therefore reduce CEO holding returns, while award premiums increase CEO holding returns. Thus, award discounts (which may be seen as leverage of CEO holding returns) appear to reduce rather than increase CEO incentive. Likewise, as relative dilution protection falls, i.e, the cost to the CEO of inferior dilution cost is higher, the observed CEO holding return rises. Both results suggest a more general finding: up-front award discounts and relatively high dilution protection do not enhance CEOs' incentive. By corollary, lower dilution protection induces more effort if the CEO is to exercise. The CEO holding return is lower if the issuing company is in the Top 100, as suggested earlier by the results of Table IV. The sum of the standardized coefficients on the three returns determined at award is positive (.555) for all groups, which reflects the incentive potential of stock options and can be interpreted as an incentive index. In summary, holding returns are increased when CEOs have lower dilution protection and are awarded options at a premium.

The structure of pre-effort exchanges varies across option outcomes and award frequency. For exercised options, CEO holding returns respond more positively to an award premium (three times the sample average) but show less response to lower relative dilution protection (coefficient 3.749 *vs.* 5.773). The incentive index value for exercised options at .227 is the lowest for all groups, which at first sight is surprising given the highest relative dilution cost borne by CEOs in this group, as reported in Table III. However, our interpretation is that CEOs in this group *expect* a lower stock return response coefficient on their dilution cost bearing. In other words, CEOs' payoff for bearing dilution risk is lower, and hence so is their incentive for investing marginal effort. In contrast, lapsed options show the highest

return sensitivity for dilution cost (7.777), and a higher incentive index value (.609 *vs*. .227). Given that holders of lapsed options bear lower dilution risk (refer Table III), the market places a higher reward per unit of relative dilution cost that is borne, but comparatively higher effort is required to generate a sufficient return to guarantee exercise, so the options lapse. Annual/biannual awards are almost indistinguishable from lapsed options in an incentive context.

For irregular awards, CEO holding returns are decreasing in both timing and award returns and increasing in relative dilution cost. The return coefficient on dilution cost and the incentive index value are similar to those for exercised options and the award return sensitivity is close to the sample average, but timing returns enter the set of pre-effort exchanges for the first time. Here, pre-award stock price runups are associated with higher CEO holding returns. In general, from an incentive perspective, runups and award premiums are mutually reinforcing, whereas rundowns and award premiums are not. Irregular awards suggest opportunism, implying that CEOs have private information of future earnings increases. Even if the market has partially anticipated this information, it would still pay a CEO to accept an award despite an upward trend in the stock price. Hence, for irregular awards, we expect to observe stock price runups. We argue that the same reasoning does not extend to award premiums because award returns are negatively signed across all groups; in particular, lapsed options would seem to have the lowest propensity for good news. The low incentive index value (.264) reflects the lower payoff on bearing dilution risk.

If early exercise is not prohibited, shareholders run the risk that granted options will be exercised at the first opportunity when the stock price peaks above the exercise price without the CEO expending extra effort. The risk is higher for awards made after a rundown and at a discount and where CEOs have full dilution protection. Shareholders can limit the costs of early exercise by setting hurdle prices or prohibit early exercise outright, but such restrictions are incentive-weakening. Table VIII therefore explores the relation between the returns on pre-effort exchanges and CEO holding returns with and without exercise restrictions in order to reveal the impact of exercise restrictions. For this purpose the three pre-effort returns are summed. Aggregate pre-effort returns are found to be negative irrespective of exercise restrictions, reflecting the dominance of inferior CEO dilution protection. The negative correlation between pre-effort returns and the CEO holding return remains

when exercise restrictions are absent, implying that the positive incentive effect of inferior CEO dilution protection is robust across an exercise restriction switch. We conclude that exercise restrictions do not materially impact on pre-effort exchanges.

Table IX shows the impact of timing and award returns and relative dilution cost on shareholder returns after controlling for possible intervening factors. Zero CEO marginal effort is unlikely to reduce CEO holding gains to zero as well because profitable operations are likely to continue irrespective of CEO quality, but high CEO holding gains are more likely the result of extra CEO effort. CEO holding returns that do not vary with CEO effort are most likely to vary according to cross-sectional risk differences. The standard deviation of pre-award stock returns is therefore included in the regressions to control for this effect. Variables are also included to represent award size relative to outstanding capital and Top 100 membership. Table IX shows that the addition of intervening variables (particularly risk) do not materially disturb the structure of pre-effort exchanges identified in Table VII for CEO holding returns, subject to an important exception. For irregular awards, award returns do not influence shareholder return, despite influencing the CEO holding return (refer Table VII). For this group, we infer that award premiums exist because future earnings growth would make the options "too easy" to exercise without an award premium. Interestingly, risk has significance only for exercised options, implying the probability of exercise is increasing in underlying risk, which is a standard result. Somewhat surprisingly, award size is not a consideration in any group, so if opportunism exists it does not extend to the relative size of the award.

High CEO holding gains do not guarantee exercise, for either the exercise price may be too high or exercise restrictions may be invoked. Table X presents logistic regressions on exercise (=1) in order to assess the impact of exercise restrictions and exchanges bargained at award. Regressions of CEO holding returns alone on the exercise/lapse outcome are also reported *(see endnote 14)*. Overall, the expectation is that the fit will improve as the realized CEO holding return measured over $[t_0, T]$ is substituted for the set of pre-effort exchanges at t_0. For all awards, the percentage of cases correctly classified increases markedly (from 66.7 to 86.0) as the scenario moves forward in time. At t_0, the probability of exercise is shown to be increasing only in the award return, which is expected because award discounts directly lower the exercise price. There is no indication that pre-award stock price movements, i.e., award timing,

relative dilution protection and exercise restrictions affect the likelihood of exercise. The latter is result is construed to mean that CEOs do not accept exercise restrictions if there is any material likelihood of exercise being affected.

The estimation for annual/biannual awards at award is not successful, from which we infer that exercise of annual/biannual awards is determined by exogenous factors, such as changes in business and financial risks. In contrast, irregular awards show strong evidence of active pre-effort bargaining. For these awards, pre-award runups increase the likelihood of exercise, as does lower dilution protection, i.e., higher relative dilution cost. Again, exercise restrictions do not affect the likelihood of exercise.

V.   Summary and conclusions

This paper documents a structure of timing returns, award returns and relative dilution costs at award. The structure varies according to option outcomes and award frequency. CEO holding returns generally are found to be decreasing in award returns and increasing in relative dilution cost. Award discounts (premiums) reduce (increase) CEO holding returns, from which we infer that award discounts (which may be seen as leverage of CEO holding returns) reduce rather than increase CEOs' incentive. As relative dilution protection falls, i.e, the cost to the CEO of inferior dilution cost is higher, CEO holding returns increase. We conclude that up-front award discounts and relatively high dilution protection lower CEO incentive.   By corollary, lower dilution protection induces more effort if the CEO is to exercise.   With the lone exception of irregular awards, timing returns (pre-award stock price runups/rundowns) do not impinge on shareholder returns.   Thus, we do not corroborate the suggestion by Yermack (1997) that CEOs influencing their awards to occur before earnings increases are acting opportunistically.   The CEO holding return is lower if the issuing company is in the Top 100, which we attribute to lower uncertainty rather than less incentive.

For exercised options, CEO holding returns respond more positively to an award premium but show less response to lower relative dilution protection, which we interpret as CEOs expecting a lower stock return response coefficient on their dilution cost bearing.   In other words, CEOs' payoff for bearing dilution risk is lower, and hence so is their incentive for investing marginal effort.   In contrast, lapsed options show the highest return sensitivity for dilution cost.   Given that holders of lapsed options bear lower dilution risk (refer Table III), the market

places a higher reward per unit of relative dilution cost that is borne, but comparatively higher effort is required to generate a sufficient return to guarantee exercise, so the options lapse. Annual/biannual awards are almost indistinguishable from lapsed options in an incentive context. However, for irregular awards, award returns do not influence shareholder return, despite influencing the CEO holding return. For this group, we infer that award premiums exist because future earnings growth would make the options "too easy" to exercise without an award premium. The fact that exercise restrictions do not impact on exercise suggests that CEOs do not accept restrictions if they are at all likely to impede exercise. It appears that inferior CEO dilution protection may substitute for exercise restrictions, which is logical because capitalization changes are automatically insured against as they occur, whereas exercise restrictions are absolute and hence a relatively inefficient mechanism to achieve the same end.

In summary, our evidence is that award returns and relative dilution cost combine to influence CEO incentives and, as a consequence, shareholder returns and hence exercise. Timing returns and exercise restrictions have comparatively minor and zero impact, respectively. Contrary to popular belief, award discounts do not act as incentives, so the implicit leverage does not work. Exercised options have the highest relative dilution cost factor and the highest sensitivity to award returns: specifically, an award premium adds more value for shareholders in this group than in any other.   In contrast, lapsed options have a low dilution cost factor and a less sensitive response to award premiums. The comparatively flat structure of pre-effort exchanges for annual/biannual awards suggests low shareholder intervention in setting the terms and conditions of awards. This contrasts with evidence of higher shareholder intervention with respect to all other awards. For lapsed options, we conclude that the pre-effort exchanges were not able to affect CEO incentive sufficiently to lead to exercise; in many cases we suspect that no amount of up-front bargaining can reverse a stock price decline.   We interpret runups prior to irregular awards as reflecting shareholders' intention to elicit more CEO effort in the face of impending good news. Restrictions on pre-effort bargaining are likely to lower the probability of exercise and harm shareholders' interest. It would therefore be informative to see if agency problems suggested by investment and financing regularities observed for optioned firms are positively related to flat pre-effort exchanges possibly caused by outside restrictions on pre-effort bargaining.

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Appendices

Table I.   Descriptive statistics

An earning return is bottom-line half-year earnings divided by the market value of the company's outstanding stock at the start of the half-year period, and is not annualized. Irregular stock option awards are all awards not made annually or biannually. Exercise restrictions include hurdle prices and yearly limits on the portion of an award that may be exercised.

	All awards	Exercised options	Lapsed options	Annual/ biannual awards	Irregular awards
Observations	*207*	*129*	*78*	*56*	*151*
Percentage of cases with increases in half-year earnings return:					
pre- to post-award	47.8	48.8	46.2	50.0	47.0
12 months to 6 months pre-award	44.0	43.4	44.9	41.1	45.0
Percentage of cases with options exercised	62.3	100.0	0	66.1	60.9
Percentage of cases with exercise restrictions	32.3	22.5	48.7	25.0	35.1
Pre- to post-award change in half-year earnings return					
mean	.0066	.0162	-.0094	.0326	-.0030
t statistic	.725	1.645	-.531	1.592	-.311
median	-.0015	-.0009	-.0016	-.0001	-.0015
Wilcoxon *Z* statistic	-.114	-.429	-.316	-1.371	-.630
12 months' prior to 6 months' prior change in half-year earnings return					
mean	-.0039	-.0061	-.0003	-.0287	.0053
t statistic	-.478	-.657	-.021	-1.410	.648
median	-.0016	-.0019	-.0009	-.0065	-.0008
Wilcoxon *Z* statistic	-1.626	-1.723*	-.449	-2.272**	-.530
Calendar days from award to post-award earnings announcement date:					
mean	74	82	63	69	77
median	63	63	45	71	60
Calendar days from award to option termination:					
mean	1193	1148	1269	1088	1233
median	1216	1202	1257	1019	1311

**   denotes two-tailed significance for $.01 < \alpha \le .05$

*   denotes two-tailed significance for $.05 < \alpha \le .10$

Table II.   Half-yearly, quarterly, monthly and ten-day pre-award timing returns

Timing return = $\dfrac{P_t - P_0}{P_0}$, where P_t is a company's stock price at the close of trading (t) 180, 90, 30 and 10 calendar days

before the ESO award date, respectively, adjusted for all capitalization changes. P_0 is the stock price on the award date. Irregular stock option awards are all awards not made annually or biannually.

	Base day for timing return			
	day-180	day −90	day −30	day −10
All awards (*n=207*)				
Mean	.0027	.0148	.0133	.0164
t *statistic*	.143	1.023	1.125	1.627
median	-.0318	.0000	.0000	.0034
Wilcoxon *Z* statistic	-1.283	-.693	-.075	.669
Annual/biannual awards (*n=56*)				
Mean	-.0064	.0117	.0143	.0031
t *statistic*	-.172	.429	.860	.246
median	-.0476	-.0201	.0000	.0113
Wilcoxon *Z* statistic	-1.150	-.297	-.602	.916
Irregular awards (*n=151*)				
mean	.0060	.0159	.0129	.0214
t *statistic*	.278	.932	.861	1.642
median	-.0318	.0000	.0000	.0000
Wilcoxon *Z* statistic	-.785	-.682	-.236	.911
Exercised options (*n=129*)				
mean	-.0240	-.0205	-.0170	-.0009
t *statistic*	-1.142	-1.523	-1.709*	-.118
median	-.0480	.0000	.0000	.0033
Wilcoxon *Z* statistic	-1.742*	-1.918*	-1.452	.151
mean difference				
t statistic		.199	.325	1.773*
median difference				
Wilcoxon *Z* statistic		.933	.413	1.248
Lapsed options (*n=78*)				
mean	.0468	.0732	.0632	.0452
t *statistic*	1.331	2.428**	2.454**	1.944*
median	-.0229	.0028	.0071	.0049
Wilcoxon *Z* statistic	-.088	1.307	2.124**	1.289
mean difference				
t statistic		1.581	.483	1.771*
median difference				
Wilcoxon *Z* statistic		1.914*	.314	1.595

** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table III.   CEO timing, award and holding returns, relative dilution cost and shareholder returns by option outcome and award frequency

Timing return $= \dfrac{P_{-30} - P_0}{P_0}$, and award return $= \dfrac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award.   Relative dilution cost is the cumulative shareholder return *minus* the cumulative CEO stock return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the minimum value of the factor is zero.   CEO holding return $= \dfrac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan.   The award gain or loss ($P_0 - X_0$) is necessarily subtracted. Shareholder return $= \dfrac{P_T - P_0}{P_0}$.   Returns are not adjusted for differing intervals. Irregular stock option awards are all awards not made annually or biannually.

	Timing return $[t_{-30}, t_0]$	Award return $[t_0]$	Relative dilution cost $[t_0, T]$	CEO holding return $[t_0, T]$	Shareholder return $[t_0, T]$
All awards (n=207)					
mean	.0133	-.0726	.1650	.8409	.8967
t	1.125	-2.390**	12.397***	7.618***	8.001***
median	.0000	.0064	.1072	.4532	.5062
Wilcoxon Z	-.075	.110	11.074***	7.565***	8.803***
Exercised options (n=129)					
mean	-.0170	.0280	.1883	1.2451	1.3059
t	-1.709*	1.260	11.646***	10.499***	10.830***
median	.0000	.0081	.1635	.8787	.8873
Wilcoxon Z	-1.452	1.639	8.937***	9.707***	9.752***
Lapsed options (n=78)					
mean	.0632	-.2390	.1264	.1726	.2198
t	2.454**	-3.517***	5.610***	.879	1.104
median	.0071	.0000	.0695	-.2095	-.1933
Wilcoxon Z	2.124**	1.716*	6.567***	-3.821***	-3.252***
Annual/biannual awards (n=56)					
mean	.0143	.0145	.1669	1.195	1.2819
t	.860	.314	5.187***	4.351***	4.530***
median	.0000	.0117	.0519	.5331	.5331
Wilcoxon Z	.602	1.239	5.512***	3.606***	3.630***
Irregular awards (n=151)					
mean	.0129	-.1049	.1643	.7096	.7538
t	.861	-2.784***	11.836***	6.409***	6.810***
median	.0000	.0050	.1191	.4467	.4987
Wilcoxon Z	.236	.517	9.624***	6.607***	7.146***

*** denotes two-tailed significance for $\alpha \leq .01$.
**   denotes two-tailed significance for $.01 < \alpha \leq .05$
*   denotes two-tailed significance for $.05 < \alpha \leq .10$

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Table IV.   Cross-tabulations of relative dilution cost, timing and award returns and exercise restrictions by issuer and award size

Relative dilution cost is the cumulative CEO stock return *minus* the cumulative shareholder stock return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the maximum value of factor is zero. Timing return $= \frac{P_{-30} - P_0}{P_0}$ and award return $= \frac{P_0 - X_0}{P_0}$, where P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award.   Inclusion of a company in the Top 100 means the issuing company's total assets at book in a given year are large enough for inclusion in this group. Relative award size is the number of options awarded divided by the number of outstanding ordinary shares. The standard deviation of pre-award stock returns is calculated from adjusted weekly returns for one year prior to award.   Irregular stock option awards are all awards not made annually or biannually.

	Top 100 membership		Relative award size	
	Top 100	Non-top 100	Above-median	Below-median
n	*104*	*103*	*103*	*104*
Relative dilution cost				
mean	-.2310	-.0098	-.1526	-.1773
t	-11.272***	-6.882***	-8.275***	-9.232***
median	-.1998	-.0013	-.0840	-.1210
Wilcoxon *Z*	-8.768***	-6.792***	-7.374***	-8.284***
difference:				
t		-5.303***		.928
Mann-Whitney *U*		2510.0***		4598.0*
Timing return				
mean	-.0107	.0374	.0362	-.0094
t	-1.336	1.695*	1.674*	-1.021
median	-.0011	.0000	.0000	-.0011
Wilcoxon *Z*	-.567	.678	.913	-.846
difference:				
t		-2.048**		1.941*
Mann-Whitney *U*		4867.0		4809.5
Award return				
mean	.0115	-.1575	-.1008	-.0447
t	.815	-2.701***	-1.885*	-1.528
median	.0064	.0050	.0000	.0071
Wilcoxon *Z*	.399	.759	.094	.531
difference:				
t		2.817***		-.921
Mann-Whitney *U*		5194.5		5352.0
Percentage of awards with exercise restrictions	41.35	23.30	24.27	40.78
Standard deviation of				

pre-award returns				
mean	.0354	.0680	.0559	.0474
median	.0279	.0527	.0483	.0360
difference:				
t	5.206***		1.280	
Mann-Whitney U	1954.0***		3800.0***	

Table V. CEO timing, award and CEO holding returns and shareholder returns by risk

Timing return $= \dfrac{P_{-30} - P_0}{P_0}$, and award return $= \dfrac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award. CEO holding return $= \dfrac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan. The award gain or loss $(P_0 - X_0)$ is necessarily subtracted. Total CEO return is the sum of timing, award and CEO holding returns, and shareholder return $= \dfrac{P_T - P_0}{P_0}$.

Returns are not adjusted for differing intervals. The standard deviation of pre-award stock returns was estimated from weekly returns for one year prior to award.

	(1) Timing return $[t_{-30}, t_0]$	(2) Award return $[t_0]$	(3) CEO holding return $[t_0,T]$	(4) = (1)+(2)+(3) Total CEO return $[t_{-30}, T]$	(5) Shareholder return $[t_0,T]$
Above-median pre-award standard deviation of stock returns (n=104); percentage exercised = 60.6					
mean	.0347	-.1549	1.1189	.9987	1.1849
t	1.529	-2.714***	5.902***	5.166***	6.160***
median	.0000	.0000	.5331	.5331	.6259
Wilcoxon Z	.592	.599	5.541***	4.767***	5.784***
Below-median pre-award standard deviation of stock returns (n=103); percentage exercised = 64.1					
mean	-.0084	.0105	.5603	.5624	.6056
t	-1.563	.620	5.275***	5.340***	5.625***
median	-.0011	.0078	.3695	.4038	.4557
Wilcoxon Z	-.902	.793	5.317***	5.399***	5.718***
Above- less below-median group return					
t	1.840*	2.767**	2.571**	1.982**	2.628***
Mann-Whitney U	4748	5188.5	4817	4896	4775

*** denotes two-tailed significance for $\alpha \le .01$.

** denotes two-tailed significance for $.01 < \alpha \le .05$

* denotes two-tailed significance for $.05 < \alpha \le .10$

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Table VI. Risk of pre-award stock returns by option outcome and award frequency

Irregular stock option awards are all awards not made annually or biannually. The standard deviation of pre-award stock returns was estimated from weekly returns for one year prior to award.

	All awards	Exercised options	Lapsed options	Annual/ biannual awards	Irregular awards
n	*207*	*129*	*78*	*56*	*151*
Standard deviation of pre-award stock returns					
mean	.0516	.0470	.0593	.0487	.0527
median	.0397	.0396	.0427	.0355	.0385
Irregular *less* annual/biannual awards					
t				.735	
Mann-Whitney *U*				3947	
Exercised *less* lapsed options					
t		-1.507			
Mann-Whitney *U*		4407.5			

Table VII. OLS regressions on CEO holding returns by option outcomes and award frequency

Timing return $= \dfrac{P_{-30} - P_0}{P_0}$, and award return $= \dfrac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award. CEO holding return $= \dfrac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan. The award gain or loss ($P_0 - X_0$) is necessarily subtracted. Total CEO return is the sum of timing, award and CEO holding returns, and shareholder return $= \dfrac{P_T - P_0}{P_0}$.

Returns are not adjusted for differing intervals. The relative dilution cost factor is the cumulative shareholder return *minus* the cumulative CEO holding return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the minimum value of the factor is zero. Inclusion of a company in the Top 100 means the issuing company's total assets at book in a given year are large enough for inclusion in this group. Relative size of an award is the number of options awarded divided by the number of outstanding ordinary shares at the award date. Irregular stock option awards are all awards not made annually or biannually. The numbers below coefficients are *t* statistics.

	All awards	Exercised options	Lapsed options	Annual/ biannual awards	Irregular awards
n	*207*	*129*	*78*	*56*	*151*
Dependent variable: CEO holding returns					
mean	.8409***	1.2451***	.1726	1.195***	.7096***
median	.4532***	.8787***	-.2095***	.5331***	.4467***
Percentage of cases with options exercised	62.3	100.0	0	66.1	60.9
Adjusted R^2	.433	.306	.740	.560	.346

F	40.364***	15.122***	55.664***	18.465***	20.844***
Constant	.185	.944	-.874	.182	.180
	1.410	5.928***	-5.051***	.754	1.125
$[t_{-30}, t_0]$ Timing return	-.927	-.410	-.501	1.461	-1.343
	-1.644	-.448	-.956	.954	-2.286**
$[t_0]$ Award return	-.513	-1.516	-.821	-.936	-.518
	-2.331**	-3.727***	-3.969***	-1.740*	-2.134**
$[t_0, T]$ Relative dilution cost	5.773	3.749	7.777	6.828	4.961
	12.368***	6.391***	14.482***	8.146***	8.710***
Top 100 (=1)	-.640	-.722	-.207	-.468	-.553
	-3.565***	-3.382***	-.903	-1.076	-2.723***
Sum of standardized coefficients on significant return variables	.555	.227	.609	.642	.264

*** denotes two-tailed significance for $\alpha \le .01$.
** denotes two-tailed significance for $.01 < \alpha \le .05$
* denotes two-tailed significance for $.05 < \alpha \le .10$

Table VIII. Relationship between bargained gains and CEO holding returns with/without restrictions on exercise

Timing return $= \dfrac{P_{-30} - P_0}{P_0}$, and award return $= \dfrac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award. The relative dilution cost factor is the cumulative shareholder return *minus* the cumulative CEO stock return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the minimum value of the factor is zero. CEO holding return $= \dfrac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan. The award gain or loss ($P_0 - X_0$) is necessarily subtracted. Exercise restrictions include hurdle prices and yearly limits on the portion of an award that may be exercised.

	(1) Timing return $[t_{-30}, t_0]$	(2) Award return $[t_0]$	(3) Relative dilution cost $[t_0, T]$	(4) =(1)+(2)-(3) Total $[t_0]$	(5) CEO holding return $[t_0, T]$
Exercise restrictions (*n=67*)					
mean	.0128	-.0195	.5306	-.6260	.7575
t	1.489	-1.824*	2.345**	-.2723***	3.415***
median	.0116	.0064	.1072	-.1316	.1561
Wilcoxon *Z*	1.498	.161	6.510***	-4.801***	3.492***
Correlation between pre-effort exchange and CEO holding returns				-.859***	
No exercise restrictions (*n=140*)					
mean	.0135	-.0549	.1615	-.2029	.8807
t	.794	-1.588	10.821***	-6.645***	7.078***
median	-.0006	.0073	.1062	-.1516	.5147
Wilcoxon *Z*	-.790	.331	8.979***	-6.379***	6.709***

Correlation between pre-effort exchange and CEO holding returns					-.337***
Exercise restrictions *less* no exercise restrictions					
t		-.033	.787	1.628*	-2.569**	-.483
Mann-Whitney *U*		4077.5	4490	4622.5	4665.5	4123

*** denotes two-tailed significance for $\alpha \leq .01$.
** denotes two-tailed significance for $.01 < \alpha \leq .05$
* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table IX. OLS regressions on shareholder return by option outcomes and award frequency

Timing return $= \frac{P_{-30} - P_0}{P_0}$, and award return $= \frac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award. CEO holding return $= \frac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan. The award gain or loss ($P_0 - X_0$) is necessarily subtracted. Total CEO return is the sum of timing, award and CEO holding returns, and shareholder return $= \frac{P_T - P_0}{P_0}$.

Returns are not adjusted for differing intervals. The relative dilution cost factor is the cumulative shareholder return *minus* the cumulative CEO stock return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the minimum value of the factor is zero. Inclusion of a company in the Top 100 means the issuing company's total assets at book in a given year are large enough for inclusion in this group. Relative size of an award is the number of options awarded divided by the number of outstanding ordinary shares at the award date. Irregular stock option awards are all awards not made annually or biannually. The standard deviation of pre-award stock returns was estimated from weekly returns for one year prior to award. The numbers below coefficients are *t* statistics.

	All awards	Exercised options	Lapsed options	Annual/ biannual awards	Irregular awards
n	*207*	*129*	*78*	*56*	*151*
Dependent variable: Shareholder return					
mean	.8967***	1.3059***	.2198	1.2819***	.7538***
median	.5062***	.8873***	-.1933***	.5331***	.4987***
Percentage of cases with options exercised	62.3	100.0	0	66.1	60.9
Adjusted R^2	.444	.364	.747	.542	.359
F	28.412***	13.200***	38.793***	11.839***	14.975***
Constant	.142	.131	-.708	.012	.096
	.441	.681	-3.335***	.022	.462
[t_{-30}, t_0] Timing return	-.910	.094	-.565	1.348	-1.315
	-1.596	.100	-1.073	.814	-2.245**
[t_0] Award return	-.420	-1.260	-.864	-.916	-.396
	-1.786*	-3.084***	-3.857***	-1.560	-1.558
[t_0, T] Relative dilution cost	6.032	4.106	7.903	7.050	5.167
	12.641***	6.532***	14.647***	7.799***	8.787***

Top 100 (=1)	-.667	-.432	-.291	-.443	-.546
	-3.511***	-1.843*	-1.225	-.902	-2.552**
Standard deviation of pre-award stock returns	2.323	14.077	-.662	3.393	2.385
	1.161	3.119***	-.401	.372	1.250
Relative size of award	-10.720	-.431	-13.702	24.238	-4.669
	-1.199	-.038	-1.219	.239	-.552

*** denotes two-tailed significance for $\alpha \leq .01$.
** denotes two-tailed significance for $.01 < \alpha \leq .05$
* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table X.   Logistic regressions on exercise by award frequency

Timing return = $\frac{P_{-30} - P_0}{P_0}$, and award return = $\frac{P_0 - X_0}{P_0}$. P_{-30} is the company's stock price at the close of trading 30 calendar days before the ESO award date, and is adjusted for all capitalization changes made before award. P_0 is the stock price at award, and X_0 is the exercise price at award.   The relative dilution cost factor is the cumulative shareholder return *minus* the cumulative CEO stock return, where the difference is caused by a CEO dilution factor as given by the award never exceeding the dilution factor applicable to shareholders; the maximum value of the factor is zero. CEO holding return = $\frac{P_T - X_T - (P_0 - X_0)}{P_0}$, where P_T is the stock price at the time of exercise or lapse (i.e., expiry) and is adjusted for all capitalization changes, and X_T is the exercise price at T adjusted only for bonuses, rights issues and capital reconstructions as specified in the award plan.   The award gain or loss ($P_0 - X_0$) is necessarily subtracted.   Irregular stock option awards are all awards not made annually or biannually.   The numbers below coefficients are Wald statistics.

	All awards (n=207)		Annual/biannual awards (n=56)		Irregular awards (n=151)	
Percentage of cases correctly classified	66.7	86.0	64.3	66.1	69.5	88.1
Cox & Snell R²	.116	.145	.092	.057	.150	.233
χ^2	25.440***	32.528***	5.424	3.284	24.592***	40.007***
Constant	.454	.038	.921	.302	.149	-.203
	3.881**	.051	2.512*	2.542	.270	.923
[t_{-30}, t_0] Timing return	-2.205		-.934		-3.323	
	2.330		.118		3.033*	
[t_0] Award return	1.329		2.141		1.026	
	7.031***		2.092		3.324*	
[t_{-30}, T] Relative dilution cost	1.443		-.326		3.154	
	2.519		.063		5.235**	
Exercise restrictions (=1)	-.228		-.592		-.281	
	.494		.837		.511	
[t_{-30}, T] CEO holding return		.857		.376		1.550
		18.818***		1.366		22.740***

*** denotes two-tailed significance for $\alpha \leq .01$.
** denotes two-tailed significance for $.01 < \alpha \leq .05$
* denotes two-tailed significance for $.05 < \alpha \leq .10$

Endnotes

[1] In this paper we do not explore the substitutability between stock ownership and stock options. A recent survey of the theoretical literature is provided in Henderson (2001) and further insights are offered by Hall and Murphy (2002).

[2] although CEOs rarely sit on their compensation committees, this is not to suggest they do not influence committee deliberations. This would seem especially so for founder CEOs.

[3] This issue is addressed in a number of papers in the special issue of Journal of Financial Economics devoted to ESOs (a Symposium on Executive Stock Options, July 2000).

[4] Yermack (1997) infers award timing with respect to quarterly earnings announcements. Three-day abnormal returns on earnings announcements are significantly positive when an award is made in the preceding week, but not otherwise. As well as post-award stock price runups, Yermack also documents significant pre- to post-award quarterly earnings increases, whether measured as earnings surprises (more than two standard deviations from the mean analyst forecast) or changes in earnings/investment. Awards made at irregular intervals attract higher post-award runups than annual awards.

[5] Another possibility is that discounted options may be awarded *after* successful CEO effort as a risk-free reward. We consider this less likely than bonuses or other non-contingent benefits because both are less risky means of delivering rewards than options.

[6] Yermack (1997) cites two examples of companies acknowledging management CEO influence over the terms and conditions of CEO awards, but no such instances were observed during collection of our sample.

[7] The choice of day −30 for the base price is justified in the next section.

[8] Where portions of an awarded tranche of ESOs are exercised on different dates or lapse, each portion is counted as an award for the purposes of this study,

[9] The earnings returns are therefore not annualised.

[10] Intervals less than 30 days pre-award were not considered because some awards may have been anticipated, which would tend to show runups even where the stock price had been declining since day −90.

[11] The results are closely similar when timing returns are recalculated using day −90 as a starting point.

[12] Total CEO returns (defined as the sum of timing, award and holding returns) and shareholder returns are highly positively correlated for all groups, with the lapsed options having the lowest r at .907, with $p=.000$.

[13] The standard deviation of pre-award stock returns was calculated from adjusted weekly returns for one year prior to award. Weekly returns were preferred to daily returns in order to eliminate the effect of very short term price fluctuations.

[14] The standard deviation of pre-award stock returns, relative award size and Top 100 were initially included as an explanatory variables, but are omitted from our reported results owing to lack of significance in all cases.

INTERNAL AUDIT QUALITY, AUDIT COMMITTEE INDEPENDENCE, GROWTH OPPORTUNITIES AND FIRM PERFORMANCE

Marion Hutchinson, Mazlina Mat Zain***

Abstract

This study explores whether the relation between internal audit quality and firm performance is associated with firm characteristics of information asymmetry and uncertainty (growth opportunities) and certain governance controls (audit committee effectiveness). The results from this preliminary study of 60 Malaysian companies show that the association between internal audit quality and firm performance is stronger for firms with high growth opportunities and that this positive association is weakened by increasing audit committee independence. These findings demonstrate the internal auditors conflicting roles and question the governance recommendations that require all members of the audit committee to be non-executive directors.

Keywords: Growth opportunities, internal audits, audit committee, agency costs, firm performance

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1. Introduction

This paper explores the role of internal audit quality on firm performance in a sample of Malaysian firms. It extends prior research on the role of internal audits (e.g., Carcello, Hermanson, and Raghunandan, 2005; Jensen and Payne, 2003; Nagy and Cenker, 2002), including whether the role should be outsourced (e.g. Caplan and Kirschenheiter, 2000). The study is motivated by three factors. First, prior research suggests that internal audits can have a positive influence on corporate governance, including reporting quality and firm performance (e.g. Gramling, Maletta, Schneider and Church, 2004). Despite widespread acceptance of the benefits of internal auditing, there is relatively little documented empirical research on the role of internal auditing on firm performance. Further, it appears that the quality of the internal audit department is more important than the existence of an internal audit department. For example, Davidson, Goodwin-Stewart and Kent (2005) find no significant association between voluntary establishing an internal audit function and a reduction in the level of discretionary accruals. This finding suggests that merely establishing an internal audit does not control managers' incentives to manage earnings. Second, organizational theory and contracting theory suggests that only certain types of

organizations with particular firm characteristics could benefit from internal audit quality (IAQ).[4] According to organizational contingency theory, linkages between specific management control systems and firm performance are likely to depend on contextual and environmental factors (Chenhall, 2003). Similarly, according to contracting theory the relationship between management control systems and firm performance depends on the costs of writing and enforcing contracts which may vary depending on firm characteristics (Watts and Zimmerman 1986). In this study we draw on contracting theory to investigate whether growth opportunities and audit committee independence affect the relationship between IAQ and firm performance. Third, while several studies have focused on internal auditing issues in developed countries, such as the USA and

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[4] SAS 65 (AICPA 1991) describes internal audit quality characteristics as comprising of competence (i.e. educational level, certification and prior experience), objectivity (e.g., reporting relationship, party responsible for appointment and termination of internal auditors), and quality of work performance (e.g., adequacy of audit programs). Likewise, the IIA standard 1210 on internal auditor's proficiency specifies that the internal auditors should possess the knowledge, skills and other competencies needed to perform in order to ensure audit effectiveness. In our study, we focus on internal auditors' competence, proxied by auditing experience and certification of the internal audit staff.

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UK, there is little evidence from emerging markets such as Malaysia. Malaysian firms are of interest to this area of research because during this period it was mandatory for listed Malaysian companies to have an audit committee[5] while forming an internal audit function was voluntary.[6] Therefore, establishing an internal audit department is a relatively recent phenomenon in Malaysian companies.[7] In addition, the necessity for stringent corporate governance in Malaysia is demonstrated by the alleged accounting fraud at Technology Resources Industries Berhad (see Fadzil, Haron and Jantan, 2005). In this paper we provide some insights on whether internal auditing as a monitoring/control mechanism is linked to firm performance in Malaysian firms.

The first objective of this paper is to determine if there is an association between internal audit quality and firm performance. The professional literature identifies both accounting qualifications and prior auditing experience of the internal audit staff as important ingredients for an effective internal audit function (e.g. the Research Committee of the Institute of Chartered Accountants of Scotland in McInnes, 1993). However, the relation between IAQ and firm performance is unlikely to be straightforward since both organizational theory and contracting theory suggests that only certain types of organizations with particular firm characteristics could benefit from IAQ.

Since, prior evidence drawn from contracting theory suggests that growth (or investment) opportunities is likely to affect firm performance (see Smith and Watts, 1993; Baber et al. 1996) we us also examine if growth opportunities affects the linkage between IAQ and firm performance. Contracting theory suggests that firms with high growth opportunities are associated with high information asymmetry and managers of these high growth firms are more difficult to monitor (Smith and Watts, 1992; Gaver and Gaver, 1993; Baber et al. 1996). Therefore, the role of IAQ is expected to be more beneficial for such firms. This study seeks to determine whether the link between IAQ and firm performance is dependent on the level of growth opportunities of the firm.

As audit committees are also part of the internal control system of a firm, the second objective of this paper is to determine whether audit committee independence has an impact on the association between IAQ and the performance of growth firms. Hermanson and Rittenberg (2003) suggest that the role of the auditor is one of preeminent monitoring and reporting to the board on the effectiveness of corporate governance. They foresee a possible conflict between the role of the internal audit function and the role of the audit committee and these tensions could affect organizational outcomes[8]. Together with Gramling et al (2004), they suggest that we need to understand how the internal audit function interacts with the audit committee, management, and the external auditors to achieve quality corporate governance. By examining the interaction between IAQ and audit committee independence on the performance of growth firms we shed some light on this question.

The data for this study of Malaysian firms is obtained from two sources. The first source is a survey of Malaysian firms listed on the Bursa Malaysia Berhad[9] to obtain data on internal auditing. The second source is the annual reports of the firms responding to the survey. The data on firms' growth opportunities, audit committee and profitability is collected from the 2003 financial reports. Prior studies of Malaysian firms have examined the internal control practices of the internal audit function but not the implications on firm performance. Research of Malaysian firms demonstrate the importance of the internal audit by showing that management relies on internal audits to provide assurance on matters relating to internal control such as the provision of an independent review of efficient operations (Ernst and Young, 2005; Fadzil et al., 2005). Recent research by Mak and Kusnadi (2005) examines the impact of corporate governance mechanisms on the value of

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[5] In August 1994 the Bursa Malaysia Berhad (BMB) Listing Requirements made it mandatory for all public listed companies to have an audit committee. Further, to enhance the effectiveness of the audit committee, the BMB Listing Requirements amended its listing rules in 2001 requiring public listed companies to include the Audit Committee Report in their Annual Reports. The ten mandatory requirements for the Audit Committee Report are: (1) the audit committee should comprise of at least three members, (2) the majority of the audit committee should be composed of independent directors, (3) at least one of the audit committee members is financially literate, (4) the chairman of the audit committee must be an independent director, (5) no alternate director of the audit committee is appointed as a member, (6) there are written terms of reference, (7) the number of meetings should be noted, (8) the majority attending the meeting should be independent directors, (9) there should be a summary of audit committee activities and (10) a summary of internal audit activities should also be produced.

[6] Although it is not mandatory to establish an internal audit function, an interesting issue is the revamped Bursa Malaysia Berhad Listing Requirements (Previously know as the Kuala Lumpur Stock Exchange) in particular Para 15.27 (b) states that a listed issuer must ensure that its board of directors includes in its annual report as a "statement about the state of internal control of the listed issuer as a group".

[7] During the year 2000, the Finance Committee on Corporate Governance in Malaysia approved the Malaysian Code on Corporate Governance (MCCG). In contrast with the BMB Listing Requirements, the MCCG BB VII in Part 2 Best Practice Provision specifically recommends the board establish an internal audit function and maintain a sound system of internal control to safeguard shareholders' investments and the company's assets.

[8] The issue of the potential for tension between the internal audit department and audit committees is also raised by the Institute of Internal Auditors Research Foundation (2005).

[9] The Kuala Lumpur Stock Exchange (KLSE) changed its name to the Bursa Malaysia Berhad (BMB) on April 20, 2004.

Singapore and Malaysia firms (as measured by Tobin's *Q*). The only significant association they find is a negative relationship between board size and firm value. They fail to find any significant association between either audit committee size or the proportion of independent directors on the audit committee and firm value. The evidence provided in this study suggests links between the performance of firms adopting a growth strategy and the quality of the internal audit function. Further, this study demonstrates that these associations are moderated by audit committee independence. Using observations from 60 Malaysian firms, this paper provides preliminary evidence that there is a positive association between IAQ and firm performance for firms with high growth opportunities, but not for firms with low growth opportunities. Further, we also show that, in the presence of an independent audit committee, the positive association between IAQ and performance for high growth firms disappears, suggesting a conflict effect between IAQ and audit committee. These preliminary findings suggest that focusing attention on the composition of the audit committee ignores the essential skills required for an effective AC. "Overemphasis on monitoring and control risks non-executive directors seeing themselves, and being seen, as an alien policing influence….. An overemphasis on strategy risks non-executive directors becoming too close to management… (Higgs Report 2003:27). An effective AC attains the appropriate balance between internal and independent directors; a great proportion of either can swing the balance in the wrong direction and cause conflict with the role of the IA.

This paper contributes to the literature in several ways. First, this study provides evidence from an emerging economy, Malaysia. Given the globalization of business, there is increasing interest in accounting and control issues in these countries. Second, this study demonstrates that research can successfully utilize both survey methodology and accounting data to study management control issues. Third, the results of this study are consistent with the notion that internal audits provide higher levels of control and monitoring that are associated with performance. However, this association is dependent on the firm's growth opportunities. Our results imply that it may not be economically efficient to establish an internal audit function in the absence of growth opportunities. Fourth, this study demonstrates the contingent nature of IAQ and how IAQ is related to other corporate governance controls, such as audit committee. The results of this study question whether firm performance is enhanced when internal audits are expected to serve as a resource to the audit committee and management, placing the internal auditor in a situation of possible conflict. Finally, this paper contributes to the literature by integrating management control and corporate governance theory in terms of the role of IAQ and audit committees and shows that such integration provides a deeper

understanding of how and why these variables interact to affect firm performance. This evidence is not available in the extant literature.

2. Background and hypothesis development

An increasing number of earnings restatements along with allegations of financial statement fraud committed by high profile companies have eroded public confidence in corporate governance, the financial reporting process, and audit functions (Rezaee, et al., 2003). Subsequently, the firm's internal control environment is under scrutiny. As part of the overall internal control environment, the internal auditor and the audit committee have a responsibility to provide oversight on the reliability of financial reporting. The Institute of Internal Auditors (2000) suggests that the internal audit function should bring a systematic approach to evaluating and improving the effectiveness of risk management, control and governance processes. This is likely to lead to increased responsibilities placed on the internal audit function and audit committee of companies that previously did not have or outsourced the internal audit function. Consequently, the internal audit function has greater responsibilities for supporting management and the audit committee.

2.1 Internal auditing and firm performance

One of the roles of the internal auditor is to provide management with an independent and objective assurance that the organizations internal control system is effective, adequate and reliable (IIA, 2000). In addition, the IA provides consulting on operational skills that focus on risks, evaluate the efficiency of operations and stimulate organizational actions (Hermanson and Rittenberg 2003). In response to regulatory, environmental and technological change, IA is required to do much more than compliance work. The IA must have a thorough knowledge of how their work contributes value and links to organizational strategies and achievement (Hass, Abdolmohammadi, and Burnaby, 2006). Therefore, internal auditing is designed to add value and improve the organizations operations (Carcello et al., 2005). Research on auditors' assessment of the criteria of IA competence includes IA training programs, with an emphasis on professional certifications (Brown, 1983), and IA experience (Messier and Schneider, 1988).

Prior studies also suggest that the auditor should have professional qualification and prior experience if they are to lead a good quality audit (e.g. Brody et al., 1998). Boo and Koh's (2004) study indicates that audit team quality and attributes relate to their ability to suggest improvement to internal control systems; operational efficiency; risk management; and financial matters. Prior experience is important for internal auditors as many oversight judgments are subjective

and managerial action may have pervading effects. Therefore, in the absence of objective criteria, internal audit staff not possessing prior experience in auditing (or less experience), may not understand the wide range of existing and potential problems nor possess problem-solving skills (DeZoort, 1998). Consequently, an IA with greater training and experience is more able to provide assurance of the effectiveness and efficiency of oganisational controls in aligning with organizational strategies. Research by Fadzil et al (2005) supports this notion by finding that IAQ [10] significantly influences the quality of monitoring the internal control system. Mat Zain et al (2006) find that internal auditors contribute more to financial statement audits when they have a greater proportion of IA staff with prior experience in accounting and auditing. Research also finds that effective internal audits are more likely to detect and prevent fraud (Beasley, Carcello, Hermanson, and Lapides, 2000; KPMG Peat Marwick, 1999).

The redefinition of internal control as risk management emphasizes the links to strategy formulation which is supported by the internal controls of the organization. All risks experienced by organizations have potential financial implications and so too does the risk management responsibility of the IA. Further, the internal audit helps to maintain cost-efficient contracting between owners and managers. Thus, the internal audit has the potential to augment the external audit function and reduce the overall monitoring costs. For instance, research by Felix et al (2001) find that the contribution of IA to financial statement results in cost saving related to audit fees paid by the firm to their external auditors. Taken together, these preceding factors suggest that greater IAQ is associated with greater firm performance. However, it is likely that the relation between IAQ and firm performance varies with organizational characteristics. Despite increasing attention on IAQ, little is known about factors that influence the association between IAQ and firm performance. Why would higher IAQ be associated with better firm performance for some firms and not for others? There are a myriad of factors that could influence the association between IAQ and firm performance. Given the role of the IA as monitoring and managing risk, we examine whether the association between IAQ and firm performance is dependent on uncertain investment opportunities and the independence of the audit committee.

2.2 Growth opportunities

Firms need to establish internal controls that manage risk effectively. Risk has been defined as the possibility of loss as a result of a combination of uncertainty and exposure flowing from an investment decision or a commitment (Boritz, 1990). The

agency costs associated with high growth opportunities means that high growth firms have high levels of inherent risk[11]. Subsequently, high growth firms are more likely to benefit from higher IAQ, which means better financial performance. The reasons for this proposition follow the research by Gaver and Gaver (1993) and Smith and Watts, (1992). Low growth firms are valued independently of the firm's future investment opportunities while high growth firms are valued based on the firm's future discretionary investment decisions. As low growth firms are pre-committed to a certain course of activity, shareholder/manager conflict is low which minimizes agency costs. In contrast, high growth firms incur greater agency costs because managers' actions are less discernible as the value of growth opportunities depends on further discretionary expenditures by managers[12]. The subsequent information asymmetry means that growth firms adopt particular strategies to monitor managers, including creating internal audit departments. Carcello et al. (2005) suggest that greater information asymmetry increases the need for greater investment in IA to bond or monitor[13] agents. Further, high growth firms are more likely to encounter problems with internal control requiring greater monitoring and assistance from internal auditors (Carcello et al., 2005; Maletta and Kida, 1993). However, it is not simply the existence of IA that is important, as demonstrated by Davidson et al. (2005), but the quality and effectiveness of the internal audit department that is important for firms with uncertain investment opportunities. The IA must have the training and experience that links the evaluation of the risks associated with uncertain growth opportunities to the firm's strategies that achieve positive outcomes. In the high-risk conditions of high growth opportunities, internal audit quality is a primary factor that influences internal audit contribution to firm performance. Consequently, we expect a positive association between IAQ and firm performance for high growth firms. The preceding discussion leads to the first hypothesis:

H1: *A combination of high quality internal audit (X_1) and high levels of growth (X_2) will have a positive impact on firm performance (Y).*

2.3 Audit committee

Audit committee oversight includes financial reporting, internal controls to assess risk and auditor activity

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[10] IAQ also refers to the management of the internal audit department, professional proficiency, objectivity and review.

[11] Inherent risk relates to the type of business and environment in which the firm operates.
[12] Discretionary expenditures include capacity expansion projects, new product lines, maintenance and replacement of existing assets.
[13] Internal auditing is a bonding cost incurred by agents to signal to the principal they are acting responsibly, while monitoring costs are incurred by the principal to protect their economic interest (Adams, 1994)

(DeZoort, Hermanson, Archambeault and Reed, 2002).[14] The audit committee, as a governance mechanism, reduces information asymmetry between stakeholders and managers and therefore mitigates agency problems. Research finds that firms without audit committees are more likely to have fraudulent financial reporting (Dechow, Sloan and Sweeny, 1996) and earnings overstatement (DeFond and Jiamnalvo 1991). To fulfill the oversight role, the audit committee must be independent from management, thus giving rise to the recent governance recommendations and regulations demanding an independent audit committee.

The Sarbanes-Oxley Act (2002) mandates that the audit committees of listed companies consist entirely of independent directors and the recent amendments to the Bursa Malaysia corporate governance framework, which was introduced in 2008, requires all members of the audit committee to be non-executive directors.

Research also provides evidence of the importance of audit committee independence (ACI). Krishnan (2005) find that independent audit committees and audit committees with financial expertise are significantly less likely to be associated with the incidence of internal control problems[15]. Likewise, Abbott et al. (2004) find that audit committees consisting of all independent members and with at least one member with accounting or related expertise are negatively associated with financial restatements. Beasley et al. (2000) find firms that commit fraud are likely to have less independent audit committees.[16]

One of the main objectives of establishing an audit committee is to strengthen the board's ability to monitor the performance of managers. However, studies testing the association between ACI and firm performance are inconclusive. Erickson et al. (2005) find a positive relationship between ACI and firm performance while Klein (1998) and Hsu (2008) find no significant association. Mak and Kusnadi (2005) fail to find any significant relationship between either audit committee size or the proportion of independent directors on the AC and firm value. Failing to account for environmental uncertainty faced by the firms, such as uncertain investment opportunities, and interrelations between governance controls such as IAQ and ACI may have led to the conflicting results.

An optimal internal control system is associated with the environment and the context in which the system operates. It is posited in this paper that a positive association between IAQ and firm performance is contingent on the level of risk faced by the firm, that is, high, but uncertain, growth opportunities[17]. Further, Klein (2002) finds that audit committee independence declines as growth opportunities increase. This result is consistent with her expectation that managers demand for internal directors with expertise increases with the complexities and uncertainties of growth opportunities. Klein (2002, p.436) also suggests that firms tailor audit committee composition to suit their economic environment. Subsequently, the level of growth opportunities of the firm has the potential to influence the association between the IA and AC and subsequently, firm performance. Previous research has found that high growth firms prefer an insider dominated board to integrate the practical activities of the firm around its strategies (Bathala and Rao, 1995; Hutchinson, 2001). As growth opportunities are firm specific, subject to managerial decisions, inside directors have an essential role to play in providing valuable information to the AC about the firm's activities. Donaldson and Davis (1994) suggest that inside directors make superior decisions, having access to corporate information and the ability to take a long-term view.

Codes, regulations, and various best practice guides stress the importance of the internal audits' relation with other parties responsible for corporate governance. However, research on the relations between internal audits and the audit committee is limited, focusing only on the association between audit committee characteristics and the internal audit (e.g. DeZoort, Friedberg, and Reisch, 2000). Internal audits have a dual role to play in the corporate governance of the organization, which places the internal auditor in a position of possible conflict.

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[14] In Malaysia the audit committee is required to prepare a summary of the principal internal audit activities and functions. These activities include audit of financial management and human resource operations and security controls. The reports should also mention that the audit committee has approved the internal audit program at the beginning of the year and the chief internal auditor has submitted regular reports on audit work and activities prior to the committee meeting. In addition, the audit committee must be satisfied that the internal auditors have worked closely with external auditors to resolve issues raised by the external auditors in relation to the control issues in the organization (Haron, Jantan and Pheng, 2005, p. 193).

[15] They investigated two levels of seriousness in internal control problems: reportable conditions and material weaknesses. The data on internal controls is acquired from the reports from companies changing auditors. These companies are required to disclose any internal control problems that are pointed out by the predecessor auditors

[16] Based on reputational capital enhancement theory, past studies argue that independent audit committees are more likely to demand a higher quality audit in order to protect their reputation as experts in decision making (Abbott & Parker 2000; Carcello & Neal, 2000). Further Abbott & Parker (2000, p.56) argue that while an "audit committee service may increase directors' reputation as a monitor, it also exacerbates the potential reputational damage should the misstatement occur while the director serves on the audit committee". In addition, Baysinger and Butler (1985) find that independent audit committees are more willing to

disagree with management and are more likely to insist on high quality audit.

[17] Of course there are other risks that may be affect the association between IAQ and firm performance, such as audit risk, operating risk, financial risk, etc.

Hermanson and Rittenberg (2003, p. 34) suggest that there are

> "significant differences in functions and skill sets required when trying to serve audit committee needs, as opposed to meeting the needs of strategic and operational management. Management wants the internal auditor to provide both assurance and consulting based on broad operational skills that address risks, evaluate the efficiency of operations, and stimulate organizational action. On the other hand, the audit committee is more interested in assurance regarding controls."

Prior research demonstrates the complex and contingent nature of the association between internal audits and the audit committee. The internal auditor in many firms reports directly to the CEO and the head of the audit committee rather than management because the audit committee's role is to monitor and report on the effectiveness of corporate governance (Krell, 2003). However, Nagy and Cenker (2002), find, when interviewing internal audit directors, management primarily determines the role of the internal auditor, thus placing the IA in a position of potential conflict. Raghunandan, Read and Rama (2001) find that the audit committee independence[18] and expertise[19] is associated with their ability to influence internal auditors via access to the chief internal auditor and their ability to review internal audit activities. Hence, an independent audit committee places greater demands on internal audits. However, good corporate governance should be promoted without stifling entrepreneurial drive or impairing competitiveness. The business advisory group's to the original OECD principles states:

> "Entrepreneurs, investors and corporations need the flexibility to craft governance arrangements that are responsive to unique business contexts....." (OECD, 1998, p.34).

Subsequently, audit committee independence (ACI) may inhibit the performance of growth firms as the internal auditor focuses on the compliance requirements of the audit committee rather than assisting management with assessing the potentially profitable risks of uncertain investment opportunities. Thus, ACI affects the strength of the relationship between IAQ and the performance of high growth firms. No research is found that addresses these associations. This leads to the following hypothesis:

H2: A combination of both high quality internal audit (X_1) and audit committee independence (X_3) have a negative impact on firm performance (Y) for high growth firms (X_2).

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[18] The proportion of independent directors on the audit committee.

[19] The proportion of committee members with an accounting or finance background.

3. Data

Data on internal audit quality is collected though a mail questionnaire survey of public listed companies in Malaysia during 2003. Five-hundred and four questionnaires were sent to the head of the internal departments of public companies listed on the Bursa Malaysia Berhad. A total of 101 (20.03 percent) responses were received of which 60 (12 percent) were useable responses. Of the 41 non-useable responses, 30 were eliminated due to the companies having fully outsourced and co-sourced their internal audit functions, thus information relating to the quality of internal audits was unavailable. The remaining responses were excluded due to incomplete information. While the original questionnaire contained several questions, the two questions of interest in this paper deal with the auditing experience and accounting qualification of the internal audit staff. The relevant questions of the survey instrument on the internal audit function are reported in the appendix. Other information on firm performance, audit committees and growth opportunities is obtained from the annual reports of the respective firms (year-ending 2003) responding to the survey.

3.1 Dependent variable

The internal audit function includes risk management and better internal controls which should manifest in better firm performance. The dependant variable, firm performance is measured as the firm's return on assets (ROA). We use this accounting based measure because internal audits and the audit committee are concerned with, among other things, providing assurance regarding the integrity of financial information, that is, that the firm's performance is accurately reported. Hence, we would expect to see a positive association between IAQ and firm performance.

3.2 Independent variables

The measure of internal audit quality is separated into two variables to capture the auditing experience (PSAPA) and accounting qualifications (PSAQ) of the internal audit staff. PSAPA is the proportion of internal audit staff with prior work experience in auditing to the size of the internal audit function while PSAQ is the proportion of internal audit staff with an accounting qualification to the size of the internal audit function. These measures also control for the size of the internal audit team since they are proportions of the total number of staff in the internal audit department. Prior research and legislation suggests that audit committee effectiveness is dependent, in part, on the extent to which the committee is independent and suggest that the audit committee should consist of a majority of non-executive or independent directors (e.g.

Raghunandan et al 2001[20]. Our measure of audit committee independence (ACI) is an indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee). The measure of growth adopted in this study, the market-to-book value of equity, is used extensively in prior research (e.g. Smith and Watts, 1992) and is obtained from the annual reports of the firms completing the usable responses to the questionnaire.

Following Govindarajan and Fisher (1990) and Gul and Chia (1994) we adopt the multiplicative model for testing our hypotheses. The model requires transformation of the independent variables into a point-scale for the analyses. The three point-scales for PSAPA and PSAQ are determined following assessment of the distribution of the variables. Table 1 reports the distribution of the proportions for PSAPA and PSAQ. The scores for each of the variables are converted to a three-point scale. PSAPA is a three-point scale of the proportion of internal audit staff with auditing experience: 1 if the proportion is ≤ 0.5; 2 if the proportion is > 0.5 and < 1; and, 3 if the proportion $= 1$. PSAQ is a three-point scale of the proportion of internal audit staff with an accounting qualification: 1 if the proportion is ≤ 0.5; 2 if the proportion is > 0.5 and < 1; and, 3 if the proportion $= 1$. The measure of audit committee independence (ACI), the proportion of independent members to the total number of members in the audit committee is: 0 if the proportion is < 0.7; 1 if the proportion is ≥ 0.7 and ≤ 1. The cut-off point is based on the distribution of the proportions.

Insert Table 1 here

3.3 Control variables

Agency theory suggests that increased leverage controls agency costs by reducing the amount of cash available to managers for discretionary investments. Hence, managers are constrained in making sub-optimal decisions from the debt-holders perspective. Leverage and liquidity also impact on the firm's ability to generate profits. We use two measures of debt (total debt and long-term debt) which are included as control variables as they represents an external corporate governance control which is likely to impact on firm performance. Leverage is measured as: Leverage = current and non-current borrowings divided by total equity. This ratio indicates how firms choose to finance operations. The lower the ratio, the greater the protection for lenders, who rank before shareholders. A measure of long term debt is included and is measured as NCL = net current liabilities divided by total assets. The liquidity ratios, inventory ratio and accounts receivable ratio, are included in the model as these

variables are likely to impact on firm risk. These variables are measured as: INV/TA – inventory divided by total assets; and, AR/TA – account receivable divided by total assets.

4. Method

4.1 Multiplicative model

The multiplicative model (Althauser, 1971; Govindarajan and Fisher, 1990), used extensively in contingency-type research, is adopted for testing the interactive effects of internal auditor quality (IAQ), growth (market-to-book value of equity) and audit committee independence (ACI) on firm performance (ROA) in hypothesis one and hypothesis two. This involves using the following multiple regression equations:

$$Y = a_0 + a_1 X_1 + a_2 X_2 + a_3 X_1 X_2 + \varepsilon$$

(1)

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_1 X_2 + b_5 X_1 X_3 + b_6 X_2 X_3 + b_7 X_1 X_2 X_3 + \varepsilon \quad (2)$$

Where Y = Firm performance (ROA); X_1 = Internal auditor quality proxies using a three point scale for the proportion of internal audit staff with prior work experience in auditing to the size of the internal audit function (PSAPA) and proportion of internal audit staff with accounting qualification to the size of the internal audit function (PSAQ); X_2 = Growth is measured as the market-to-book value of equity; X_3 = Audit committee independence using an indicator variable for the proportion of independent members to the size of the audit committee); $X_1 X_2$, $X_1 X_3$, $X_2 X_3$, $X_1 X_2 X_3$ = Interaction of X_1, X_2 and X_3.

The regression models test whether the interactive effects of the independent variables are important in explaining variations in firm performance. If a_3 and b_7 are significant, this is equivalent to saying that the corresponding incremental R^2 is statistically significant at the same probability level (Southwood, 1978, p.1168; Jaccard, Turrisi and Wan., 1990, p.22; Cohen and Cohen, 1983; Hartmann and Moers, 1999). This means that the introduction of the term $X_1 X_2$ in equation (1) and $X_1 X_2 X_3$ in equation (2) add significantly to the variance explained. However, this provides no information on whether the posited relationship is monotonic[21]. In order to test for a monotonic relationship, the partial derivatives from the above regression equations are examined (Southwood, 1978; Schoonhoven, 1981). For example, in testing whether the relationship between IAQ and ROA depend on the level of a firm's growth opportunities (MBE) (hypothesis one), we take the partial derivative of equation (1) with respect to X_1, as below:

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[20] Bursa Malaysia recently prohibited executive directors from being part of the audit committee.

[21] For a discussion on monotonic and non-monotonic effects, see Schoonhoven (1981).

$$\delta Y / \delta X_1 = a_1 + a_3 X_2$$

(3)

The partial derivative of the impact of internal auditor quality (X_1) on firm performance (Y) in equation (3) depends on the level of growth (X_2). If the value of $\delta Y / \delta X_1$ in equation (3) is always positive or always negative over the entire observable range of X_2, the relationship between Y and X_1 would be regarded as monotonic; otherwise, it would be regarded as non-monotonic. Similarly, the partial derivative of equation (2) with respect to X_1 is examined, as below:

$$\delta Y / \delta X_1 = b_1 + b_4 X_2 + b_5 X_3 + b_7 X_2 X_3$$

(4)

Equation (4) illustrates that the relationship between Y and X_1 depends on both the level of growth and audit committee independence. If audit committee independence (X_3) is a constant, equation (4) can be re-arranged as:

$$\delta Y / \delta X_1 = (b_1 + b_5 X_3) + (b_4 + b_7 X_3) X_2$$

(5)

In this way, the effect of growth on the relationship between internal auditor quality and firm performance can be examined conditional on the independence of the audit committee.

5. Results

The descriptive statistics are presented in Table 2. The average ROA is 4.7 percent while the average market-to-book ratio of equity (growth) is 1.51. Leverage is 41 percent, the long term debt ratio is 14.5 percent and the liquidity ratios average between 13 and 14 percent.

Insert Table 2 here

The correlations between the dependent variable ROA and the independent variables are shown in Table 3. The only variable that is positively and significantly correlated with ROA is the measure of growth opportunities. The long-term debt ratio is negatively and significantly correlated with ROA.

Insert Table 3 here

Table 4 and 5 provide the results of the multiple regression models performed to test the various hypotheses[22]. As reported in Table 4, the interaction terms between internal auditor quality and growth are

positively and significantly associated with firm performance (ROA) for the two proxies of internal auditor quality ($p < 0.05$ for PSAPA and PSAQ)[23]. The coefficients in Equation A and B suggest that a positive association between IAQ (in terms of accounting backgrounds or prior experience of the staff) and firm performance is contingent on the level of growth opportunities.

Insert Table 4 here

The partial derivatives of Equation A and B in Table 4 over different internal auditor quality proxies give the following results:

Equation A: $\delta Y / \delta X_1 = -0.0347 + 0.0380 X_2$

(6.1)

Equation B: $\delta Y / \delta X_1 = -0.0181 + 0.0298 X_2$

(6.2)

Equation A and B will be zero when X_2 (growth) has a value of 0.9132 and 0.4548 respectively, which are known as the inflection points (i.e. where the change in the direction of the relations occur). In other words, the association between IAQ and performance (ROA) are positive (negative) when growth is above (below) the inflection points, as shown in Figure 1.

Insert Figure 1 here

These inflection points are within the range of observable values for X_2 (1 - 5, see Table 1) for the above equations. Therefore, the above results show that for firms with a higher level of growth, internal auditor quality is positively associated with better firm performance in terms of ROA, and the reverse is true for firms with a lower level of growth, consistent with hypothesis one.

Table 5 reports the results of testing hypothesis two. Similar to the above analysis, it is found that the three-way interaction terms are negative and significant for the two proxies for internal auditor quality ($p < 0.05$ for PSAPA and $p<0.01$ for PSAQ)[24]. To examine the effect of audit committee independence on the relation between growth, internal auditor quality and firm performance, the partial derivatives of Equation A and B in Table 5 over

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[22] The statistical analyses and interpretations of the results followed the approach adopted by Govindarajan and Fisher (1990) and Gul and Chia (1994).

[23] An equivalent test, as suggested in Cohen and Cohen (1983), is to test the statistical significance of the incremental R^2 with the addition of the interaction term. Unreported results show that the increases in R^2 are statistically significant with the interaction term included in the regression (For example, R^2 increases from 19 percent to 29 percent in the case of PSAPA).

[24] Unreported results also show that the addition of the ACI variable significantly increases the explanatory power of the models.

internal auditor quality are analyzed as follows:

Equation A: $\delta Y / \delta X_1 = -0.0592 + 0.0527 X_2 + 0.0733 X_3 - 0.0626 X_2 X_3$

(7.1)

Equation B: $\delta Y / \delta X_1 = -0.0792 + 0.0603 X_2 + 0.1446 X_3 - 0.0970 X_2 X_3$

(7.2)

Equations A and B suggest that the effect of internal auditor quality on firm performance is a function of both the level of growth and audit committee independence[25]. Govindarajan and Fisher (1990: 274) suggest that the values and significance of the unstandardised coefficients will change when the origin points of the independent variables change, but a change in the origin points of the independent variables will have no impact on the value or significance of the unstandardised coefficients of the three-way interaction term. Therefore, apart from the three-way interaction term (b_7) the coefficients for Equation 2 in Table 5 are not interpretable since they can be altered by shifting the origin points of $X_1, X_2,$ and X_3. Consequently, the purpose of Equation 2 is to provide information on the interaction of $X_1, X_2,$ and X_3 on Y, not on the main effects. In addition, multicollinearity is not an issue with Equation 2 as multicollinearity is eliminated by manipulating the origin points of the independent variables and the R^2 to zero which does not affect the significance of b_7 (Govindarajan and Fisher 1990).

Inset Table 5 here

In order to analyze the relationship under low audit committee independence, ACI (X_3) is set to 0. The above equations are then expressed as follows:

$\delta Y / \delta X_1 = -0.0592 + 0.0527 X_2$

(8.1)

$\delta Y / \delta X_1 = -0.0792 + 0.0603 X_2$

(8.2)

The inflection points are 1.123 and 1.313 respectively. On the other hand, the equations are expressed as follows if ACI is set to 1:

$\delta Y / \delta X_1 = 0.0141 - 0.0099 X_2$

(9.1)

$\delta Y / \delta X_1 = 0.0654 - 0.0367 X_2$

(9.2)

The inflection points will be 1.424 and 1.782 respectively. These points are illustrated in Figure 2.

Insert Figure 2 here

It is shown that for firms with fewer independent directors on the audit committee, the equations will be positive when X_2 is high (above the inflection points), meaning that there is a positive effect of internal auditor quality on firm performance for high growth firms with more executive directors on the audit committee. Interestingly, for firms with more non-executive directors on the audit committee, the equations are negative when X_2 is above the inflection points, suggesting that the effect of internal auditor quality on firm performance is negative for high growth firms with independent audit committees. This provides evidence of conflict between internal audit quality and audit committee independence in terms of their effects on firm performance, consistent with hypothesis two[26].

5.1 Robustness tests

We conducted three additional tests to assess the robustness of our results. First, we included industry dummies in all the regressions to control for the confounding effects of industry differences. Second, we included size (log of total assets) in all the regressions with and without the industry controls. Regression analyses with controls (dummy variables) for the 8 industries with and without the size variable did not change the qualitative nature of the results. Finally, we also used return on equity (ROE) as another measure of firm performance and the qualitative nature of the results, in general, remain unchanged.

6. Conclusion

In the current legislative environment, many organizations are considering implementing an internal audit function, or are taking actions to improve IAQ, such as appointing more personnel with auditing and accounting qualifications in the internal audit department. However, the extant literature provides little guidance as to which governance characteristics should be improved if an organization desires to increase IAQ and, subsequently, its performance. Monitoring internal control is the result of actions by, and interactions between, management, the internal auditor, the external auditor and the audit committee (Krishnan, 2005). This paper provides an insight, albeit preliminary, into the role of internal audits and the impact on firm performance and explores the inter-relationships between firm and governance factors. Primarily, our results show that effective governance, in terms of internal audits and the audit committee is contingent on the risks associated with the firm's environment. In this paper

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[25] The subsequent interpretation followed the approach adopted by Govindarajan and Fisher (1990).

[26] Other than analyses on partial derivatives, Hartmann and Moers (1999) suggests that an alternative test of non-monotonicity is by means of sub-group linear regressions. This analysis has not been done in view of the small sample size of the study (N = 60).

the risks are those associated with the firm's investment opportunities.

The findings are subject to a number of limitations. Cross-sectional studies such as this can establish associations, but not causality. Given the paucity of research into the association between internal audits and the audit committee and contingent factors affecting corporate governance it is difficult to identify pervasive themes. There are many different types of internal control systems, we have only considered two. Future research could also consider the role of the board in the interplay between IAQ and ACI. Another factor that may affect these results is the method of data collection, a mail survey, which is subject to response bias. The results are obtained from a small subset of firms that responded to the internal audit survey questionnaire. The results could have been different if other firms that did not respond to the survey are included in the sample. This research project provides preliminary results and a more comprehensive, national industry association-backed study which increases the sample number and number of participating firms in Malaysia would add to the validity of the results. Finally, our data is from Malaysia and the findings may not be germane to other countries.

The main thrust of our result support the notion that firms need to establish an internal control system to manage risk effectively. An audit committee with a majority of non-executive directors may constrain the efficiency of internal audits which impacts firm performance. That is, not all firms benefit from ACI, for some firms it is imperative that the AC has firm-specific knowledge about operations when assessing risks. This understanding can only be acquired from insider knowledge. Thus, it is more important for the IA to align with management rather than the AC when operating in an uncertain environment such as high investment opportunities. What is important is that there should be a fit between the oganisations' operating environment and the monitoring and control functions of the IA and AC. Therefore we encourage future research that considers alternate models of factors that may influence IAQ and enhance corporate governance. Notwithstanding these limitations, the results of this study have implications for policy setters and regulators. The negative impact of ACI on the association between IAQ and performance for growth firms suggests that it is inappropriate to mandate specific AC composition; attention should be focused on firm-specific requirements. Studies of this nature are useful to organizations trying to improve the quality of their internal audit, as evaluated from the perspective of the firm's growth opportunities and their audit committee. By maintaining the right mix of governance mechanisms, overall governance and hence performance may be improved.

Finally, the results of this study question the recently released key amendments to the Bursa Malaysia corporate governance framework in 2008 which require all members of the audit committee to be non-executive directors (Mondovisione News, 2008). The key amendments of the Listing Requirements (LR) and MESDAQ Market Listing Requirements (MMLR) are aimed at raising the standards of corporate governance for companies listed on Main Board, Second Board and MESDAQ Market and increasing investor confidence [27]. However, the results from this study demonstrate that an insider dominated audit committee may cause conflict for the internal auditor which, in turn, has an adverse effect on firm performance. This suggests that the important thing is not the independence of the audit committee, but rather having the right mix of members with the necessary skills to evaluate the risks faced by the firm. The key amendments to the Bursa Malaysia corporate governance framework may need to be adjusted, for example, to an audit committee composition which reflects a simple majority of non-executive directors (with a non-executive chair). This will allow for representation of inside directors who possess the firm-specific knowledge necessary to properly assess risk especially in high-growth opportunity firms. Consequently, this will allow for the balance necessary between the "agent" and "principal" representation. The trend towards legislating for non-executive/independent representation (where there was often little or none on boards) is not slowing. However, this does not mean that the public policy pendulum cannot be adjusted back somewhat.

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27 Bursa Malaysia Berhad announced key amendments to the corporate governance framework under Listing requirements and MESDAQ Market Listings Requirements on 28 January 2008. The key amendments include:- requiring all audit committee members to be non-executive directors; mandating the internal audit function by listed issuers and requiring the internal audit function of listed issuers to report directly to the audit committee; expanding the functions of the audit committee to include the review of the adequacy of the competency of the internal audit function; setting out the rights of audit committee to convene meetings with external auditors, internal auditors or both, excluding the attendance of other directors and employees of the listed issuer. The amendments will take effect from 28 January 2008.

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Appendix

Extract of Internal Audit Survey 2003 relating to in-house internal audit arrangements.

Question 5. How many staff are there in your in-house audit section/unit?
_____

Question 6. How many of the staff in your internal audit department have
  i) an accounting qualification?_____
  ii) prior work experience in auditing?_____

Table 1. Distribution of the variables

scale point		PSAPA N		PSAQ N	
1	proportion<=0.1	1		1	
	0.1<proportion<=0.2	2		1	
	0.2<proportion<=0.3	2		0	
	0.3<proportion<=0.4	2		5	
	0.4<proportion<=0.5	12	19	10	17
2	0.5<proportion<=0.6	2		3	
	0.6<proportion<=0.7	4		3	
	0.7<proportion<=0.8	3		3	
	0.8<proportion<=0.9	1	10	2	11
3	0.9<proportion<=1.0	31	31	32	32
			60		60

scale point		ACI N	
0	0.4<=proportion<0.5	1	
	0.5<=proportion<0.6	2	
	0.6<=proportion<0.7	30	33
1	0.7<=proportion<0.8	18	
	0.8<=proportion<0.9	2	
	0.9<=proportion<1.0	7	27
			60

Table 2. Descriptive Statistics (N = 60)

Variables	Mean	Median	Maximum	Minimum
ROA	0.047	0.057	0.253	-0.265
PSAPA	2.200	3.000	3.000	1.000
PSAQ	2.250	3.000	3.000	1.000
ACE	0.450	0.000	1.000	0.000
Growth	1.151	0.803	4.262	0.229
Leverage	0.407	0.378	1.000	0.006
INV/TA	0.133	0.069	0.990	0.000
AR/TA	0.141	0.104	0.510	0.000
NCL	0.145	0.075	0.790	0.000

Notes: The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; ACI – indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if proportion<0.7, 1 if 0.7<=proportion <=1; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA – inventory divided by total assets; AR/TA – account receivable divided by total assets; NCL – net current liabilities divided by total assets.

Table 3. Spearman Correlation Matrix

Variable	ROA	PSAPA	PSAQ	ACI	Growth	Leverage	INV/TA	AR/TA	NCL
ROA	1	0.064	0.083	0.003	0.569***	-0.280**	-0.020	0.188	-0.362***
PSAPA		1	0.738***	-0.055	-0.213	0.234*	-0.268**	-0.113	0.250*
PSAQ			1	-0.104	-0.079	-0.176	0.266**	0.233*	-0.181
ACI				1	-0.067	-0.105	0.197	0.191	-0.125
Growth					1	0.099	-0.271**	-0.014	0.062
Leverage						1	-0.027	0.200	0.538***
INV/TA							1	0.437***	-0.258**
AR/TA								1	-0.195
NCL									1

Notes: *, **, *** two-tailed statistical significance at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; ACI − indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if proportion<0.7, 1 if 0.7<=proportion <=1; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA – inventory divided by total assets; AR/TA – account receivable divided by total assets; NCL – net current liabilities divided by total assets.

Table 4. Regression of Firm Performance on Internal Auditor Quality and Growth

VAR	Equation A IAQ = PSAPA Coefficients	Equation B IAQ = PSAQ Coefficients
Intercept	0.102**	0.051
IAQ (X_1)	-0.030*	-0.007
Growth (X_2)	-0.022	0.000
IAQ*Growth ($X_1 X_2$)	0.028**	0.018*
Leverage	-0.047	-0.039
INV/TA	-0.028	-0.052
AR/TA	0.087**	0.078**
NCL	-0.133**	-0.154**
Adj.R^2	0.291	0.276
F. Value	4.455***	4.206***

Notes: *, **, *** one-tailed statistical significance of white-corrected *t* values at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA – inventory divided by total assets; AR/TA – account receivable divided by total assets; NCL – net current liabilities divided by total assets.

Table 5. Regression of Firm Performance on Internal Auditor Quality, Growth and Audit Committee Independence

VAR	Equation A IAQ = PSAPA Coefficients	Equation B IAQ = PSAQ Coefficients
Intercept	0.167**	0.186***
IAQ (X_1)	-0.053**	-0.064***
Growth (X_2)	-0.059*	-0.071**
ACI (X_3)	-0.178**	-0.304***
IAQ*Growth ($X_1 X_2$)	0.044***	0.049***
IAQ*ACI ($X_1 X_3$)	0.063**	0.123***
Growth*ACI ($X_2 X_3$)	0.160***	0.206***
IAQ*Growth*ACI ($X_1 X_2 X_3$)	-0.062***	-0.085***
Leverage	-0.082	-0.054
INV/TA	-0.002	-0.054*
AR/TA	0.090**	0.069*
NCL	-0.079	-0.080
Adj. R^2	0.302	0.383
F. Value	3.322	4.333

Notes: *, **, *** one-tailed statistical significance of white-corrected t values at the 0.10, 0.05 and 0.01 level respectively. The variables are defined as follows: ROA - return on assets; PSAPA - three-point scale of the proportion of internal audit staff who have prior work experience in auditing to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; PSAQ - three-point scale of the proportion of internal audit staff who have accounting qualification to the size of the internal audit function, 1 if 1 0.5<= proportion, 2 if 0.5<proportion<1, 3 if proportion=1; ACI – indicator variable of audit committee effectiveness (the proportion of independent members to the total number of members in the audit committee), 0 if proportion<0.7, 1 if 0.7<=proportion <=1; Growth - market-to-book value of equity; Leverage - current and non-current liabilities divided by total equity; INV/TA – inventory divided by total assets; AR/TA – account receivable divided by total assets; NCL – net current liabilities divided by total assets.

Figure 1. Partial Derivatives of Firm Performance (Y) with respect to Internal Auditor Quality (X_1) on Firm's Growth (X_2)

Panel A: Internal audit staff with prior work experience in auditing. (X_1 = PSAPA)

Panel B: Internal audit staff with accounting qualification. (X_1 = PSAQ)

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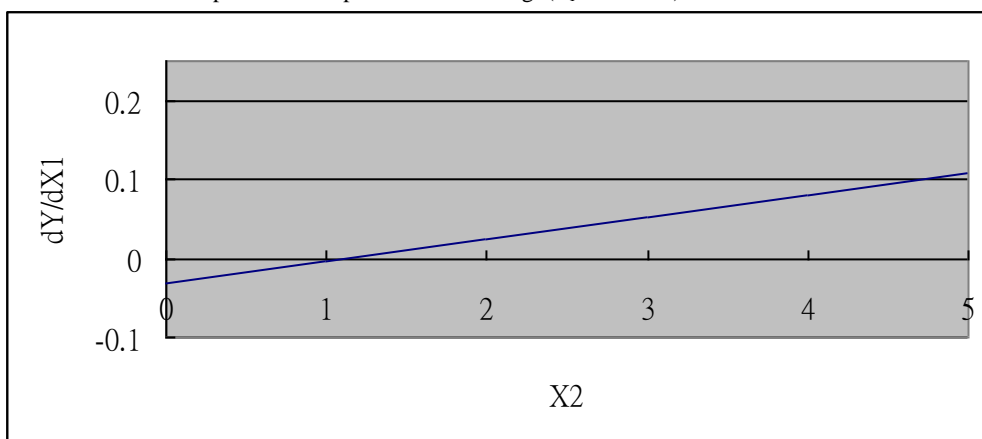
Figure 2. Partial Derivatives of Firm Performance (*Y*) with respect to Internal Auditor Quality (*X₁*) on Firm's Growth (*X₂*), for Different Levels of Audit Committee Independence (ACI) (*X₃*)

Panel A: Internal audit staff with prior work experience in auditing. (X_1 = PSAPA)

Panel B: Internal audit staff with accounting qualification. (X_1 = PSAQ)

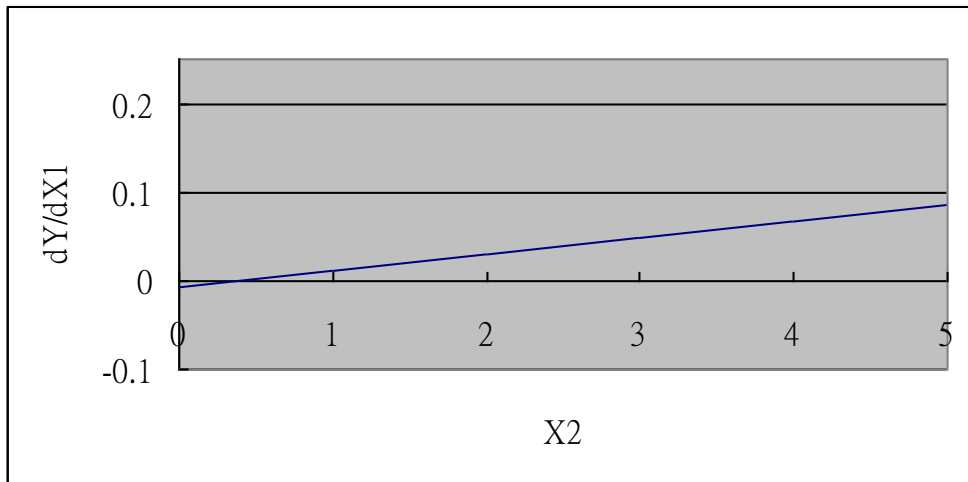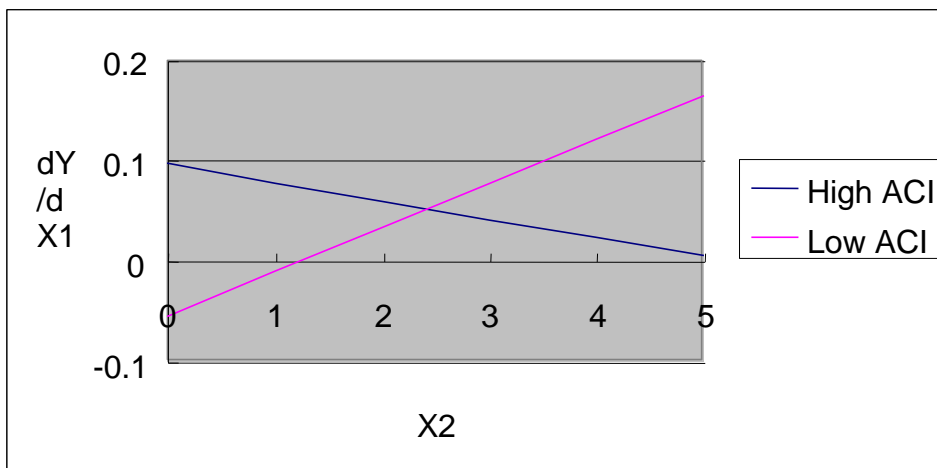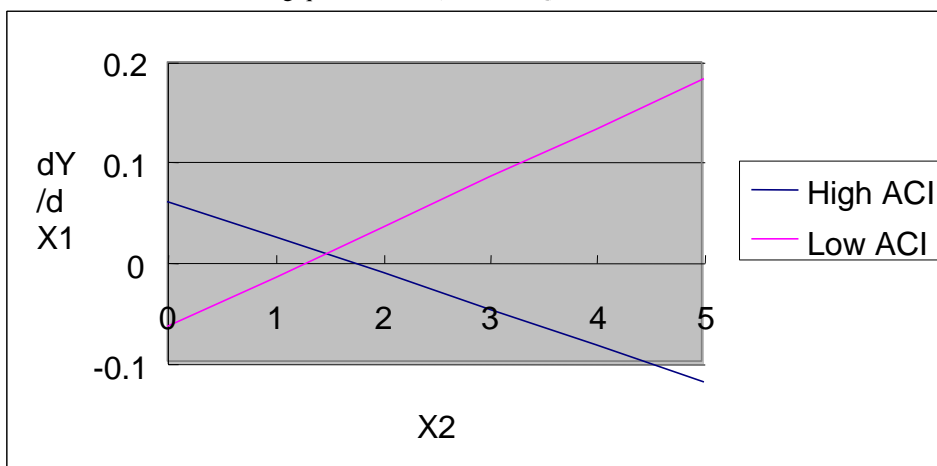# DOES THE MANDATORY BID RULE INCREASE VALUATION, LIQUIDITY, AND DECREASE RISK?

Andre Carvalhal*, Julia Nicolau**

Abstract

This study analyzes whether the mandatory bid rule has an impact on firm valuation, liquidity and volatility. Using data from Brazilian firms that have voluntarily granted the bid rule, we provide evidence of a positive relation between bid rule, firm valuation and liquidity. In contrast, the bid rule does not decrease firm volatility. Our results support the hypotheses that the bid rule strengthens the protection for minority shareholders.

Keywords: corporate governance, firm valuation, volatility, Brazil

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1. Introduction

Corporate governance has attracted considerable attention following recent corporate scandals in developed countries. One key aspect of corporate governance is the degree of protection provided to minority shareholders. When investor protection is weak, conflicts of interest may arise between the controlling shareholder and outside shareholders due to the potential expropriation of private benefits by controlling shareholders.

Our aim in this paper is to analyze the role of a specific regulation related to control benefits, namely, a mandatory bid rule. This rule implies that the acquirer of a control block is also obliged to offer minority shareholders the same (or partially the same) price for their shares. Despite its simple definition, the mandatory bid is one of the most controversial and debated rules developed to protect minority shareholders, because it presents several pros and cons (see Bebchuk (1994), Bergstrom, Hogfeldt, and Molin (1997), Bebchuk and Hart (2001), Burkart and Panunzi (2004), Carvalhal da Silva and Subrahmanyam (2007), and Sepe (2008)).

On one side, the mandatory bid rule protects minority investors because all shareholders are treated equally, share any control premium, and have an exit right in the event of a change of control. On the other side, the mandatory bid rule has been subject to severe criticism, because it fails to protect minority shareholders adequately, and does not prevent the extraction of private benefits. By raising the cost of acquisitions, the mandatory bid rule is likely to prevent value-increasing transactions, and reduce the value of the firm.

This paper examines the effect of the bid rule on firm valuation, liquidity and volatility in Brazil. Brazil offers a unique case study given the presence of a large number of firms that have voluntarily decided to grant the bid rule for their minority shareholders. Our results indicate a positive relation between bid rule, firm valuation and liquidity. In contrast, the bid rule does not decrease firm volatility.

The paper proceeds as follows. Section 2 presents a brief review of literature on the bid rule. Section 3 describes the data and methodology. Section 4 contains the results of the event studies. Section 5 discusses our findings and concludes.

2. Literature Review

The mandatory bid rule has been vastly studied in the literature (Bebchuk (1994), Bergstrom, Hogfeldt, and Molin (1997), Bebchuk and Hart (2001), Burkart and Panunzi (2004), Carvalhal da Silva and Subrahmanyam (2007), among others). This rule can be defined as the obligation imposed on the acquirer of the control of a company to make an offer to all or a part of the holders of all or a part of the securities issued by the company for a determined price.

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There are two strong arguments in favor of the mandatory bid rule. First, all shareholders should be treated equally and share any control premium that is paid to controlling shareholders. Second, all shareholders should have an exit right in the event of a takeover.

From these arguments, the mandatory bid rule would protect minority shareholders from value expropriations by opportunistic buyers, which would increase minority share value, and reduce the firm's cost for raising equity capital.

Carvalhal da Silva and Subrahmanyam (2007) show that the mandatory bid rule strengthens the protection for minority shareholders in event of a takeover. This result is particularly relevant if the takeover increases private benefits of the controlling shareholders rather than all the shareholders' wealth (Bigelli and Mengoli (1999), Bae, Kang, and Kim (2002), and Shleifer and Vishny (2003)).

On the other side, the economic literature has pointed out that the mandatory bid rule may prevent value-increasing sales of control. Burkart and Panunzi (2004) show that the mandatory bid rule eliminates inefficient control transfers at the cost of discouraging more efficient control transfers in firms with a dominant shareholder (Bebchuk (1994)). Further, the benefits but not the costs of the mandatory bid rule tend to disappear when control is consolidated via dual class shares or pyramids. They conclude that the mandatory bid rule strengthens minority shareholder protection at the expense of promoting efficient control transfers.

On balance of all pros and cons, we hypothesize that the bid rule offers enough benefits that outweigh its costs, because its justifications seem more compelling than its criticisms regarding minority shareholder protection.

3. Data and Methodology

Our sample includes 75 firms listed on Sao Paulo stock exchange (Bovespa) that voluntarily granted the bid rule for voting and/or non-voting shares. We exclude companies with incomplete or unavailable information and firms without share liquidity. Most of the data come from the Economatica, a financial database that contains a wide coverage of Brazilian stock market data.

We perform an event study to determine the impact of the bid rule on the stock return, liquidity, and volatility. The event study methodology requires the precise identification of the event date. In the case of the bid rule, it is difficult to identify precisely the event date, because firms may discuss over time the possibility of voluntarily granting the bid rule for voting and non-voting shares.

Since the voluntary adoption of the bid rule must be written on the company charter, we consider two events: the date on which the call for the shareholders' meeting becomes publicly available, and the date on which the shareholders approve the inclusion of the

bid rule on the company charter.

To be included in the event study, the company must have trading activity during the 250-day window before the voluntary adoption of the bid rule. Furthermore, the adoption of the bid rule must be the only relevant event approved by the shareholders' meeting.

After imposing these constraints, we exclude 52 companies that do not have the necessary data to conduct the event study. Our final sample consists of 23 firms, which can be divided as follows: 19 firms granting the bid rule for voting shares, and 23 firms granting the bid rule for non-voting shares. Note that most of the excluded companies have voluntarily granted the bid rule since their IPO, so there was no trading activity before their going public.

To calculate the abnormal returns, we estimate the market model using the Sao Paulo stock exchange index, and a 250-day estimation window from trading day –255 to –6 relative to the event date (t=0). On a particular day t, the abnormal return ARt is defined as the return in excess of its expected return calculated from the market model. Cumulative abnormal returns over days -1 to +1 (CAR [-1,+1]), -5 to +1 (CAR [-5,+1]), and -5 to +5 (CAR [-5,+5]) are calculated around the event date. To assess statistical significance, we use the traditional t-test for abnormal returns. Due to event clustering and possible event-induced volatility, we compute a bootstrap p-value (see Boehmer, Musumeci, and Poulsen (1991), Aktas, DeBodt, and Roll (2004), and Elayan, Pukthuanthong, and Roll (2005)).

In order to analyze the effect of the bid rule on firm liquidity (trading volume relative to the total market value) and volatility (annualized standard deviation of daily returns in the last 250 trading days), we run regressions in which the liquidity (volatility) of share i in day t depends on the liquidity (volatility) of share i in day t-1, and on the liquidity (volatility) of the market index in day t. We run the models using a 501-day window from trading day –250 to +250 relative to the event date (t=0). The following regressions are specified:

$$Liq_{i,t} = \alpha_0 + \alpha_1 Liq_{i,t-1} + \alpha_2 Liq_{m,t} + \alpha_3 Bid_{i,t} + \varepsilon_{i,t}$$

$$Vol_{i,t} = \beta_0 + \beta_1 Vol_{i,t-1} + \beta_2 Vol_{m,t} + \beta_3 Bid_{i,t,} + \upsilon_{i,t\,t}$$

where $Liq_{i,t}$ is the liquidity of firm i in day t, $Liq_{m,t}$ is the liquidity of the market index in day t,
$Vol_{i,t}$ is the volatility of firm i in day t, $Vol_{m,t}$ is the volatility of the market index in day t, $Bid_{i,t}$ is a dummy variable that takes the value 1 if the firm i voluntarily grants the bid rule in day t,
e and u are error terms.

4. Results

The results of the event study for the relation between stock returns and voluntary adoption of the bid rule are reported in Table 1. The abnormal returns for

voting shares are positive (ranging from 0.03% to 1.96%) during both events, and most of them are statistically significant. When the bid rule is for non-voting shares, they also present positive abnormal returns, but the statistical significance is lower when compared to that of voting shares.

Table 1

Overall, our results provide some evidence of positive abnormal returns when the firm announces or approves the bid rule in the shareholders' meeting. We can note that the market reacts to both the call for the shareholders' meeting and the shareholders' meeting itself.

Although the call for a shareholder's meeting does not necessarily mean that the bid rule is going to be approved in the shareholders' meeting, it conveys information about the probability of the approval.

The results for liquidity are shown in Table 2. The current share liquidity depends strongly on the previous share liquidity and on the current market liquidity. Most importantly, there is a strong increase in the liquidity when the firm calls and approves the bid rule in the shareholders' meeting.

Table 2

Table 3 reports the results for volatility. We see that the current share volatility depends on the previous share volatility, and on the current volatility of the market, but is not affected by the adoption of the bid rule.

Table 3

Overall, the event studies and provides evidence that the bid rule is positively associated with firm valuation and liquidity, but is not related to volatility. Our results support the hypothesis that the bid rule strengthens the protection for minority shareholders.

5. Conclusions

This paper analyzes whether the adoption of the bid rule has an impact on firm valuation, liquidity and volatility. Brazil offers a unique case study given the presence of a large number of firms that have voluntarily granted the bid rule for their minority shareholders. Our analysis shows that firm valuation

and liquidity tends to increase when the firm voluntarily grants the bid rule for minority shareholders. In contrast, firm volatility does not decrease after the adoption of the bid rule. Overall, our results support the hypothesis that the bid rule strengthens the protection for minority shareholders.

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Appendices

Table 1

Abnormal Returns around the Adoption of the Bid Rule

Abnormal returns of firms that voluntarily grant the bid rule. Two event dates are considered: the date on which the call for the shareholders' meeting becomes publicly available, and the date on which the shareholders approve the bid rule. The abnormal returns are estimated through the market model using a 250-day estimation window. Abnormal returns during the event date (AR_0) and cumulative abnormal returns over days -1 to +1 (CAR [-1,+1]), -5 to +1 (CAR [-5,+1]), and -5 to +5 (CAR [-5,+5]) are calculated. Bootstrap p-values (in parentheses) account for event clustering and event-induced volatility. ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

	Sample of Voting Shares		Sample of Non-Voting Shares	
	Call for the Shareholders' Meeting	Shareholders' Meeting	Call for the Shareholders' Meeting	Shareholders' Meeting
AR_0	0.09%	0.39%	0.06%	0.14%
	(0.35)	(0.31)	(0.44)	(0.29)
CAR [-1,1]	1.32%*	0.03%	0.73%	0.75%
	(0.09)	(0.51)	(0.23)	(0.23)
CAR [-3,3]	1.07%*	1.86%**	1.06%*	1.62%**
	(0.07)	(0.05)	(0.08)	(0.05)
CAR [-5,5]	1.23%*	1.96%**	0.43%	0.19%
	(0.10)	(0.02)	(0.33)	(0.43)

Table 2

Liquidity Changes around the Adoption of the Bid Rule

The dependent variable in each regression is the liquidity of share i in day t. Liq_m is the liquidity of the market index in day t, and Bid is a dummy variable that takes the value 1 if the firm voluntarily grants the bid rule in day t. We run the models using a 501-day window from trading day -250 to $+250$ relative to the event date ($t=0$). Two event dates are considered: the date on which the call for the shareholders' meeting becomes publicly available, and the date on which the shareholders approve the bid rule. The p-values are shown in parentheses. ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

	Sample of Voting Shares		Sample of Non-Voting Shares	
	Call for the Shareholders' Meeting	Shareholders' Meeting	Call for the Shareholders' Meeting	Shareholders' Meeting
Liq_{t-1}	0.66***	0.54***	0.28***	0.28***
	(0.00)	(0.00)	(0.00)	(0.00)
Liq_m	0.56***	0.00	1.51***	0.00
	(0.00)	(0.82)	(0.00)	(0.90)
Bid	0.05***	0.05***	0.09***	0.03
	(0.00)	(0.00)	(0.00)	(0.19)
# Firms	19	19	23	23
Adj R^2	0.45	0.30	0.09	0.08

Table 3

Volatility Changes around the Adoption of the Bid Rule

The dependent variable in each regression is the volatility of share i in day t. Vol_m is the volatility of the market index in day t, and Bid is a dummy variable that takes the value 1 if the firm voluntarily grants the bid rule in day t. We run the models using a 501-day window from trading day -250 to $+250$ relative to the event date ($t=0$). Two event dates are considered: the date on which the call for the shareholders' meeting becomes publicly available, and the date on which the shareholders approve the bid rule. The p-values are shown in parentheses. ***, **, * denote statistical significance at 1%, 5% and 10%, respectively.

	Sample of Voting Shares		Sample of Non-Voting Shares	
	Call for the Shareholders' Meeting	Shareholders' Meeting	Call for the Shareholders' Meeting	Shareholders' Meeting
Vol_{t-1}	0.80***	0.81***	0.05***	0.03***
	(0.00)	(0.00)	(0.00)	(0.00)
Vol_m	4.53*	5.16**	0.24***	0.23**
	(0.09)	(0.04)	(0.01)	(0.02)
Bid	0.04	0.04	0.01	0.00
	(0.90)	(0.90)	(0.51)	(0.95)
# Firms	19	19	23	23
Adj R^2	0.64	0.66	0.29	0.12

**SECTION 2
OWNERSHIP
STRUCTURE**

MANAGERIAL OWNERSHIP, CAPITAL STRUCTURE AND FIRM VALUE

Wenjuan Ruan, Gary Tian*, Shiguang Ma

Abstract

This paper extends prior research to examine the managerial ownership influences on firm performance through the choices of capital structures by using a new sample of S&P 500 firm in 2005. The empirical results of OLS regressions replicate the nonlinear relationship between managerial ownership and firm value. However, we found that the turning points had moved up in our sample compared with previous papers, which implies that the managerial control for pursuing self-interest, and the alignment of interests between managers and other shareholders can only be achieved now by management holding more ownership in a firm than that found in the previous studies. Managerial ownership also drives the capital structure as a nonlinear shape, but with a direction opposite to the shape of firm value. The results of simultaneous regressions suggest that managerial ownership affects capital structure, which in turn affects firm value. Capital structure is endogenously determined by both firm value and managerial ownership; while managerial ownership is not endogenously determined by the other two variables.

Keywords: managerial ownership, capital structure, firm value, nonlinear

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1 Introduction

The effects of managerial ownership on firm value have been of particular research interest in corporate finance (Denis and McConnell, 2003). The literature generally agrees that managers' and shareholders' interests are not fully aligned. The interest conflict between management and shareholders produces agency problem, which in turn reduce firm value. Thus, an increase of managerial ownership from a low level can help to connect the interests between insiders and shareholders, and also lead to better decisions, producing higher firm value. However, when the equity owned by management reaches a certain level, this increase in managerial ownership may give mangers greater freedom to pursue their own interests without considering a resulting decrease of firm value. Only when managerial ownership approaches a

considerably high level, can the agency problem be mitigated, and the firm value maximized. Therefore, we hypothesize that managerial ownership and firm value have a nonlinear relationship.

A series of researches examines the relationship between managerial ownership and firm value. The literature provide evidence to support the nonlinear relationship hypothesis. Morck et al. (1988) conducted pioneering work, in which they used piecewise linear regressions to estimate the relationship between Tobin's Q and the shareholdings of the board of directors for 371 Fortune 500 firms in 1980. They found a nonlinear association between managerial ownership and firm value. McConnell and Servaes (1990) confirmed the nonlinear relationship in their investigation of the firms listed in either NYSE or AMEX in 1976 and 1986. Similar evidence of the nonlinear relationship was detected by Short and

Keasey (1999) in UK firms listed on the London Stock Exchange for the period 1988 to 1992, and by Miguel et al. (2004) on Spanish companies listed on the Madrid Stock Exchange.

Further research shows that agency relationship between managers and shareholders has the potential to influence financial decision making, which in turn impacts on firm value. Equities held by management could motivate managers to make financial decisions that are either only in their own interests, or happen to coincide with shareholders' benefit, thereby leading to lower or higher firm value. Cho (1998) applied a cross-sectional data set of Fortune 500 manufacturing firms in 1991 to explore the relationships among ownership structure, investment and corporate value. He found that insider ownership affected investment, which in turn influenced corporate value. Davies et al. (2005) reached a similar conclusion with research on publicly listed UK companies, asserting that investment decision making is a function of managerial ownership and accordingly, determines firm performance.

Leverage choice is another important financial decision in addition to investment policy, and has various effects on firm value. Since the inaugural literature by Modigliani and Miller (1963), the relationship between capital structure and firm performance has prevailed as a discussion topic in finance theory. It is often predicted that financial leverage influences agency costs and thereby affects corporate value because better leverage setting could help mitigate agency costs by the threat of acquisition and financial distress, which causes personal losses to managers of salaries, reputation, perquisites, etc. (Williams, 1987) This has been proved by Ross (1977) and Myers (1977) with respect to a signalling hypothesis and Jensen's (1986) free cashflow hypothesis.

Evidence about how managerial behavior arose from equity holding influences the choice of capital structure directly and indirectly has been put forward since the end of last century. Friend and Lang (1988) examined whether managerial entrenchment induced by insiders' equity holding "at least in part" motivates capital structure decisions. Berger et al. (1997) applied cross-sectional analysis and found evidence that firm leverage is affected by the degree of managerial entrenchment. Entrenched managers seek to avoid debt, and therefore protect themselves and the company from external threat. In an Australian sample, Brailsford et al. (2002) found a nonlinear relationship between the level of equity stake owned by management and the capital structure measured by a debt/equity ratio. However, the prior referenced literature usually focused on the relationships between either managerial ownership and firm value (Morck et al., 1988; McConnell and Servaes, 1990), or between managerial ownership and investment decision and firm value (Cho, 1998; Davies et al., 2005 etc.), or between managerial ownership and capital structure (Friend and Lang, 1988).

In contrast, our research is conducted from a new angle. Based on investigations of the relationships between managerial ownership and firm value, and managerial ownership and capital structure, we detected interactive effects among the three proxies. We also employed a relatively recent data set comprising S&P 500 firms observed in 2005. We examined whether the early findings by Morck et al. (1988) and Cho (1998) using Fortune 500 data could be verified by using S&P 500 data in a relatively recent market environment.

We obtained the following new findings. First, we used OLS regression, we replicated the nonlinear relationship between managerial ownership and firm value, which are discussed in research by Morck et al. (1988) and Cho (1998). However, we found that the turning points of managerial ownerships with respect to the firm value had moved upward. For example, the turning points in Morck et al. (1988) were 5% and 25%, and in Cho (1998) at 7% and 38% respectively. By contrast, in our regression results, they were 17% and 67%. We therefore argue that managers need more ownership to control the firm for their own benefit, or need motivations to align with shareholders' interest.

Second, we found that managerial ownership drove the capital structure as a nonlinear shape — also due to managerial entrenchment. However, we also found that the directions of the nonlinear shapes for managerial ownership and firm value, and for managerial ownership and capital structure, were oppositely related. Finally, the direct influence of managerial ownership on firm value became insignificant when capital structure was taken into consideration. The results from simultaneous regressions show that managerial shareholding significantly impacts capital structure, which in turn imposes effect on firm value. The results of simultaneous equations also demonstrate that capital structure is endogenously determined in equilibrium.

The remainder of this paper is organized as follows. Section 2 contains the theoretical predictions about the relationships between managerial ownership, debt policy, and firm value. Section 3 explains the data sample and interprets the statistics. Section 4 describes the empirical specifications and results, and also discusses the methodology and models employed in this study. Section 5 concludes this research.

2 Theoretical predictions

Much of the literature indicates that managerial ownership affects corporate value because equity holding by management could motivate managers to make financial decisions in their own benefit or for shareholders' interest, thereby leading to decreased or increased firm value (Morck et al., 1988; McConnell and Servaes, 1990; Short and Keasey, 1999; Miguel et al., 2004), and according to Davies et al. (2005), "The effectiveness of these incentives is potentially a function of the level of managerial ownership in the firm". When low levels of managerial ownership exist,

external discipline and internal monitoring dominate management behavior to promote maximization of corporate value, so we would expect a positive relationship between managerial ownership and firm value. At intermediate levels of managerial ownership, with greater power coming from greater ownership, managers may pursue their personal wealth at the expense of corporate value. As managerial ownership reaches a certain level, management interest converges to that of shareholders, which produces a positive relationship between managerial ownership and firm performance.

Also important is the issue of how managerial ownership affects corporate value. Brailsford et al. (2002) argue that corporate managers and external block owners are two key groups of shareholders with a powerful influence on the decisions in a firm's resource allocation. Cho (1998) found that managerial ownership affects firm value because shareholding motivates management to make investment decisions to their own or to the shareholders' benefit, which consequently affects firm performance. Leverage choice is another important financial decision, and has various effects on firm value. Debt increases the bankruptcy risks of a firm, and self-interested managers have incentives to reduce corporate debt to a level that is less than optimal. However, from the managerial perspective, the capital structure decision is not only determined by the basic concerns of risk and controls — the values, goals, preferences and desires of managers are also important inputs in finance decision making.

At low levels of managerial ownership, managers have limited voting power and influence; while external related beneficiaries, such as block holders and creditors, have the ability to monitor and restrict opportunistic behavior by managers. Managerial ownership is negatively related to a firm's debt ratio because of managers' risk averting possibility. However, with high levels of managerial ownership, external related beneficiaries may not have the ability to prevent self-interested managers from indulging in non-maximizing behavior. Debt is increased as managers begin to use leverage as an entrenchment tool to avert being acquired or purchased. Thus, we would expect a positive relationship between capital structure and managerial ownership in this interval. With managers having effective control in terms of a very high proportion of managerial shareholding, they seek to reduce their risks by decreasing the use of debt. Brailsford et al. (2002) provide empirical evidence for this scenario in their documenting of a nonlinear relationship between the level of equity stake owned by managers and capital structure measured by debt/equity ratio, which supports the findings of Friend and Lang (1988) and Berger et al. (1997).

Many variables related to financial decision, firm value and managerial ownership are likely to be determined simultaneously, which may result in an even more complex relationship. The previous discussions propose that managerial ownership affects capital structure choice, and the capital structure is determined by many other factors. The resultant leverage affects how ownership is structured. Hence, questions arise over the possible endogeneity of ownership (Demsetz and Lehn, 1985; Cho, 1998). Cho (1998) used OLS regressions to test whether insider ownership affects investment, and therefore, corporate value. However, simultaneous regressions reveal that investment affects corporate value which, in turn, affects managerial ownership, but not vice versa. In contrast, Berger and Patti (2006) employed a simultaneous equation model to study the possibility of reverse causality from firm value to capital structure in the banking industry.

On the basis of theoretical analyses and empirical evidence, the following hypothesis are discussed in this study:

H1: A nonlinear relationship exists between managerial ownership and firm value, where: firm value first increases and, after a certain breakpoint, decreases, and then increases again as managerial ownership rises.

H2: A nonlinear relationship exists between managerial ownership and capital structure, where: capital structure first falls, then rises, and finally continues to fall as managerial ownership increases.

H3: Managerial ownership affects capital structure, which in turn, affects firm value. Managerial shareholding and leverage choice are endogenously determined.

3 Data and statistics

The sample was constructed from S&P 500 firms in 2005. We extracted the data of board ownership from the RiskMetrics database. The financial structure and other data are collected from the database of COMPUSTAT North America. After rejecting firms with insufficient data items for our modeling, the final sample consisted of 353 S&P 500 firms. In the robustness test, we used the one-year lagged variables of managerial ownership in 2005 to study its effect on in 2006. There is not any missing value of calculating Tobin's Q and capital structure for the 353 sample firms in 2005.

We mainly applied Tobin's Q as the measure of firm performance, which is the ratio of firm's market value to the book value of total assets (Kaplan and Zingales, 1997). The market value of assets was calculated as the book value of assets plus the market value of common stock, less the sum of book value of common equity and deferred taxes. Holderness (2003) investigated the US evidences on equity ownership by insiders and blockholders, where insiders are defined as the officers and directors of a firm. Cho (1998) defines "insider ownership as the fraction of shares, not including options, held by officers and directors of the board." Davies et al. (2005) use the managerial ownership stake of all board members to represent managerial shareholding. After a considered reading

of the various definition, we've decided to use the ownership stake of all board members as a proxy for managerial ownership.

Table 1 describes managerial ownership, Tobin's Q, and capital structure for the sample of 353 S&P 500 firms in 2005. The mean combined ownership of all board members is 4.6%. The median ownership, however, is only 1.3%, suggesting that the distribution is skewed. The Tobin's Q values in 2005 range from 0.878 to 13.024, with a mean of 2.199. Capital structure ranges from nearly zero leverage ratio of 0.084 to an over-leveraged ratio of 1.153. The mean capital structure is 0.572; that is, almost the same as the median value of 0.575.

[Table 1 here]

Table 2 reports the distribution of the number of firms, values of Tobin's Q and capital structure, as classified by different ranges of managerial ownership. "MANA" indicates the proportion of managerial ownership. The distribution of firm number in the sample is skewed towards low levels of managerial ownership. In 282 firms, comprising 80% of the sample firms, board members owned less than 5% of the firms. In 28 firms, total board holdings constituted an equity in the range of 5% to 10%. In 13 firms (4% of the sample firms) board members had ownership levels in of between 10% and 15%. However, the managerial holdings did span a wide range in the remaining 25 firms. This distribution is consistent with the findings of Demsetz and Lehn (1985) and Morck et al. (1988), "suggesting the prevalence of significant management ownership in the US" (Cho, 1998).

[Table 2 here]

Table 2 also suggests that there is a nonlinear relationship between levels of managerial ownership and Tobin's Q. The mean Tobin's Q increases from 2.14 in the first range of managerial ownership to 2.42 and 2.93 in the second and third ranges. Then the mean value of Tobin's Q declines to 2.51, 2.32, and 1.98, until reaching 1.47 in the last range of managerial ownership of over 60%. This distribution is consistent with the descriptions in Cho (1998), where Tobin's Q has a similar inverse relationship with the level of managerial ownership. The association between the levels of equity stake owned by board members and capital structure measured by the debt/asset ratio is also non-monotonic, as shown in Table 2. At the level of managerial ownership below 5%, the mean leverage ratio is 0.59. The leverage ratio subsequently decreases from between 5% and 10% managerial ownership to between 10% and 15%. Thereafter, the leverage ratio increases as managerial ownership increases. The leverage ratio approaches its highest level of 0.58 when managerial ownership is over 60%. Therefore, quadratic curves do exist between managerial ownership and Tobin's Q, and

between managerial ownership and capital structure. The directions of the relationships between managerial ownership and Tobin's Q, and between managerial ownership and capital structure are opposite.

4 Empirical specifications and results

4.1 Managerial ownership and firm value

In order to model the relationship between Tobin's Q and managerial ownership (MANA) and determine two extremum turning points of managerial ownership when Tobin's Q changes direction, we specify a cubic function[28] as follows:

$$Q = a + \beta_1 \text{ MANA} + \beta_2 \text{ MANA}^2 + \beta_3 \text{ MANA}^3 + \varepsilon \quad (1)$$

MANA stands for the proportion of managers' stock ownership, Q stands for Tobin's Q, namely firm value. The regression results are:

Q=1.993798+10.51822 MANA-38.59188 MANA2 +30.55766 MANA3

(19.84)　　(3.25)　　(-2.84)　　(2.40)

Adj. R2 =0.023,　　F-statistic =3.751,　　N=353

The intercept coefficient, which is an estimate of Tobin's Q in firms with no managerial holdings, is 1.99, which is similar to the 1.85 recorded in Davies et al. (2005). Each coefficient is of the expected sign, and statistically significant at the 1% level for constant, MANA and MANA^2, and at the 5% level for MANA^3. Although the adjusted R square is low, it is similar to those found in other relevant papers (for example, Morck et al., 1988; McConnell and Servaes, 1990; Cho, 1998; Himmelberg et al,, 1999; Davies et al., 2005). We then calculated turning points by differentiating Tobin's Q with respect to MANA. The two turning points are:

MANA = 0.171 and MANA = 0.671

As expected, Tobin's Q first increases when managerial ownership is less than 17.1%, and then declines until managerial shareholding reaches to 67.1%. Tobin's Q rises again slightly as managerial ownership reaches over 67.1%. This result validates Hypothesis 1, discussed in the section on theoretical predictions. At low levels of managerial ownership, an increase in management equity holding closely aligns

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[28] For the number of turning points of managerial ownership to firm value, Morck et al. (1988) found two points; McConnell and Servaes (1990) model the relationship between managerial ownership and firm value as a quadratic function, which has only one turning point; Cho (1998) and Miguel et al. (2004) have two points, following Morck et al. (1988); while Davies et al. (2005) used a quintic equation and generated four turning points. The number of points probably does not matter; however, significance is of most importance, and determining how to explain the significance of each turning point. Considering the theoretical predictions and results of the descriptive statistics of this study, we decided to use a cubic model, which involves two extremum points and three intervals of managerial share ownership.

with the interests of managers and shareholders, thereby increasing corporate value. However, at relatively high levels of managerial ownership, an increase in management equity shareholding makes management more entrenched and less subject to market discipline, thereby reducing corporate value (Cho, 1998). When managerial ownership rises to a considerably high level, managers' interests fully align with shareholders' interests. In this situation, management pursue best firm performance and firm value is maximised.

This nonlinear tendency is consistent with results from Morck et al. (1988), Cho (1998) and so on; however, the turning points are different. Morck et al. (1988) used a piecewise regression on a sample of Fortune 500 firms and found two extremum values of managerial ownership: 5% and 25%. Cho (1998) used a grid searching technology with a sample of Fortune 500 firms also, and found the turning points of managerial ownership at 7% and 38%. Miguel et al. (2004) used unbalanced panel data of 135 Spanish companies and found two turning points of 35% and 70%.

The sample differences in firms and markets may be one possible reason for the variation in pairs of turning points. However, we suspect that the sample differences in time are the main explanation for the differing turning points. For example, the study by Morck et al. (1988) used evidence based on 1980 data. Cho's (1998) finding resulted from 1991 observations. The data time horizon in Miguel et al. (2004) was from 1990 to 1999. Our finding was generated from the data for 2005. The turning points of managerial ownership with respect to firm values move upward as the sample time approaches the present. We strongly argue that, due to the evolution of corporate governances and regulations, the thresholds of managerial ownership for either self-interested decision making or interest alignment between managers and shareholders have moved up. In other words, managers need more ownership to obtain sufficient voting power to make decisions that are in their own interest. Furthermore, more managerial ownership is required for a full interest alignment between managers and shareholders.

4.2 Managerial ownership and capital structure

Based on the analysis of the theoretical predictions, we here examine the relationship between managerial ownership and capital structure. For the convenience of a further comparison, and according to the description in Table 2, we modified model (1) into model (2):

$$CS \text{ (capital structure)} = a + \beta_1 \text{ MANA} + \beta_2$$

$$\text{MANA}^2 + \beta_3 \text{ MANA}^3 + \varepsilon \qquad (2)$$

where MANA = the proportion of managerial ownership, and CS = capital structure, which is

defined as total debt divided by total assets.
The results of model (2) are:

$$CS \text{ (capital structure)} = 0.617177 - 2.075245 \text{ MANA} + 7.052517 \text{ MANA2} - 5.691353 \text{ MANA3}$$

$$(43.72) \qquad (-4.56) \qquad (3.69) \qquad (-3.19)$$

$$\text{Adj. R2} = 0.055, \qquad \text{F-statistic} = 7.810, \qquad N = 353$$

All the coefficients are of the expected signs and statistically significant at the 1% level. Then we calculate points of extremum and intersection via derivation. The two turning points are:

MANA = 0.192; and MANA = 0.635

The results of model (2) show negative relationships between managerial ownership and leverage ratios when managerial ownership is in the range from 0% to 19.2% or beyond 63.5%; while a positive relationship between managerial ownership and leverage ratios exists when managerial ownership is in the range from 19.2% to 63.5%. This result validates our prediction and Hypothesis 2. First, when the level of managerial ownership is low, an increase in managerial ownership has the effect of aligning management and shareholders' interests (Brailsford et al., 2002). Consequently, the main objective of managers is to maximize shareholders' wealth and to achieve higher firm performance by using appropriate financial decisions to avert financial distress. Thus a negative relationship exists between managerial ownership and capital structure.

Second, as the increase of managerial ownership, external block holders may not have the ability to prevent self-interested managers from indulging in non-maximizing behavior. Board members become entrenched with significant voting power and influence and began to manipulate the debt ratio to achieve self-interest. For example, they may increase debt to obtain more cash, therefore make suboptimum investment decisions or build a "management empire." However, when corporate managers hold a significant proportion of a firm's shares (over 63.5%), managers have their own interests aligned with those of shareholders. The entrenchment effect decreases, resulting in reduced debt ratio as managers seek to reduce bankruptcy risks, or alternatively, the agency-related benefits from the use of debt are substituted through managerial ownership.

Brailsford et al. (2002) examined the relationship between ownership structure and capital structure with a sample of top 500 companies listed on the Australian Stock Exchange over the period 1989 to 1995. Their results indicate a nonlinear inverted U-shaped relationship between the level of managerial ownership and leverage ratios. The results of the present study could supplement the evidence from Brailsford et al. (2002).

[Figure 1 here]

The regression results of models (1) and (2) and the estimated turning points are shown graphically in Figure 1. The track generated by model (1) displays a

nonlinear relationship between managerial ownership and Tobin's Q, indicating that firm value increases as managerial ownership rises from zero to 17.1% of P1 at point A. Firm value then decreases as board ownership increases, until another value of 67.1% of P4 at point D is reached. Finally, firm value increases slightly again for managerial ownership levels above 67.1%. The relationship between capital structure and managerial ownership is also non-monotonic, as described by the track generated by model (2). The value of capital structure decreases in managerial ownership less than 19.2% as described of P2 at point B, then the value increases until managerial shareholding reaches 63.5% of P3 at point C; while the value of leverage goes down again when the stake of managerial ownership is over 63.5%. However, P1 could be explained as the coincidence of P2; while P3 and P4 could also be coincident. The occurrence of these small differences may be because of statistical error.

Figure 1 clearly shows the three levels of managerial ownership. At a low level of managerial ownership (less than 20%), external discipline and internal controls or incentives dominate managers' behavior (Fama, 1980; Davies et al., 2005). Managerial labor markets operate on the principal that poorly performing managers can be removed and appropriately disciplined (Davies et al., 2005). Board members have sufficient incentive to adopt financial policies such as debt decisions that avert financial distress and achieve better firm performance. As the level of managerial equity ownership rises beyond a certain level (approximately 20%), managerial objectives begin to be entrenched. Internal mentoring and external discipline become weak. This lack of disciplinary control over management may strengthen managers' ability to pursue their own benefits at the cost of decreasing firm value by using suboptimal corporate policies. As the level of managerial ownership reaches a considerably high value (approximately 65%), managers align their interests with those of other owners, which leads to value maximization management behavior, as predicted by Jensen and Meckling (1976). Managers use less debt to avert being purchased or increase financial risk.

According to the results of OLS regressions, we conjecture that managerial ownership affects capital structure, which in turn affects firm value. However, we could not confirm this transmitting association without a stricter test. Next, we estimate a simultaneous equations model to test this relationship.

4.3 Managerial ownership, capital structure and firm value

To capture the potential multiple relationship between managerial ownership, capital structure and firm performance, we applied a set of simultaneous equations using the two-stage least square (2SLS) method.

Managerial ownership = f (firm value, capital structure, ROE, liquidity)   (3)

Firm value = g (managerial ownership, capital structure, investment, size)   (4)

Capital structure = h (managerial ownership, firm value, ROE, liquidity)   (5)

We estimate the simultaneous equations with control variables[29]. ROE in equation (3) and equation (5) is defined as earnings before interest and taxes divided by total common equity. Liquidity is the common equity minus liquidation value. Although this paper discusses the intermediate function of capital structure, investment is nevertheless an important financial policy, so we used investment as a control variable of equation (4) and capital expenditure as a variable of investment, following Cho (1998) and Davies et al. (2005). Table 3 reports the regression results of the simultaneous equations. First, for the multiple relationships between managerial ownership, capital structure and firm value, as Cho (1998) and Himmelberg et al. (1999) document, once endogeneity is controlled, the perceived impact of managerial ownership on corporate value disappears. The results of the firm performance equation of model (4) in Table 3 suggests that the levels of board shareholding do not influence firm value directly, which contrasts with the OLS results of model (1). This evidence reflects the complicated causality between firm value and managerial ownership, and other variables may act as intermediates to assist managerial ownership, in turn imposing effects on firm performance. Capital structure has a negative influence on firm value, as described by the results of equation (4) — evidence of its intermediate function. Managerial ownership also has significant effects on capital structure, as shown in the result of capital structure[30] equation (5) in the last column of Table 3. Therefore, the results address the influence of managerial shareholding on capital structure, which in turn affects firm value.

[Table 3 here]

The results of equation (3) also suggest that the ownership of board directors is not significantly affected by Tobin's Q, which differs from the result found by Cho (1998), Kole (1994), and Davies et al. (2005), but is consistent with Demsetz and Villalonga (2001). In equation (3), ROE has an insignificant coefficient, which suggests that earnings have insufficient influence on managerial ownership. Cho

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[29] This study also advances dummy variables representing industry effect, based on three-digit Standard Industrial Classification (SIC) codes. Because the variables of industry are not significant, we eliminated them.

[30] For the coefficients in the capital structure equation, each slope coefficient is of the correct sign and is statistically significant at the 5% level. The adjusted R square of model (5) is much higher than that of model (2). The extremum turning points of model (5) through a derivation are MANA = 20.8%, 61.9% — almost equal to that of model (2), which are 19.2% and 63.5%.

(1998) and Davies et al. (2005) used volatility in their managerial ownership equations and obtained similar results. Conversely, liquidity has a significant negative effect on managerial ownership in our model (3), while Cho (1998) found an insignificant effect and Davies et al. (2005) found positive effects from this variable. Thus, the relationship between managerial ownership and liquidity is controversial. Furthermore, the negative and significant coefficient of capital structure in model (3) suggests that board directors in firms with lower debt hold a larger fraction of their firm's shares.

The second column of Table 3 represents the coefficients of model (4). Capital expenditure, which is a proxy of investment in this study, slightly influences firm performance, but not quite significantly. This is consistent with the results of Cho (1998) and Davies et al. (2005)[31] and to some extent represents evidence of relationship between investment and firm value. Relevantly, asset size is quite a significant determination of firm performance. Therefore, we also used company size as a control variable in equation (4). We measured firm size as the logarithm of the replacement cost of assets, following Cho (1998), to alleviate the possible size effect problem. As expected, firm value turns out to be a decreasing function of company size. McConnell and Servaes (1995) used the estimated replacement value of assets as a proxy for size, and found a negative relationship with Tobin's Q for all categories according to P/E ratios. However, the negative relationship is insignificant, which echoes the findings of McConnell and Servaes (1990), Miguel et al. (2004), and Berger and Patti (2006).

The significant negative coefficient of capital structure in equation (4) requires more discussion. Morck et al. (1988) found that leverage has a negative but insignificant impact on corporate value, and attributed this to the possibility that managers in highly leveraged firms might hold a higher than average level of ownership (Davies et al. (2005). However, contradicting these results, McConnell and Servaes (1990) report a positive significant coefficient for leverage ration on firm performance. Leverage is one way of imposing external discipline on management and, if effective, leads to increased corporate value. Demsetz and Villalonga (2001) interpret the negative association between leverage and firm value as being due to the relative inflation between the current time period and the earlier time period when companies had issued much of their debt. In this study, the negative association between capital structure and firm value meets the requirement of being a transitional variable of managerial ownership on firm performance. Thus, we can take this negative relationship as indirect evidence of Hypothesis 2 and

Hypothesis 3, as discussed in theoretical predictions.

ROE measures a firm's efficiency at generating profits from every dollar of shareholders' equity. It shows how well a company uses investment dollars to generate earnings growth. ROE was found to be positive and significant related to the level of capital structure for the results of model (5). This suggests that firms with higher earnings have a higher debt capacity due to lower bankruptcy risks. Noticeably, some of the literature uses the accounting profit rate to measure firm performance, such as ROE in Demsetz and Lehn (1985), and profitability in Chaessens and Djankov (1999). However, some critics might say that accounting profit rate is backward-looking and Tobin's Q is forward-looking (Demsetz and Villalonga, 2001). Most of the more recent literature use Tobin's Q as a proxy for firm performance. Therefore, the negative influence (-0.06) of Tobin's Q on capital structure and the positive effect (0.05) of ROE on capital structure are consistent with our expectation. Firm liquidity has a positive influence on capital structure, but the effect is insignificant. Cho (1998) examined the relationship of liquidity and investment, and produced a significant positive coefficient. We viewed the other important result from the simultaneous equations as being the endogeneity of capital structure. The regression results of the last column in Table 3 also indicate that Tobin's Q negatively affects capital structure. Added to the effect of capital structure on firm valuation, firm performance and capital structure have a mutual influence, which reflects the endogenous character of capital structure. Taken together, the capital structure is not only an intermediate variable of influence between managerial ownership and firm value, but also an endogenous variable which should not be neglected in financial research practices.

Capital structure affects managerial ownership and firm value. Managerial ownership has an indirect influence on firm value, but has a significant effect on capital structure. Thereby, managerial ownership is not influenced by firm value, which is at odds with Cho (1998), Davies et al. (2005). The problem may rise from using different samples and data from former research. However, if the endogeneity of managerial ownership varies in different samples, it warrants further exploration and research. In summary, hypothesis 3 is partly proved by the results of the simultaneous equations. Managerial ownership affects capital structure, which in turn affects firm value. However, the endogeneity of capital structure is confirmed, while the endogenous managerial ownership is still controversial.

4.4 Robustness tests

Firstly, this section discusses the lagged dependent variables for model (1) and model (2). We examined the relationship between managerial ownership and firm value above, as well as the relationship between managerial ownership and capital structure separately for S&P 500 firms in 2005. However, the function of

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[31] Both these papers discuss the relationship of ownership structure and investment, which in turn affects corporate value. Therefore, we used the capital expenditure on firm value equation in this study as a control variable.

managerial ownership on firm value and on capital structure may display a time effect. Therefore, we conducted estimations by using Tobin's Q and capital structure of S&P 500 firms in 2006 and managerial ownership in 2005. We assumed that the managerial ownership impacts mainly on the firm value and capital structure of the next year. The results are described in Table 4.

[Table 4 here]

We used the value of the leverage variable and Tobin's Q for data from 2006 to build up a relationship with the one-year advanced value of managerial ownership in 2005. In model (1) of Table 4, significant coefficients and the predicted slope look similar to those without a time lag consideration, which is discussed in Section 4.1. The extremum turning points of managerial ownership with respect to firm value are 0.1759 and 0.7016. In model (2) of Table 4, after considering the time lag, the coefficients are noticeably less significant than previously; also, all the coefficients for managerial ownership are still significant at the 10% significance level. In summary, the results indicate that time effects do not alter the influence of managerial ownership on firm value and capital structure.

We also use piecewise regression with simultaneous equations to explore whether considering different ranges of managerial ownership produces results with significant differences from those estimated via models (3), (4), and (5). The sample consists of 353 S&P 500 companies in 2005. The models are as follows, and the estimations are reported in Table 5.

Managerial ownership = f (firm value, capital structure, ROE, liquidity)   (6)

Firm value = g (piecewise managerial ownership, capital structure, investment, size)   (7)

Capital structure = h (piecewise managerial ownership, firm value, ROE, liquidity)   (8)

The piecewise managerial ownership (MANA) in the firm value model (7) is defined by the results of turning points (17.1%, 67.1%) from equation (1):

MANA $_{up\ to\ 17\%}$ = managerial ownership if managerial ownership < 0.17, = 0.17 if managerial ownership of firm >0.17.

MANA $_{17\%\ to\ 67\%}$= 0 if managerial ownership < 0.17, = managerial ownership minus 0. 17 if 0.17 < managerial ownership < 0.67, = 0.67 if managerial ownership> 0.67.

MANA $_{over\ 67\%}$ = 0 if managerial ownership of firm < 0.67, = managerial ownership minus 0.67 if managerial ownership > 0.67.

In the capital structure model (8), the three levels of managerial ownership are defined by two breaking points of 19% and 64%, which resulted from model (2) of 19.2% and 63.5%:

MANA $_{up\ to\ 19\%}$ = managerial ownership if managerial ownership < 0.19, = 0.19 if managerial ownership of firm >0.19.

MANA $_{19\%\ to\ 64\%}$= 0 if managerial ownership < 0.19, = managerial ownership minus 0. 19 if 0.19 < managerial ownership < 0.64, = 0.64 if managerial ownership> 0.64.

MANA $_{over\ 64\%}$ = 0 if managerial ownership of firm < 0.64, = managerial ownership minus 0.64 if managerial ownership > 0.64.

[Table 5 here]

The results in Table 5 show that most coefficients are similar to those in Table 3. Managerial ownership in model (7), using three piecewise variables, remained an insignificant influence on firm performance. For the results in model (8), the coefficients of managerial ownership over 64%, and in the range between 19% and 64%, are insignificant in the 5% significant level. This may be due to the limited sample of firms in this range, compared to the multitude of sample firms in the range of managerial ownership up to 19%. However, the significant coefficient of MANA up to 19% still offers powerful evidence for prior prediction.

The other robustness test is for the measurement of firm performance. Cheng (2008) used a proxy of industry-adjusted Q, defined as the difference between the firm's Q and the average Q of the firms in the same two-digit SIC code industry in the same year. We used a similar method for calculation of industry-adjusted Tobin's Q, which is applied in model (1), and produced the following results:

$$Q=12.72270\ MANA\ -46.80451\ MANA^2 +37.09186\ MANA^3$$

$$(4.48) \qquad (-3.57) \qquad (2.91)$$

$$Adj.\ R^2 =0.031, \qquad F\text{-statistic} =4.365, \qquad N=353$$

We then calculated points of extremum and intersection via derivation. The two extremum points are: MANA = 0.170 and MANA = 0.671

For the simultaneous equations using industry-adjusted Q, we derived similar results, as shown in Table 3. This indicates that the relationship between firm value and managerial ownership is not affected by industrial diversity. Himmelberg et al. (1999) employed the data from Compustat firms over a three-year period from1982 to1984 to investigate the relationship between managerial ownership and firm performance. After controlling for fixed three-digit SIC effects for each regression, our results are almost the same after adjustment of industry effects.

5 Conclusions

This paper extends the previous research (Morck et al., 1988; Cho, 1998; Short and Keasey, 1999; Davies et al., 2005) by introducing capital structure as an intermediate variable between managerial ownership and corporate value. Through a sample of 353 S&P 500 firms in 2005, this study applied two cubic

equations to explore the relationship between managerial ownership and firm performance, and managerial ownership and capital structure. The study also applied simultaneous equations in order to detect the interrelationship between managerial ownership, firm value, and capital structure.

First, we found a nonlinear relationship between Tobin's Q and the fraction of shares owned by a board of directors, which is consistent with the results of Morck et al. (1988), Cho (1998), Short and Keasey (1999), and Miguel et al. (2004). Tobin's Q, which is a proxy of firm performance, increases as managerial ownership grows until it reaches 17.1%. Thereafter, Tobin's Q declines with the decline in managerial ownership until it reaches 67.1%. Tobin's Q rises again slightly as managerial ownership increases higher 67.1%. We found that the two turning points were higher than those detected by Morck et al. (1988) and Cho (1998), using early period data from the Fortune 500. We strongly argue that, due to the evolution of corporate governance and changes of regulation, the managerial control for pursuing self-interest and alignment of interests between managers and other shareholders can only be approached by management holding more ownership than that in early time.

Second, the association between managerial ownership and capital structure is non-monotonic. A negative relationship exists between managerial ownership and leverage ratios when managerial ownership is below 19.2% or higher than 63.5%. Within the managerial ownership range 19.2% to 63.5%, the leverage ratio increases as the managerial ownership increases. These results imply that a transitional relationship exists between managerial ownership, capital structure, and firm value.

Third, by using a simultaneous equation regression, we found that managerial ownership does not influence firm value significantly when capital structure is added into the equation. However, managerial ownership significantly affects capital structure, and capital structure affects corporate performance directly. Meanwhile, capital structure is endogenously determined by both firm value and managerial ownership. Therefore, the results from this study address the influence of managerial shareholding on capital structure, which in turn affects firm value.

Furthermore, three intervals of managerial ownership exist, which have different effects on managers' financial decision making; namely, their selection of capital structure. Ultimately, the different capital structures have varying influences on firm value. When managerial ownership is less than 20%, managerial labor market and external discipline dominate managers' behavior. The incentive against firm value maximization can be removed. Managers are motivated to adopt financial policies (such as leverage ratio) to avert financial distress and acquire better firm performance. When managerial ownership is between approximately 20% and 60%, internal monitoring and external discipline becomes less effective. The voting power of managers allows them to choose suboptimal capital structure for entrenchment and then decrease firm value. When managerial ownership exceeds a considerable level, perhaps 60%, management then has aligned interests with other shareholders, and managers choose optimal capital structure and thus increase firm value.

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Appendices

Table 1. Summary of main statistics

	Mean	Median	Maximum	Minimum	Std. dev	Skewness	Kurtosis
Managerial ownership	0.046	0.013	0.874	0.000	0.097	4.416	27.819
Tobin's Q	2.199	1.707	13.024	0.878	1.431	2.866	15.87
Capital structure	0.572	0.575	1.153	0.084	0.204	-0.062	2.621

Notes: Managerial ownership is the ratio of shares owned by all board members to total shares outstanding. Tobin's Q is the market value of assets divided by the book value of total assets. Capital structure is the ratio of total debt to total assets. The sample is 353 S&P 500 firms in 2005.

Table 2. Mean values of Tobin's Q and capital structure by managerial ownership levels

Managerial ownership	Number of firms	Mean Tobin's Q	Std. dev of Tobin's Q	Mean capital structure	Std. dev of capital structure
0 < = MANA < 5%	282	2.1352	1.419	0.5934	0.1976
5% < = MANA < 10%	28	2.4202	1.7988	0.4711	0.2039
10% < = MANA < 15%	13	2.9270	1.2600	0.4657	0.1395
15% < = MANA < 20%	12	2.5052	0.9719	0.4609	0.2794
20% < = MANA < 40%	7	2.3214	1.5675	0.5336	0.2331
40% < = MANA < 60%	4	1.9804	0.6132	0.5470	0.2152
60% < = MANA	2	1.4696	0.6575	0.5847	0.2303

Notes: MANA is the proportion of managerial ownership, which is the ratio of shares owned by all board members to total shares outstanding. Tobin's Q is the market value of assets divided by the book value of total assets. Capital structure is the ratio of total debt to total assets. The sample is 353 S&P 500 firms in 2005.

Table 3. Simultaneous regression analysis using two-stage least squares method

Variable	Managerial ownership (3)	Firm value (4)	Capital structure (5)
Constant term	0.099558 (4.46)***	7.135857(12.94)***	0.729157 (35.42)***
Tobin's Q	-0.004038 (-0.97)		-0.061894 (-8.75)***
ROE	0.004714 (0.76)		0.045399 (4.01)***
Liquidity	-7.60E-07 (-2.07)**		-3.22E-07 (-0.47)
Capital structure	-0.070173 (-2.48)**	-1.528850 (-4.09)***	
MANA		1.807075 (0.62)	-1.457348 (-3.46)***
MANA^2		-8.475954 (-0.70)	4.693926 (2.67)***
MANA^3		5.985242 (0.53)	-3.784003 (-2.31)**
Capital expenditure		5.74E-05 (1.59)	
SIZE		-1.027659 (-6.71)***	
Number of firms	353	353	353
Adj. R^2	0.019141	0.269374	0.227331

Notes: Tobin's Q is the market value of assets divided by the book value of total assets. ROE is earnings before interest and taxes, divided by total common equity. Liquidity is common equity minus liquidation value. Capital structure is the ratio of total debt to total assets. MANA is the proportion of managerial ownership — the ratio of shares owned by all board members to total shares outstanding. The quadratic and cubic terms of MANA are MANA^2 and MANA^3. Size is the logarithm of total

assets. Managerial ownership is the ratio of shares owned by all board members to total shares outstanding. Capital structure is the ratio of total debt to total assets. The sample is 353 S&P 500 firms in 2005.
*** and ** represent significance at 1% and 5% levels respectively.

Table 4. Results of model (1) and model (2) by one-year lagged managerial ownership

	C	MANA	MANA^2	MANA^3	Adjusted R-squared	Number of firms
Model (1) Tobin's Q of 2006	2.005261 (21.44)***	7.686971 (2.56)**	-27.32867 (-2.18)*	20.76365 (1.77)*	0.012911	353
Model (2) capital structure of 2006	0.592953 (41.58)***	-0.839774 (-1.83)*	3.511276 (1.82)*	-3.165457 (-1.75)*	0.001471	353

Notes: Tobin's Q is the market value of assets divided by the book value of total assets. Capital structure is the ratio of total debt to total assets. MANA is the proportion of managerial ownership, which is the ratio of shares owned by all board members to total shares outstanding. The quadratic and cubic terms of MANA are MANA^2 and MANA^3. The sample is 353 S&P 500 firms in 2005.
***, ** and * represent significance at 1%, 5% and 10% levels respectively.

Table 5. Robustness test using simultaneous regression with two-stage least squares method

Variable	Managerial ownership (6)	Firm value (7)	Capital structure (8)
Constant term	0.099558(4.46)***	7.161043(13.19)***	0.720942(35.67)***
Tobin's Q	-0.004038(-0.97)		-0.062804(-8.87)***
ROE	0.004714(0.76)		0.045708(4.03)***
Liquidity	-7.60E-07(-2.07)**		-2.20E-07 (-0.32)
Capital structure	-0.070173(-2.48)**	-1.524488(-4.08)***	
MANA up to 17%		0.854469(0.52)	
MANA 17% to 67%		-1.852596(-1.18)	
MANA over 67%		1.125821(0.17)	
Capital expenditure		5.73E-05 (1.59)	
SIZE		-1.032152(-6.76)***	
MANA up to 19%			-0.743853(-3.42)***
MANA 19% to 64%			0.293408(1.23)
MANA over 64%			-0.971243(-0.94)
Number of firms	353	353	353
Adj. R^2	0.019141	0.269532	0.221598

Notes: Tobin's Q is the market value of assets divided by the book value of total assets. ROE is earnings before interest and taxes, divided by total common equity. Liquidity is common equity minus liquidation value. Capital structure is the ratio of total debt to total assets. Size is the logarithm of total assets. Managerial ownership is the ratio of shares owned by all board members to total shares outstanding. MANA up to 17% = managerial ownership if managerial ownership < 0.17, = 0.17 if managerial ownership of firm >= 0.17. MANA 17% to 67% = 0 if managerial ownership < 0.17, = managerial ownership - 0.17 if 0.17 < managerial ownership < 0.67, = 0.67 if managerial ownership > 0.67. MANA over 67% = 0 if managerial ownership of firm < 0.67, = managerial ownership - 0.67 if managerial ownership > 0.67. MANA up to 19% = managerial ownership if managerial ownership < 0.19, = 0.19 if managerial ownership of firm > 0.19. MANA 19% to 64% = 0 if managerial ownership < 0.19, = managerial ownership - 0. 19 if 0.19 < managerial ownership < 0.64, = 0.64 if managerial ownership > 0.64. MANA over 64% = 0 if managerial ownership of firm < 0.64, = managerial ownership - 0.64 if managerial ownership > 0.64. The sample is 353 S&P 500 firms in 2005.
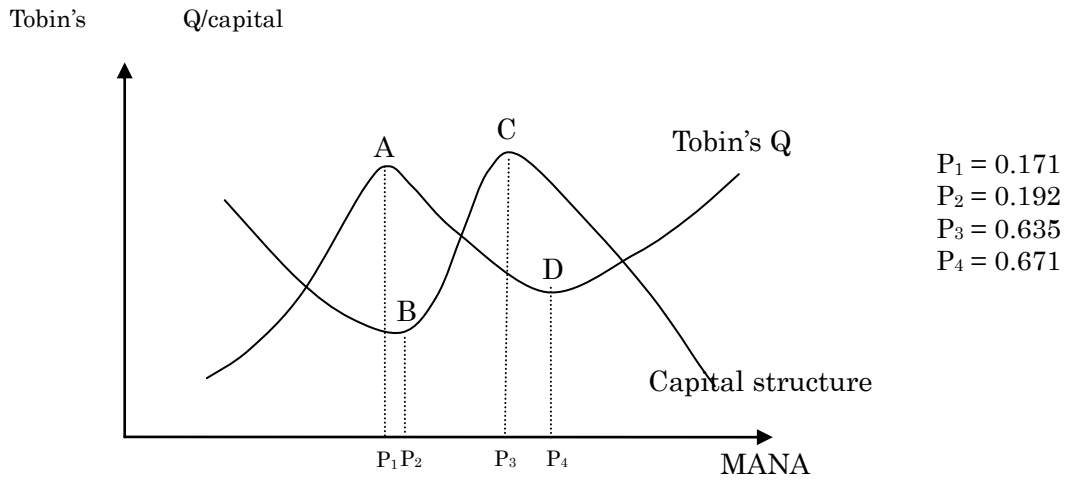*** and ** represent significance at 1% and 5% levels respectively.

Tobin's   Q/capital

$P_1 = 0.171$
$P_2 = 0.192$
$P_3 = 0.635$
$P_4 = 0.671$

Figure 1. Relationship among firm value, capital structure and managerial ownership

THE FAMILY BUSINESS: A UNIQUE PROFILE OF BEHAVIOUR, OR A PROFILE ADAPTED TO THE NEEDS OF THE FAMILY AND THE MARKET?

Carmen Galve-Górriz*, Vicente Salas-Fumás*

Abstract

This paper helps to theorize the link between family generation and the characteristics, behaviour, management and governance of the firm. The paper also answers the question: to what extent is competitive position affected by each generation? The paper overcomes the limitation of the cross-sectional data, since the investigation is applied to data from Spanish firms during the period 1994 to 2005, which is much more appropriate when discussing developmental models. Our results confirm the greater degree of complexity of the family firm, as the ownership and the running of the business is passed to future generations. However, and contrary to all expectations, family firms in the sample have a high degree of concentration of ownership, regardless of the generation and a greater complexity in the business does not give rise to the incorporation of external partners in the company's share capital. In fact, third generation companies have no external partners, with 100% capital remaining in the family.

Keywords: corporate ownership, family business, Spain

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1. Introduction

Family firms hold a particular position among all the different types of company, owing to the nature of their ownership structures, their leadership and their evolutionary dynamics. In contrast to other types of company, family firms constitute the basic foundations of the business community worldwide. Their creation, growth and longevity are critical to the success of the global economy, and the economic and social importance of family firms has been widely recognized at an international level. The proportion of family firms in relation to the total number of registered companies; their contribution to the GDP of a country and its levels of employment can be considered measures of their importance[32].

Although there is a unanimous belief about the quantitative and qualitative importance of family firms in the economy of any country, the controversy continues about how, and in what direction, family ownership affects the behaviour and the performance of firms. Recent empirical conflicting evidence on the performance of family firms compared with that of non family one has raised the interest on this issue[33]. For some researchers the existing disparity of conclusions has to do with the heterogeneous definitions of family firms used in the different studies (Dyer, 2006; Miller et al, 2007).

Dyer points out that classifying all family firms in one category may lead to misleading conclusions. Definitions of family firms based strictly on

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[32] Ward and Aronoff (1990); Shanker and Astrachan (1996); Gersick et al (1997); Laporta et al (1999); Upton and Petty (2000); Amat (2001); McConaughy et al (2001); Faccio and Lang (2002); Anderson and Reeb (2003); Chris-Graves (2006).

[33] Anderson and Reeb (2003), Villalonga and Amit (2006), Perez Gonzalez (2006), and Sraer and Thesmar (2007) find that listed family firms are more profitable than other listed firms. Faccio et al (2001) find evidence of inferior performance in family firms. Barth et al (2005) find that family-owned firms are less efficient than non-family owned firms.

On the other hand, there are studies that find no differences between the performance of family and non-family firms. Following the Comparative Institutional Economics Theory, Demsetz and Lehn (1985), Cho (1998), Himmelberg et al (1999), Demsetz and Villalonga (2001), and Galve and Salas (2005) find empirical support for the hypothesis that, controlling for the characteristics of the transactions that determine the choice of one form of governance or another, no differences in profitability are expected among firms of different ownership structure.

percentages of ownership and management control will likely not differentiate the various family effects, and thus will not accurately predict or explain differences in firm performance. These methodological problems suggest that researchers need to unravel the impact of the various factors affecting firm performance, including the family itself, such as: industry, governance, firm characteristics and management. A family may influence firm governance, its basic characteristics, the quality of its management, and possibly even an industry (Dyer, 2003; Morck &Jeung, 2003, 2004). Dyer (2006) suggests that it is also possible that a family may have a direct effect on a firm's performance that is not mediated through the other four variables.

In order to increase the predictive power of the analysis there have been a few attempts to create typologies of family firms, such as the well- known development model of family firms of Gersick et al (1997), who consider a family firm as a system of overlapping circles labelled "family", "business", and "ownership"; although the three circles provide a good foundation for examining family business, most of the problems and challenges of a family firm occur over the course of time. One reasonable starting point in the analysis of heterogeneous behaviour within family firms is to compare the behaviour of family firms in the first, second and multiple generations

Surprisingly, only very limited research has been conducted in this area. Among the noteworthy exceptions are the works of Ward (1991), Gersick et al. (1997), Lansberg (1999), Van den Berghe & Carchon (2002), Dyer (2006), and Rutherford et al. (2006). There is very little empirical research on the differences in governance structures among family firms themselves. Additionally, scientific uncertainty remains within the heterogeneous group of family firms, with regard to how they behave.

Van den Berghe & Carchon (2002), collecting data from a Belgian population of companies submitting their annual accounts, in 1997, to the National Bank of Belgium, attempt to identify differences in corporate governance practices between family and non- family firms, and investigate to what extent differences can be found within the group of family firms based on family ownership and family generation[34]. Although their study contributes to the corporate governance literature, to improve the understanding of family firm governance it is necessary to understand how the idiosyncratic characteristics of this type of firm's corporate governance affects its competitiveness, and for that it is necessary to answer the following question: to what

extent is competitive position affected by each generation?

The Catedra of family firms of Palmas de Gran Canarias (Spain), in collaboration with The Institute of Spanish Family Firms (IEF) and Price-WaterHouse-Coopers, carried out a study of a collective of 112 family firms belonging to 14 Spanish Territorial Associations of family firms. This work concerned differences in corporate governance mechanisms (family board and board of directors), in 2000, between family firms of first, second and later generations. As in the previous work, this paper does not analyze the differences in business development and competitive position with regard to the generation that owns and runs the business.

Rutherford et al. (2006) provide an initial empirical examination of the Gersick et al (1997) developmental model of family business, through an analysis of the relationship existing between family development (first, second and further generations) and ownership (controlling owner, sibling partnership and cousin consortium) variables, and the variable of business development (measured by size and growth of the firm). They find a positive relationship between the generation and the business development but no relationship between the ownership dimension and the business development. The authors also identify additional key groups of variables (owner, firm, and family characteristics) that help to explain family business development. Although the authors point out that the primary strength of this research is that it provides additional insights into the developmental model of family firms, they recognize that the cross-sectional nature of the data is problematic when discussing developmental models, a result of a weakness of the survey: the historical growth rates were collected for only one year prior to the study

This paper provides some answers to the questions raised by Van den Berghe & Carchon (2002), Dyer (2006) and Rutherford et al. (2006), and overcomes some of their limitations. First, this paper helps to theorize the link between family generation and the characteristics, behaviour, management and governance of the firm. Second, the paper answers the question: to what extent is competitive position affected by each generation? Third, the paper overcomes the limitation of the cross-sectional data, since the investigation is applied to data from Spanish firms during the period 1994 to 2005, which is much more appropriate when discussing developmental models.

Our paper contributes to both Family Business and Corporate Governance Literature; the first by providing an empirical test of the developmental model of family business (DMFB, developed by Gersick et al. (1997), since the main objective of the paper is to check how the family and its business develop to a higher level of complexity as ownership and the running of the business are passed on to future generations, and the second by analysing the need for adequate governance practices when a family and its

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[34] Attending to the generation of the family that is involved in the firm, they analyze whether there are differences in the family ownership policy, the family member independence ratio of the board of directors, the frequency of meetings of the board, and the accumulation of the functions of president of the board and representatives of the board of directors.

business develop to a higher level of complexity.

The paper is structured as follows. In section two, we focus on a theoretical discussion of the problems related to the growth of the family and the company over time, and of how the consequences of growth are successfully managed through the implementation of adequate governance practices. The third section presents the results of our empirical analysis of the sample of Spanish firms. The conclusions summarize the main results of the paper.

2. Theoretical framework

One of the main sources of problems for family firms is related to the growth of the family and the company over time. Gersick et al (1997) and Leon-Guerrero et al (1998) suggested that the nature of the family firm changes over time in response to the developmental dimensions of the family, the firm and the ownership, with varying impacts on the firm at different stages[35]. The growth of the family signifies a larger number of family members belonging to different branches of the same family dynasty. One of the changes brought about by family growth is the dispersion of shareholders, resulting from the transfer of shares from parents to children. This brings about a fragmentation of shareholders' power, which requires heavy doses of negotiation and consensus. A particularly difficult transaction for a company, in these circumstances, is the change from the first generation stage of controlling owner to the second generation stage of brothers' society [Levinson, 1971; Lansberg, 1988; Handler, 1990; Barach & Ganitsky, 1995; Cabrera Suarez et al, 2001]. Another point to take into account is that, as the family grows, not all shareholding family members will work in the company, and so active and non-active family shareholders must be differentiated, since their interests will not always coincide. While non-active family shareholders will be interested in obtaining returns on their investment in the company, the active family shareholders will also be interested in their careers in the company and their salaries [Gersick et al, 1997; Lansberg, 1999; Schulze et al, 2003]. Thus, a potentially difficult area for family firms is that interpersonal relationships are of the utmost importance, and family members involved in the running of the company cannot take business oriented decisions in isolation, without considering family matters. A lack of optimum interpersonal relations, or the existence of conflict between family members, will inevitably lead to these conflicts being transferred from the family to the company (and/or vice versa) [Hilburt-Davis & Dyer, 2003[36]; Lee, 2006[37];]. This

may put the long-term survival of the company at risk: some members of warring family factions may block investment projects for the simple reason that they have been proposed by another faction, without determining whether the projects are really appropriate from a business perspective [Dyer, 1986; Kaye, 1991; Lansberg, 1999; Ward, 1987].

It is also important to take into account that once the family has grown past the point where there is a clear identity among family members involved in management and family members who are owners, it is time to provide a clear and acceptable division between the Governing Body of the company and Family Deliberations. All members of the family with interests in the company should meet at regular intervals to discuss family and business matters (Neubauer and Lank, 1998; Sanchez-Crespo, 2003)[38].

A family forum means the generally accepted union between family and company, rather than simply a rapprochement between individuals belonging to the family. The forum provides a recognised means of communication between family and company. In these forums, non-active family members can ask questions about company policies and projects and express their points of view. Executive family members can explain policies and progress, and have the opportunity to gain the support of non-active family members for implemented policies and proposed changes. It is probable that the non-active family members, if they are well-informed and considerate, will support policies and changes proposed by executive family members, so long as they do not entail a break with the family's original company philosophy, culture and values. Among the specific mechanisms of governance of the business family, we can identify the Family Assembly and the Family Council.

The discussion suggests the following hypotheses :

H1: As the family grows over time, there will be a higher dispersion of shareholding, as a result of the transfer of shares from parents to children. Thus, first generation family firms will have a higher degree of concentration of family-held shares than second or later generation family firms.

H2: As the family grows over time, not all shareholding family members will work in the company, and so active and non-active family shareholders must be differentiated. Thus, first generation family firms will have a lower proportion of non-active family shareholders than second or later generation family firms.

H3: In order to successfully manage the consequences of complexity and growth of the family,

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[35] Kotey (2005) examines differences in business goals, management practices, and performance between small family and non-family firms and changes in these differences as the firms grow.

[36] Hilburt-Davis &Dyer (2003) point out that family members may have competing goals and values, which may spring from complex conflicts and family dynamics that arise from a family's psychosocial history.

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[37] For further information about the literature that researches the impact of family relationships see Lee, J. (2006).

[38] For more information about mechanisms of Governance in Spanish family firms, see the document published in 2002 by the Institute of Spanish Family Firms, Price-WaterHouse-Coopers and the Network of Spanish Cátedras of Family Firms.

second and later generation family firms will provide a more clear culture of transparency than first generation family firms, through the implementation of the Family Assembly and the Family Council.

According to company growth, although the growth goal may not feature strongly for family firms, some level of growth is required if the aim of the firm is to remain competitive and to assure its long-term survival, maintaining ownership and control of the firm within the family (Pollak, 1985; Casson, 1999; Chami, 1999). Family firms, as any firm, face a dynamic, global and highly competitive market, which increasingly demands the incorporation of new products, new technologies, new organizational methods and new methods for competing in the market; further, in family firms, growth goals (in terms of internationalization, commercialization, and innovation), are likely to be pushed by second or later generation proprietors as they bring new perspectives to the firm (See Fernández-Nieto, 2005, and Gallo & Pont, 1996). Although life-cycle literature suggests that second and later generation family firms are likely to be more mature, and to be growing more slowly than founder-led firms, it should not be forgotten that there is a need of family owners of second or later generations to adopt new perspectives and new corporate strategies for growth, in order to guarantee the survival of the firm, to remain competitive, and to accommodate the needs of the extended family as other family units join the firm (Poza, 1988).

As the firm grows in complexity over time, and is faced with the need to invest in growth strategies requiring a high level of investment, and thus a higher amount of funds than may be available within the family and the firm, it could be necessary to incorporate external partners in order to obtain additional funds without losing control of the firm.

Based upon this discussion, we present the following hypotheses:

H4: Founder-led firms are likely to be in the founding and growth stages of their life-cycle and firms in the second and later generations are likely to be bigger, older and more mature.

H5: In order to guarantee the survival of the firm and remain competitive, second and later generation family firms will invest more in growth strategies and in key factors to gain a competitive advantage (such as internationalization, commercialization, innovation and quality) than first generation family firms.

H6: Taking into account the hypothesis 4 and 5, differences in growth rates between family firms of first, and second or later generations, are not expected.

H7: Second and later generation family firms will have more non-family shareholders than first-generation family firms, to finance growth strategies without losing the family control of the firm.

It is also important to take into account that the new demands of the dynamic, global and highly competitive market bring with them the need for new knowledge and skills. Gallo et al (2002) and King, Salomon & Fernald (2001), argue that, as the business grows and becomes more complex, the demand for role specialization and the number of required managerial layers increases, as does the complexity of the managerial roles. However, skills and knowledge are not always available among family members. The quality and experience of the family managerial labor pool may not be able to fulfil the range of specialist managerial functions that a competitive, growing, and complex firm requires (Casson, 1982). Obstacles to firm development may be overcome by investing in training to develop the skills and competencies of family members. However, it may be preferable for owners of some family firms to recruit non-family professional managers and directors to secure firm development. Outside directors and managers, and sometimes non-family shareholders, can provide firms with expert advice, specialist skills, and resources that a family firm does not necessarily possess (Kesner & Dalton, 1994; Blondell, Carlock, & Heyden, 2000). This, in turn, means that as the business grows and becomes more complex, the future of the family firm depends on its ability both to recruit and promote its most capable family members, and to offer attractive options (the possibility of a professional career) in order to attract and retain the best professionals from outside the family. Selection of family members often proves to be more complicated than recruitment of external professionals, as a result of the institutional overlap between family and company. There are two appropriate policies for the incorporation of family members into the business: i) Selective Policy, whereby the company only recruits those family members it considers to have a potential for promotion at a later date, and ii) Open Door Policy, whereby the company opts to accept any family member who is prepared to work hard and accept that promotion is not guaranteed (Cadbury, 2002).

In addition to having, or obtaining, the managerial capacity and expertise, it is also important that firms utilize planning and control techniques that assist in monitoring and controlling performance as they grow. Leon-Guerrero (1998) and Reid and Adams (2001) argued that family firms are also pushed towards more formal practices as growth occurs. Growth requires formal management systems with clear definition of tasks, clear lines of responsibility and authority, and greater documentation of management decisions, procedures and achievements. Formal management systems provide greater transparency and ensure fairer treatment of employees. Tasks and responsibilities must be defined in order to establish objective bases for the evaluation of how they are carried out and remunerated. The Board of Administration provides the basis for the construction of a logical organisational structure, and defines clear lines of authority and responsibility. With growth, the need for more formal practices increases, since conflicts will occur between the requirements for effective management of growth and the preferred informal, personal and direct style of family owners (Mintzberg, 1994; Van Den Berghe & Carchon, 2002;

Cadbury, 2002).

The Board of Administration should determine the company's long-term aims and objectives and the means by which they can be achieved, leaving day-to-day decision-making to the Committee of directors. In certain cases, the Board provides the ideal way to attract independent, external members. The nomination of an external member to the board means sharing the responsibility of directing the company with somebody who is neither a family member nor an executive. This can be vital to non-active family members when they do not have sufficient information, [Ward, 1991; Hoy and Verser, 1994; Harris et al, 1994; Cadbury,2002; Van Den Berghe & Carchon, 2002; Sirmon and Hitt, 2003].

In order for the Board to accomplish its mission satisfactorily, it would seem necessary, according to certain codes of good government (Olivencia, 1998; Aldama, 2003; and Conthe, 2006, in Spain), that the roles of president of the board and that of chief executive officer, are separate. The main role of the President of the board is to hire, fire, evaluate and pay top management, thus making it extremely difficult to do so for him/her self. Concerning the size of the Board, the recommended number of members is between 5 and 9; fewer than five members limits creativity, while more than nine may lead to inefficiency.

The discussion suggests the following hypothesis:

H8: In order to successfully manage the consequences of complexity and growth of the firm, second and third generation family firms will be more professionalized, with a higher number of non-family directors, and will have a higher ability to recruit, promote and retain the best professionals, than first generation family firms.

H9: In order to successfully manage the consequences of complexity and growth of the firm, second and third generation family firms will provide a more efficient organizational structure than first generation family firms through the board.

3. Empirical study of the running of Spanish family businesses in Aragon

The sample was selected from a population of 85 companies included in the SABI-Database[39], who report their annual accounts in the Mercantile Register, according to the following criteria: i) the company should belong to the Autonomous Community of Aragón; ii) the number of employees of the firm should be at least 10, and the annual turnover of the firm should be at least 1,9 million of euros. The latter criterion, whose objective is to exclude the micro-firms from the sample, has also been used by Astrachan and Kolenko (1994).

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[39] The Sabi-Database is edited by Bureau Van Dick, Informa S.A, and Coface. It includes financial and shareholder information about Spanish and Portuguese Firms.

Of the 85 companies with these characteristics, only 44 were family firms, these are: the family had enough percentage of shares to exercise effective control over the firm and one or more family members held posts of management in the firm.

Two types of information have been used in this research. Qualitative data (case-based data) from an extensive and complete questionnaire (related to ownership structure, size, growth strategies, management and governance practices in the firm over time) were completed with quantitative data collected from the balance sheet, income statements and annual reports of firms in the Spanish Mercantile Register.

Before the survey was distributed, it was reviewed by a focus group of family business owners, belonging to the Association of Family Firms in Aragon and to the Family Firm Institute, and a pilot study was conducted. A total of 22 companies meeting the criteria responded to the questionnaire, a response index of 50%. Those completing the questionnaires occupied a key position in the decision-making process of their companies - general director, president of the board, president of the board of administration, executive director - and had received some kind of training course related to the concerns of the family business. The firms in the sample can be classified in three main industrial sectors, based on ISIC codes (manufacturing, wholesale/retail and services). The period of study was from 1994 to 2005, therefore the number of observations considered is 264.

3.1 Family development and ownership structure

Table 1, presents the distribution of businesses in the sample (differentiating between the generations leading the company) in terms not only of the nature and type of shareholders who participate in the share capital, but also their degree of participation in the share capital, which allows us to analyse the composition of shareholders. With regard to the nature or identity of the main shareholders of the family business, the following groups were identified: family owners, family holding company, other private individuals, financial entities, national companies, foreign capital, and non-family employees. In relation to the generation that runs the business, first, second and third generation family firms were identified. The variable generation was measured by the number of generations between the current chief executive officer (CEO) and the founder of the firm.

The table shows that 27.3% of the total number of businesses in the sample are in the first generation businesses, 59.1% in the second generation and 13.6 % in the third generation. The date reveal that, on the one hand, in the majority of the businesses analysed (80%), independent of which generation runs the business, the family is the only shareholder in the company, with the proportion of companies having external, non-family member shareholders being small (only 18% of the businesses, on average). On the other hand, that a

greater complexity in the business does not give rise to the incorporation of external partners in the company's share capital. In fact, third generation companies have no external partners, with 100% of capital being in the hands of the family. Therefore, our results do not support hypothesis H7.

Another relevant question is whether these family businesses have undergone important changes in ownership structure during the past twelve years. The answer can be found by comparing ownership structures at the end of 2005 with those existing at the end of 1994, table 2. From this comparative analysis (table 1 versus table 2) it can be seen that, during the period 1994-2005, regarding the nature of the main shareholders participating in the share capital of the businesses in the sample, seventy-three percent maintained their ownership structure and their main shareholders. Although 18.1% of the remaining businesses maintained their principal shareholders, one family sold shares to a company holding (in one case it sold 100% of its shares) belonging to the family. The holding was created in order to ensure the efficient growth of the company, both from the point of view of optimum resource management and from a legal-tax perspective. Contrary to expectation, 95% of family firms increased or maintained exactly the same level of ownership over the last twelve years. Five percent of the firms underwent only a little dispersion of ownership with the arrival of new partners.

Additionally, it is also important to know what is the minimum number of family shareholders necessary to obtain complete control or a majority in the business. The greater this number is, the more difficult it will probably be to obtain a large enough majority to exercise effective control over the firm, and the greater will be the need for negotiation and consensus-seeking among family members. The relevant variable is the degree of concentration of family-held shares. This is measured, in the present study, by the percentage of shares in the hands of "n", main shareholders, where n varies from one to eight. This variable is represented as "A_n". Table 3 presents the degree of concentration of family-held shares (differentiating between first generation companies and second and third generation[40]). The date reveal that the group of family businesses analysed, regardless of generation, possesses an elevated concentration of ownership. One, two or three shareholders are enough to exercise effective control in 82% of the businesses. The remaining 18% are also characterized by a high degree of concentration of family shareholders, with 5, 6 or 8 being sufficient to control. There is only one exception where the family has minority control.

In addition, table 3 also presents the total number of shareholders in the business, allowing us to check for possible discrepancies. The table shows that the average total number of shareholders is less than or equal to five in approximately 82% of the businesses, including between 6 and 8 in 5% of the businesses, and higher than 26 in only three businesses. Thus, the data reveal a strong concentration of ownership, since the number of shareholders in most of the businesses in the sample is relatively small. There is a marked asymmetry in the distribution of share capital among shareholders, especially in those three businesses where the number of shareholders is greater than 26. Both facts suggest that the possibility of obstructing decision-making in the business, when there are differing opinions and conflicts of interest among shareholders, is minimal.

We can conclude that our results do not support hypothesis H1. Second and third generation family businesses do not have a higher level of dispersion of ownership than first generation family businesses. Both collectives of family firms have a high degree of concentration of family-held shares.

On the other hand, and with the aim of testing our hypotheses 2, and contributing information that will permit inferences to be made about the risks of conflicts of interest between different family parties, table 4 presents a ratio showing the existence of different groups: active family shareholders (88% of the total number of shareholders in first generation businesses and 65% of the total number of shareholders in second and third generation businesses), which supports our hypothesis 2 that, as the family grows over time, a lower proportion of family shareholders will work in the company, and so active and non-active family shareholders must be differentiated.

Finally, and as a consequence of the last result, to manage the consequences of complexity and growth of the firm successfully, second and third generation family firms should provide a more clear culture of transparency than first generation family firms, through the implementation of Family Assembly and Family Council. Table 5 presents an analysis of governing mechanisms specific to the families of the sample businesses. Very few businesses in the sample make use of the Family Assembly as a vehicle for family deliberation about possible tensions, between different groups (active and non-active shareholders), that may put the survival of the business at risk. Concerning the Family Board, table 5 shows again that only a third of first generation companies have one, and that this percentage is even lower in second and third generation businesses (18.7%).

We can conclude that the data do not support our hypothesis H3; a possible explanation for this result could be that family firms do not have an important need for these mechanisms of family governance, due to the high degree of concentration of family shareholders, and to the small average total number of shareholders (see table 3). Both facts suggest that the possibility of obstructing decision-making in the

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[40] From here on, the study will differentiate only two categories: first generation businesses, and second and third generation businesses, given that there are only 3 third generation companies and the transfer of leadership happened only recently so there is no great difference between the two groups

business, when there are different opinions and conflict of interests among shareholders, is minimal.

3.2 Business Development

This section focuses on the empirical study of the heterogeneous characteristics and behaviour within family firms, analyzing how the firm changes in characteristics and behaviour over time (so as to make investment decisions related to growth strategies, and, in response to other key factors, to gain a competitive advantage: internationalization, commercialization, innovation and quality), depending on the particular stage in the family generation evolution.

In order to test hypothesis 4, related to the life-cycle of firms, which predicts that "founder-led firms are likely to be in the founding and growth stages of their life-cycle and firms in second and later generations are likely to be bigger, older and more mature, and growing more slowly or even declining", we present table 6. As dependent variables, we employ life-cycle variables, such as size, age, and growth. Size is measured in four dimensions: level of sales, assets, value-added, and the number of employees. Age is represented by the number of years the company has been in business. Growth is represented by the mean level of sales growth achieved during prior fiscal years. We use a historical measure of growth, rather than a perception of future growth, which provides the benefit of objectivity, as it is easier to measure past financial results than future projections of growth[41]. Furthermore, past growth has been shown to be highly correlated with future growth and perception of future growth (McMahon, 2001).

The general information about the data set is compiled in table 6. The data are collected from the balance sheet, income statement and annual reports that firms reported to the Mercantile Register for the period 1994-2005. The table also shows the results of the test of equal mean and equal median of the variable, for first and second-third generation firms, with time and industry variables of control. Our results support hypothesis H4, for all the size variables, in terms of sales, assets, employees and value-added. First generation family firms are significantly smaller than second and later generation family firms, and are younger than second and later generation family firms. The test of equal growth cannot be rejected (hypothesis 6).This result of equal sales growth rates between families of first, and second-third generations, could be explained by the need of family owners of second-third generations to seek new perspectives and corporate strategies, in order to guarantee the survival of the firm and to remain competitive, as well as to accommodate the needs of the extended family as other family units join the firm.

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[41] This measure has been used in previous family business studies (Rutherford et al, 2006; Rutherford et al, 2003; Schulze et al, 2001)

Another way to test whether first generation family firms grow at a higher or equal rate than second-third family firms (hypothesis 6), assuming that the size at the time they are created is similar, among firms of similar age, is by postulating a simple relation between size (Assets), age (T), and average growth rate (g),

$$Assets_T = Assets_0 \,(1+g)^T$$

$$\tag{1}$$

$Assets_T$ are the current total assets of the firm (in year 2005) and $Assets_0$ are the unknown assets when the firm was created in year 2005-T. Taking logs we have

$$Ln\,Assets_T = Ln\,Assets_0 + T\,Ln(1+g) \qquad .$$

Therefore from the empirical model,

$$Ln\,Assets_T = a + bT + c\,FirstGeneration\,T \tag{2}$$

We can test the hypothesis that first generation family firms have a higher or equal growth rate in invested assets than second-third family firms. In terms of the model in equation (2) this implies that,

$$(c+b) = Ln(1+g_{first\,Generation}) = g_{FG} \geq b = Ln(1+g_{Multigenerational Generation}) = g_{MG}$$

$$\tag{3}$$

Table 7 presents the results of the test of the prediction of the life cycle literature that first generation family firms are smaller in size than multigenerational family firms. The first column shows that, controlling for industry effect, the coefficient of the dummy first generation family firm is negative and statistically significant, which implies that first generation family firms have a lower stock of assets than multigenerational family firms. The conclusion changes, as expected, when we control for age, column 2, taking into account that both types of family firms are of different age (see table 6). The last column of table 7 explains the differences in size as a result of differences in age. Finally, the estimated coefficient of the variable "FirstGenerationAge" is not statistically significant, which implies that first generation family firms grow at a rate equal to second-third family firms, again confirming our hypothesis H6.

In an attempt to test our hypothesis 5, that is to see whether differences in the type of family firm, depending on the generation running the business, cause differences in the key factors to gain competitive advantage (specifically, factors related to investment decisions, commercialization and internationalization, innovation and quality) in the last twelve years, we present tables 8, 9 and 10.

To analyse the possible differences: First, in commercialization, the variables used are the use of own brands, the percentage of own brand sales over total sales, and changes made in product/brand presentation. Second, in internationalization, the

variables used are the percentage of exports over total sales, the distribution of exports per country, the existence of affiliates and production plants abroad. Third, in innovation, the variables used are the percentage of sales of new products, the existence of R & D departments, the number of people working in R & D, and their level of education, the investment in R & D, and the number of patents per business. Finally, in quality, the variables used refer to whether the firm uses different models or certifications of quality, the percentage of total staff involved in quality teams or quality circles, and the percentage of returned products.

Concerning the key factors to competitive advantage in "Commercialization and Internationalization, table 8 reveals that: firstly, in terms of commercialization policy, one third of first generation family businesses, and 44% of second and third generation family businesses, provide their own brands, with the percentage of own brand sales over total sales being only 1% for the former and 30% for the latter. With regard to the variable, changes made in product/brand presentation, there are various differences depending on generation. The data show that about 60% of second and third generation businesses modify product/brand presentation, compared to 33.3% of first generation businesses. This implies that second and third generation businesses are more innovative and commercialize their own brands to a greater extent than first generation businesses.

Secondly, regarding internationalization actions, second and third generation businesses are also better prepared, in terms of resources and products, than first generation businesses to compete in more developed markets. The table shows that 33% of first generation businesses export products, with the average level of exports over total sales being 25%. Exports are mainly distributed in Europe, (75%), Asia and Oceanía, (12.5%), África and South America (6.3% each). However, among second and third generation businesses, 62.5% export, and the level of exports over total sales is 27.3%. They export a larger proportion of their products to Europe, the USA and Canada than first generation family businesses and a smaller proportion to developing countries. Finally, only second and third generation family firms have affiliates and production plants abroad, 60% and 20%, respectively.

Concerning the key factor to competitive advantage in "Innovation" in the last twelve years, data in table 9 shows that only 33.3% of first generation family businesses innovate, with the level of sales of new products, (less than 5 years on the market), standing at 26%. The number of second and third generation firms who innovate is fifty% and the level of sales of new products stands at 42%. In addition, first generation businesses do not have R+D departments, and do not devote human or financial resources to these activities. In contrast, 50% of second and third generation businesses have a research and development department, with eight people

working full time, 3 of whom have higher education. Finally, second and third generation businesses designate 1.2% of sales to internal R+D costs and 0.8% to external R+D costs. Regarding patents, only 31.3% of second and third generation businesses have them, with the average number of patents per business being 10.8. In contrast, none of the first generation businesses have patents.

Finally, in terms of the key factors to competitive advantage in "Quality", table 10 shows that, although there are no great differences in the number of businesses who have obtained ISO or similar certification, there are important differences in other variables relating to quality. Among first generation businesses, the level of total staff involved in quality teams or circles is 8.1%, compared to approximately 36% in second and third generation businesses. In addition, none of the first generation businesses use European or non-European quality models, and only 16.6% employ environmental protection policies. These levels are 25.0%, 13.0% and 75.0%, respectively, for second and third generation businesses. Finally, there are no differences in the quality of products among the two groups, the level of returned products is 0,5% in both.

It may be concluded that our results support our hypothesis H5, as time passes and businesses become more complex, they invest more in commercialization and internationalization strategies and in technical or intangible resources, with the aim of obtaining a competitive position in the market and guaranteeing their survival as a family firm, in an increasingly complex, competitive and globalized environment.

In order to manage the consequences of complexity and growth successfully, and guarantee survival, the family firm faces the need for adequate governance practices. In particular, the family firm has two organizational requisites: the ability to recruit, promote and retain the best professionals; and the implementation of a more efficient organisational structure.

3.2.1 Analysis of personnel selection, recruitment, payment and training

In relation to our H8, Table 11 also allows inferences to be made about recruitment policies in the company. It shows the following, by generation: i) the proportion of family directors out of the total number of directors contracted by the business. This reveals the degree of external professionalization in the business; ii) the proportion of family directors over the total number of family members active in the business. This indicates the existence of selection policies for family members, and enables us to see whether the recruitment policy applied is selective (only allowing qualified family members to become directors, thus avoiding possible problems caused by the heterogeneity of positions occupied by family members at different levels) or if, on the contrary, the business applies an open door recruitment policy which allows this sort of heterogeneity. iii) The number of family members

contracted, of the total number of active family members, who have technical or university level qualifications. This is an indication of the degree of professionalization among family members employed in the business. iv) The degree of job security among employees in the business, measured by the percentage of permanent contracts of the total number of employees at the end of 2005. Finally, v), it shows the proportion of expenditure devoted to training employees, which will provide information about employee policies.

The degree of external professionalization increases over time as the business becomes more complex. The percentage of family directors is 72.6 in first generation businesses compared to 50.7 in the second and third generation. The table also reveals that, as the business becomes more complex over time, training and competence requisites increase for family executives; in first generation businesses, 47.2% of active family members have technical and/or university qualifications, compared to 60.7% of active family members in second and third generation companies.

It is also interesting to note that second and third generation family businesses use a more selective recruitment policy for family members than do those of the first generation. The table shows that 92% of active family members hold key positions in the business, compared to 55.1% of family members in first generation businesses. Another interesting point revealed in the table is that, with the passing of time, the family business becomes more committed to ensuring job security for its employees: 80.1% of personnel in second and third generation family businesses have permanent contracts, and 64.4% of personnel in first generation businesses.

Finally, the table reveals a greater awareness of the need for training as the business grows in complexity over time. Second and third generation businesses devote 2% of their total personnel costs to training for employees, compared to 1% of first generation companies.

According to the selection and promotion policies for directors, table 12 shows that the main selection criteria is professionalization, regardless of family relationship, in approximately 80% of second and third generation family businesses and 67% of first generation businesses. On the other hand, and independently of the generation leading the company, around 70% of businesses in the sample apply only one promotion policy, and give equal opportunity to the consideration of proposals made by all executives, regardless of family relationship.

Secondly, with reference to the length of time the general director stays with the company, the time period is more than 15 years for 100% of the first generation businesses, and 60% of the second and third generation businesses. The lower percentage for second and third generation businesses can be explained by the fact that there are a group of businesses that have recently passed from second to

third generation. Moreover, and regardless of generation, the family plays an important part in decision making in 80% of the sample.

Finally, with regards to payment policies, 80% of first generation family businesses pay their executives a fixed salary and only 20% pay partly fixed and partly variable salaries, depending on profits. These percentages change radically in second and third generation businesses, where a fixed salary is applied in 50% of the companies, and a mixed salary in the remainder. The average level of variable salary, in businesses using this system, is 30% in first generation companies, and 24.3% in second and third. On the other hand, in 83.3 percent of first generation family firms, and in 75% of multigenerational family firms, there is more than one payment policy, dependent on kinship. Moreover, salary scales are fixed by the owners in 80% of the businesses, who are, in most cases, the directors of the business.

The data support our hypothesis H8: as the business gains in complexity, and the degree of external and family directors professionalization is increasing, family firms use a more selective recruitment policy for family members and invest more in training employees. However, with regard to payment policies, and independently of the generation, more than 70% of family firms apply two different payment policies, depending on kinship.

3.2.2 Analysis of the Formal Structure of the Organisation: The Board of Administration

Concerning the composition of the Board of Administration, table 13 shows that the average number of members belonging to the Board of Administration is 4.7 in first generation family businesses (89.4% family member), and 4.8 in second and third generation businesses (77.1% family members). This table also shows information about the generation to which the family board members belong. In first generation family businesses, 71.4% of family board members belong to the first generation and the remaining 28.6% are second generation family members. In second and third generation businesses, different generations are also represented: 13.5% of board members are first generation, 73% are second generation, and the remaining 13.5% are third generation.

The table 13 also shows the frequency per year of board meetings. Among first generation businesses, the board meets only once a year, or sporadically, in 50% of the companies; between one and eleven times in 33.3% of the companies, and more than eleven times in only 16.7% of the companies. In second and third generation businesses, the board meets sporadically in 40%, between two and eleven times in 33.3%, and more than eleven times in 26.7% of the companies.

In addition, the table shows the degree of independence of the Board through the representation of family shareholders, measured by the proportion of family shareholders on the board and the total number

of family shareholders. Data obtained from this table reveals that all the family shareholders in first generation businesses have a place on the board, compared to 77.5% of family shareholders in second and third generation businesses. The ratio of independence of the board, measured by the proportion of independent board members among the total number of board members, is zero in first generation family businesses, and 0.6% for second and third generation businesses. Only one firm has an independent board member, who is not linked to the management or shareholders of the business. The table also shows that, in 67% of first generation businesses and 53% of second and third generation businesses, the president of the board is also the managing director of the business, which may put the effectiveness of the board at risk when it comes to supervising management.

Regarding functions carried out by the Board of Administration, table 14 shows that, as the business gains in complexity, with transfers over generations, there is an increasing concern for Administration boards to be more formal and efficient in terms of management. Specifically, the data shows that, among second and third generation businesses, greater care is taken in the decision-making process; 86% of this group mark their boards as being responsible for the ratification and selection of strategies proposed by the management team and control of the results of these elected strategies, whereas the level of first generation businesses whose boards carry out these two functions is lower (16.7% and 33.3%, respectively). In addition, a greater concern can also be seen, in these more complex businesses, for the use of more formal organisational structures which help to prevent confusion and intrigue; 78.6% of second and third generation businesses mark the main task of the board as being the definition of lines of responsibility and authority. This level is 16.7% (only one business) among the group of first generation businesses.

It is interesting to note that in half of the boards of first generation businesses, and a third of the boards of second and third generation, tasks are confused and involve day-to-day operative policy. In addition, the boards of first generation businesses pay little or no attention to tasks involving the selection, supervision, evaluation and control of the management team.

Finally, with reference to payment policy, table 15 shows that in approximately 70% of first generation family businesses, members of the board receive no payment for being board members and, in the remaining 30%, they receive a fixed amount. On the contrary, in 77% of second and third generation family businesses, members of the board are paid for being board members, a fixed amount in 30% of the businesses, fixed plus expenses in 40%, and a variable amount in the remaining 30% of the businesses. The average levels of fixed payment, fixed plus expenses, and variable out of total payment are, 65%, 23% and 12%, respectively. These payments are fixed by the owners in all first generation businesses and in half of

the second and third generation businesses, with the board establishing payment in the other half of the businesses. In conclusion, the information obtained from this table reveals that, as the business gains in complexity, there is an increasing concern for director boards to be more efficient in terms of payment policy to their members.

Summarising the results obtained, we can confirm our hypothesis H9. We conclude that the data reveal that, as the business grows in complexity, there is an increasing concern for director boards to be more formal and efficient in management. The data show that, among second and third generation family businesses, greater care is taken in the decision-making process, there is greater concern for the use of more formal organisational structures which help to prevent confusion and intrigue, and greater care is taken concerning the composition, degree of independence and frequency of meetings of the board, along with a greater focus on efficiency in terms of payment policy to their members.

4. Conclusions

Our results confirm the greater degree of complexity of the family firm, as the ownership and the running of the business is passed to future generations. However, and contrary to all expectations, family firms in the sample have a high degree of concentration of ownership, regardless of the generation; one, two or three shareholders are enough to exercise at least a majority control in 82% of the businesses. On the other hand, and also contrary to expectations, our results reveal that a greater complexity in the business does not give rise to the incorporation of external partners in the company's share capital. In fact, third generation companies have no external partners, with 100% capital remaining in the family. The results reveal that the ownership structure remains stable and undergoes no important change over time, regardless of the generation. This result could be explain that very few businesses in the sample, independently of the generation running the business, make use of governing mechanisms specific to the families, as a vehicle for family deliberations concerning possible tensions between different groups.

Family firms, as any firm, face a dynamic, global and highly competitive market, which increasingly demands the incorporation of new products, new technologies, new organizational methods and new methods for competing in the market. With the aim of maintaining a competitive position in the market, guaranteeing survival as a family firm, and to accommodate the needs of the extended family as other family units join the firm, family firms in second or later generations are larger, invest more in commercialization and internationalization strategies and in technical or intangible resources. However, there are no differences in the level of sales growth and in the quality of products between generations; the level of returned products is 0.5% in both cases.

The results also confirm that, as the business gains in complexity, the degree of external and family directors' professionalization increases, family firms use a more selective recruitment policy for family members, and they invest more in training employees. However, with regard to payment policies, and independently of the generation, more than 70% of family firms apply two different payment policies, depending on kinship.

In addition to having managerial capacity and expertise, it is also important that firms utilize planning and control techniques that assist in monitoring and controlling performance, as they grow. Growth requires formal management systems with clear definition of jobs, clear lines of responsibility and authority, and greater documentation of management decisions. The results obtained reveal that, as the businesses grow in complexity, there is an increasing concern for director boards to be more formal and efficient in management. Data show that, among second and third generation family businesses, greater care is taken in the decision-making process, there is greater concern in using more formal organisational structures, helping to prevent confusion and intrigue, greater care is taken in the composition, degree of independence and frequency of meetings of the board, and there exists a greater concern to be more efficient in terms of payment policy to members of the board.

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Appendices

Table 1. Generational Distribution of Family Firms in terms of Identity and Participation of Principal Shareholders in Shares Capital of the Firm in 2005

NATURE OF SHAREHOLDERS	Total Number of Firms	X_{FA} % Participation of Family in Shares Capital	X_H % Participation of Family Holding in Shares Capital	X_{EN} % Participation of other National Companies in Shares Capital	X_{EXT} % Participation of Foreign Capital in Shares Capital	X_{EMP} % Participation of the Employees in Shares Capital	X_{FIL} % Participation of Affiliates' Companies in Shares Capital	X_{PART} % Participation Of Private Individuals in Shares Capital
FIRST GENERATION								
Only Family Shareholders (FA)	5	$X_{FA=100}$	-	-	-	-	-	-
Family, Family Holding and Employees	1	$25 \leq X_{FA} < 50$	$25 \leq X_H < 50$	-	-	$25 \leq X_{EMP} < 50$	-	-
SECOND GENERATION								
Only Family Shareholders (FA)	9	$X_{FA=100}$	-	-	-	-	-	-
Family Holding (H)	1	-	$X_{H=100}$	-	-	-	-	-
Family and Private Individuals (FA, PART)	1	$25 \leq X_{FA} < 50$						$X_{PARTi} < 5*$
Family Holding and Other National Firm (FA, EN)	1		$X_{H=50}$	$X_{EN=50}$				
Family, Family Holding, Foreign Capital, Employees, Affiliates' Companies (FA, H, EXT, EMP, FIL)	1	$25 \leq X_{FA} < 50$	$25 \leq X_H < 50$		$25 \leq X_{EXT} < 50$	$X_{EMP} < 5$	$X_{FIL} < 5$	
THIRD GENERATION								
Only Family Shareholders (FA)	2	$X_{FA=100}$	-	-	-	-	-	-
Family (FA) y Family Holding (H)	1	$X_{FA} > 50$	$5 \leq X_H < 25$	-	-	-	-	-
T. Firms with no External Shareholders	18 (81,8%)							
T. Firms with External Shareholders	4 (18,2%)							

Own Elaboration; Note: $X_{PART\,i} < 5*$, where i= 1 …91

Table 2. Ownership Structure of Family Firms According to Identity and Participation in share capital of Principal Shareholders in 1994

NATURE OF THE SHAREHOLDERS	Total Number of Firms	X_{FA} % Participation of the Family in Shares Capital	X_H % Participation of the Family Holding in Shares Capital	X_{EN} % Participation of Other National Firms in Shares Capital	X_{EF} % Participation of Financial Entity in Shares Capital	X_{EMP} % Participation of Employees in Shares Capital	X_{FIL} % Participation of Affiliates Companies in Shares Capital	X_{PART} % Participation of Private Individuals in Shares Capital
Only Family Shareholders (FA)	16	$X_{FA\,=\,100}$	-	-	-	-	-	-
Family (FA) and Non-Family Executive Employees (EMP)	1	$X_{FA}>50$	-	-	-	$25 \leq X_{EMP} < 50$	-	-
Family (FA) and Non-Family Executive Employees	1	$X_{FA}>50$	-	-	-	$X_{EMP}< 5$	-	-
Family and Private Individuals (FA, PART)	1	$5 \leq X_{FA} < 25$	-	-	-	-	-	$X_{PARTi}< 5*$
Family Holding and Other National Firms (FA, EN)	1	$X_{FA\,=\,50}$	-	$X_{EN\,=\,50}$	-	-	-	-
Family Holding,, Employees and Affiliates Companies (FA, H, EMP, FIL)	1	$25 \leq X_{FA} < 50$	$25 \leq X_H < 50$	-	-	$X_{EMP} < 5$	$X_{FIL} < 5$	-
Family, (FA) and Financial Entity	1	$5 \leq X_{FA} < 25$	-	-	$X_{EF}>50$	-	-	-

Note: $X_{PART\,i} < 5*$, where i= 1 …91

Own Elaboration

Table 3. Generational Distribution of the Firms in terms of degree of Concentration of the Shares in the hands of Family Shareholders in 2005

	FIRST GENERATION			SECOND AND THIRD GENERATION			TOTAL		
	Number of Firms	%	Number of Shareholder On Average	Number of Firms	%	Number of Shareholder On Average	Number of Firms	%	Number of Shareholder On Average
A1 Only one Shareholder Exercising Majority Control	2	33,3	4	4	25,0	3	6	27,4	3
A2 Two Shareholders Exercising Majority Control	3	50,0	3,7	7	43,8	3,7	10	45,5	4
A3 Three Shareholders Exercising Majority Control	-	-	-	2	12,5	4	2	9,1	4
A5 Five Shareholders Exercising Majority Control	-	-	-	1	6,3	48	1	4,5	48
A6 Six Shareholders Exercising Majority Control	-	-	-	1	6,3	27	1	4,5	27
A6 Six Shareholders Exercising Effective Control (with a percentage of capital of less than 50%)	-	-	-	1	6,3	100	1	4,5	100
A8 Eight Shareholders Exercising Majority control	1	16,7	8	-	-	-	1	4,5	8

Table 4. Differences in the percentage of Active Family Shareholders between Generations

	FIRST GENERATION	SECOND & THIRD GENERATION
$\dfrac{Active\ Family\ Shareholders}{Total\ Family\ Shareholders}$ *(in percentage)*	88,1	65,1

Own Elaboration

Table 5. Mechanisms of Governance of the Business Family (2005)

	1ª GENERATION		2ª & 3ª GENERATIONS	
FAMILY ASSEMBLY & FAMILY BOARD	N	%	N	%
Firms with Family Assembly	1	16,6	4	26,6
Firms with Family Board	2	33,3	3	18,8

Table 6. Means, medians and statitstics from tests of differences in means and medians for size, age and growth variables between first generation and multigeneration family firms (1994-2005)

	First Generation Family Firms		Second-Third Generation Family Firms		t-student differ (means)©	Kruskal Walis Test Chi-Square differ (medians)
	Mean	Median	Mean	Median		
Sales♣	4.594	3.755	42.308	12.702	-4.3***	50.9***
Assets♣	4.709	3.890	57.718	13.389	-3.7***	29.7***
Value Added ♣	1.601	1.182	15.451	3.579	-4.0***	47.0***
Employees	41	20	213	73	-4.3***	44.6***
Age of the Firm	21	21	36	32	-7,5***	33.3***
[Sales's GrowthT-Sales's Growth(T-1)]/Sales's Growth (T-1)	0,03	-0,08	0,03	-0,07	0,3	0,2
Number of Observations	264		264			

Note:

The number of firm-year observations totals 264 for the period 1994-2005. Data collected from the balance sheet, income statement and annual reports that firms have to report to Spanish Mercantile Register.

©Control variables of time and industry dummies in all regressions although the coefficients are not reported.

♣ Millions of Euros

*** $p \leq 1\%$; ** $p \leq 5\%$; * $p \leq 10\%$

Table 7. Growth and size of first and second or more generation family firms (1994-2005)

The table presents the results from tests for differences in size and growth between firt and second or more generations family firms. The dependent variable is Log Assets in year 2005.Model 1 tests for differences in size. Model 2 tests differences in size controlling for age. Model 3 tests for differences in growth rate. In all models. control variables of industry. T-student in parenthesis.

	Model 1	Model 2	Model 3
Constant	16.79***	15.4***	16.2***
	(29.8)	(16.7)	(17.7)
FirstGeneration	-1.59***	-0.98	
	(-2.2)	(-1.3)	
Age	-	0.03**	0.04***
		(1.9)	(2.3)
FG∗Age	-	-	-0.03**
			(-1.0)
Observations	22	22	22
$\overline{R^2}$	0.12	0.22	0.20
F	2.2**	2.7***	2.9***

Own Elaboration

*** $p \le 1\%$; ** $p \le 5\%$; * $p \le 10\%$

Table 8. Commercialization and Internationalization

KEY FACTORS TO COMPETITIVE ADVANTAGE	1ª GENERATION		2ª & 3ª GENERATION	
	N	%	N	%
COMMERCIALIZATION				
Promotion of Own Brands	2	33,3	7	43,8
Percentage of Sales Destined to Promotion of Own Brands		1,0		30,0
Have changed Presentation of Products/Brands in last Three Years	2	33,3	10	62,5
INTERNATIONALIZATION				
Export	2	33,3	10	62,5
Percentage of Exports over Sales:		25,0		27,3
Distribution of Exports by Country				
Europe		75,0		83,6
United States and Canada		0		2,0
Latin-American		6,3		3,4
Asia y Oceania		12,5		6,4
Africa		6,3		4,6
Firms has Commercials Affiliates Abroad	0	-	6	60,0
Business has Production Plants Abroad	0	-	2	20,0

Own Elaboration

Table 9. Innovation

KEY FACTORS TO COMPETITIVE ADVANTAGE	1ª GENERATION		2ª & 3ª GENERATION	
	N	%	N	%
INNOVACIÓN				
Firms having New Products (less than 5 years)	2	33,3	8	50,0
Percentage of Sales of New Products (less than 5 years)		26,0		41,9
Use Patents in the Sector	0	-	5	31,3
Have R+D Department	0	-	8	50,0
Number of Patents	0		10,8	
Number of Persons dedicated full time to R+D	0		8,1	
Graduates dedicated full time to R+D	0		2,5	
Persons with Vocational Training dedicated full time to R+D	0		0,8	
$\dfrac{Total\ Internal\ Expenses\ I+D}{Total\ Sales}$ $(in\ prrcentage)$	0		1,2	
$\dfrac{Total\ External\ Expenses\ I+D}{Total\ Sales}$ $(in\ percentage)$	0		0,9	

Table 10. Quality

KEY FACTORS TO COMPETITIVE ADVANTAGE	1ª GENERATION		2ª & 3ª GENERATIONS	
	N	%	N	%
QUALITY				
Has ISO or other quality certification	4	66,7	13	81,3
Percentage of staff participating in Quality Teams		8,1		35,58
Uses European quality model as reference	0	-	4	25,0
Uses other quality management models	0	-	2	13,0
Applies environmental protection policy	1	16,7	12	75,0
Percentage of Products returned		0,44		0,5

Table 11. Family Recruitment Policies and Job Security

RECRUIMENT POLICY	FIRST GENERATION	SECOND & THIRD GENERATION
$\frac{Active\ Family\ Shareholders}{Total\ Family\ Shareholders}$ (*in percentage*)	88,1	65,1
$\frac{Family\ Executives}{Total\ Executives}$ (*in percentage*)	72,6	50,7
$\frac{Family\ Executives}{Total\ Active\ Family\ Shareholders}$ (*in percentage*)	55,1	91,8
$\frac{Active\ Family\ with\ Thecnical\ or\ Higher\ Education}{Total\ Active\ Family}$ (%)	47,2	60,7
$\frac{Permanent\ Employees\ at\ the\ End\ of\ 2004}{Total\ Employees\ at\ the\ End\ of\ 2004}$ (*in percentage*)	64,4	80,1
$\frac{Training\ Employees\ Expenses}{Total\ Personnal\ Expenses}$ (*in percentage*)	1,1	2,1

Own Elaboration

Table 12. Recruitment, Promotion, Payment and Permanence Policies for Directors

RECRUITMENT, PROMOTION AND PAYMENT POLICIES FOR DIRECTORS AND PERMANENCE OF DIRECTORS	FIRST GENERACIÓN		SECOND &THIRD GENERACION	
	N	%	N	%
RECRUITMENT AND WORKING CRITERIA				
Main Selection Criteria is Professional Capacity. Family Relation is not taken into account.	4	66,7	11	78,6
There is only One Promotion Policy. Family Relation is not taken into account.	4	66,7	10	71,4
The same weight of consideration is given to Proposals from both Family and Non-family Directors.	4	66,7	10	71,4
PERMANENCE OF GENERAL DIRECTOR				
Six to ten years	0	-	3	18,7
Eleven to fifteen years	0	-	3	18,8
More than fifteen years	4	100	10	62,5
TOP MANAGEMENT PAYMENT POLICY				
Receives Fix Salary	4	80,0	8	53,0
Receives Fix Salary + Variable Salary	1	20,0	7	47,0
$\frac{Sum\ of\ the\ Percentages\ of\ Variable\ Salary}{Number\ of\ Firms\ with\ Variable\ Salary}$		30,0		24,3
Identical payment, regardless of kinship	1	16,7	4	25,0
Pay scales fixed by owners	5	83,3	12	75,0
Pay scales fixed by Board	1	16,7	4	25,0

Own Elaboration

Table 13. Composition of the Board

COMPOSITION	1ª GENERATION		2ª & 3ª GENERATIONS	
Size and Members of Board of Administration	Mean	%	Mean	%
Total Members belonging to board	4,7	100	4,8	100
Total Family Members on Board	4,2	89.4	3,7	77.1
First Generation Family Members	3	71.4	0,5	14.2
Second Generation Family Members	1,2	28.6	2,7	73
Third Generation Family Members	0	-	0,5	13.5
Total NonFamily Members on Board	0,5	10.6	1,1	22.9
DEGREE OF INDEPENDENCE OF BOARD (in percentage)	Mean	Median	Mean	Median
Independent Members/Total Members	0	-	0,6	0
CEO is President of Board	66,7	100	53,0	100
$\dfrac{Family\ Shareholdes\ on\ Board}{Total\ Family\ Shareholdes}$	100	100	77,5	100

Own Elaboration

Table 14. Tasks of the Board of Administration and Annual Frequency of Meetings

TASKS CARRIED OUT BY THE BOARD OF ADMINISTRATION	1ª GENERATION		2ª & 3ª GENERATION	
	N	%	N	%
Definition of lines of responsibility and authority	1	16,7	11	78,6
Selection, Supervision, Evaluation and Control of managers	1	16,7	7	50
Play an important role in operative policy	3	50	4	33,3
Identify principal risks facing the company	1	16,7	7	50
Ratify and select strategies proposed by management	1	16,7	12	85,7
Control Results of selected strategies and their implementation by the management team	2	33,3	12	85,7
Determine Information and communication policies with all interested parties, "Stakeholders"	1	16,7	2	14,3
Responsible for electing President of the Board	3	50	13	92,9
Ensure Succession in top management	3	50	7	50
FREQUENCY OF BOARD MEETINGS				
Once a year	1	16,7	0	-
Sporadic and unplanned.	2	33,3	6	40
Between 2 and 11 times a year	2	33,3	5	33,3
More than 11 times a year	1	16,7	4	26,7

Own Elaboration

Table 15. Payment Policy to the Members of the Board

PAYMENT POLICY	1ª GENERACIÓN		2ª & 3ª GENERACION	
	N	%	N	%
Payment received	2	33,3	13	76,9
Fix Payment	2	100	4	30,0
Fix Payment + Expenses	-	-	5	40,0
Variable Payment depending on Results	-	-	4	30,0
$\dfrac{Fix\ Payment}{Total\ Payment}$ (in percentage)		100		65,0
$\dfrac{Variable\ Payment}{Total\ Payment}$ (in percentage)				
$\dfrac{Expenses\ Payment}{Total\ Payment}$ (in percentage)				

Own Elaboration

THE NON-LINEAR EFFECTS OF OWNERSHIP STRUCTURE ON CORPORATE PERFORMANCE: EVIDENCE FROM EMERGING MARKET

*Rami Zeitun**

Abstract

This paper examines the non-linear effects of ownership structure (variables) on corporate performance. The data used in this study are derived from 167 publicly traded companies quoted on the Amman Stock Exchange (ASE), over the period 1989-2006. The ownership structure is measured by the percentage of shares held by each type of owner (state, institution, foreign concentrated owners, and individuals). Results in this study confirm earlier findings of a curvilinear relationship reported for larger markets. The results also show that the relationship between government ownership and ROA and MBVR is a hump-shaped curve. The value of a firm increases when government ownership is low, but the value of a firm decreases when it is high. As the government reduces its stake in a privatised company to below a specific point, perhaps market monitoring become ineffective and this increases the agency costs. The results also document that the relation between institutional ownership and ROA and Tobin's Q is a hump-shaped curve. When institutional ownership increases above a specific point, institutional shareholders negatively influence a firm's activities. Findings in this study contribute to the growing body of international evidence that the non-linear cubic relationship between ownership structure and corporate performance is robust to differences in governance structures across markets.

Keywords: Ownership Structure, Corporate Performance, Failure, Jordan

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1. Introduction

The relationship between ownership structure and firm performance has been an important research topic during the last three decades, and has produced ongoing debate in the literature of corporate finance. Theoretical and empirical research on the relationship between ownership structure and firm performance was originally motivated by the separation of ownership and control identified by Berle and Means (1932). Berle and Means (1932) suggested that an inverse correlation should be observed between the diffuseness (concentration) of shareholdings and firm performance, in which ownership structure affects firm performance. The financial literature assumes that managers are imperfect agents for investors, as managers may attempt to pursue their own goals rather than shareholders' wealth maximisation. Also, it has been stated that there may be a conflict of interest between outsiders (shareholders) and insiders (managers), as managers may have incentives which serve their own benefit rather than maximising

shareholders wealth (Jensen and Meckling, 1976).

One approach that may control this conflict, suggested by Jensen and Meckling (1976), is to increase the equity ownership of managers in the firms, therefore encouraging managers to work more efficiently to maximise shareholders' wealth and carry out less activities of self-interest (see Jensen and Meckling (1976); Fama and Jensen (1983); Shleifer and Vishny, (1986)). However, it may also work in the opposite direction, as large shareholders may use their control rights to achieve private benefits.

Nevertheless, this view has been challenged by Demsetz (1983), who argued that the ownership structure of a company should be thought of as an endogenous outcome of decisions that reflect the influence of shareholders on a firm's performance. According to Demsetz (1983) there should be no systematic relationship between ownership structure and firm performance. For instance, even if a manager owns only a small stake, market control, including the managerial market, and the market for corporate control, may force him toward the firm's value

maximisation, as a manager wants to guarantee his employment. On the contrary, a manager with a high ownership percentage may have enough votes to guarantee his employment without any market control (see Fama, 1980; Jensen and Ruback, 1983). A firm's ownership structure is affected by the firm-specific risk, as firms have different characteristics and operate in different environments, so the optimal ownership structure varies across firms.

Himmelberg, Hubbard and Palia (1999) extend the Demsetz and Lehn (1985) study by adding new variables to explain the variation in ownership structure. In order to control for various possible unobserved heterogeneities, a fixed effects panel data model and instrumental variables are used. Ownership structure is measured by the shareholdings of insiders. Their results showed that insider ownership is negatively related to the capital-to sales ratio, but positively related to the advertising-to-sales ratio and operating income to sales ratio. After controlling for these variables and fixed firm effects, changes in ownership holdings were found to not have a significant impact on firm performance. However, a quadratic relationship between ownership and firm performance was found when they controlled for the endogeneity of ownership.

More recently, the focus of literature has shifted and several theories have been proposed to show the ambiguity of the effect of ownership concentration. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) argued that the agency problem in many emerging markets is relatively severe due to the absence of strong legal protection and other governance mechanisms. The monitoring manager is not the main problem of corporate governance but the main problem is the expropriation of minority shareholders. In this case, the legal protection of the minority is the main issue.

The relationship between ownership structure and corporate value could be non-linear. Morck, Shleifer and Vishny (1988) point out that a manager responds to two opposing forces. At a lower level of managerial ownership share, managers tend to allocate a firm's resources for their own benefit and at the expense of the outside shareholders. However, when the level of managerial ownership increases, a manager's interests become more associated with the outside shareholders. Morck, Shleifer and Vishny (1988) ignore the endogeneity issue altogether and re-examine the relationship between corporate ownership structure and performance. A cross section of 371 Fortune 500 firms was taken in 1980. They measured performance by Tobin's Q, and managerial ownership as the combined shareholdings of all board members

who have a minimum share of 0.2% of ownership. They find a positive relationship between management ownership and firm value in the 0% to 5% ownership range and beyond the 25% ownership range. But at moderate levels of management ownership, between 5% and 25%, firm performance decreased. A study by Cho (1998), using cross-sectional data and ownership information from value line replicates the Morck, Shleifer and Vishny (1988) study and finds a similar nonmonotonic relationship between Tobin's Q and management share holdings.

In contrast to findings in Morck et al. (1988), McConnell and Servaes (1990) reported a quadratic functional form and do not detect any inverse relationship especially over the 5–25% ownership range. McConnell and Servaes (1990) used the US data for more than 1000 firms from the Compustat database to investigate the relationship between Tobin's Q and managerial share ownership. They found a positive relationship between management ownership and firm performance in the 0% to 40% - 50% ownership range. McConnell and Servaes (1995) replicated and extended their earlier study but over a later time period and obtain similar results to McConnell and Servaes (1990)[42]. Hermalin and Weisbach (1991) estimated the effect of managerial ownership and board composition on Tobin's Q using panel data for five years. They found no relationship between board composition and performance, but found a significant non-monotonic relation between managerial ownership and corporate performance, a positive relationship between 0% and 1%, a decreasing relationship between 1% and 5%, an increasing relationship between 5% and 20%, and decreasing beyond 20%.

Furthermore, recent findings in Davies et al. (2005) for UK firms are even more disturbing. Using a simultaneous equations framework in the presence of conflicting managerial incentives, Davies et al. (2005) report that the relationship between managerial ownership and firm value is essentially quintic (double-humped) and not just cubic as reported in Short and Keasey (1999). Collectively, these conflicting findings suggest that the debate over the precise functional form of the insider ownership–firm value relationship is far from conclusive.

In Australia, Craswell, Taylor and Saywell (1997) investigated the relationship between the distribution of equity ownership and a firm's

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[42] Steiner (1996), and Han and Suk (1998) obtained a similar conclusion. Their results confirm the existence of managerial entrenchment when insider ownership is beyond 36.6% and 41.8%, respectively.

performance using 349 publicly traded firms in 1986 and 1989. Their results are weakly supportive of a curvilinear relationship between insider ownership and corporate performance. Also, institutional ownership was not found to be an important determinant of Australian corporate performance. Short and Keasey (1999) provided evidence for the curvilinear effects (non-linear relationship) between insider ownership and firm performance in UK firms, but that insider ownership becomes entrenched at higher levels of ownership (the breakpoints were 12% and 41%) than their US counterparts (see Morck et al., 1988).

Aldamen (2002) provided evidence from the Jordanian market. He investigated the impact of foreign ownership on firm value for a sample consisting of 46 industrial and service companies listed on the Amman Stock Exchange (ASE) covering the period between 1990 and 2000. In order to investigate the impact of foreign ownership on a firm's performance he used a cross-sectional, time-series ordinary least squares (OLS) piecewise regression. Four variables were used in his study to represent ownership on the basis of the proportion of foreign held shares. Aldamen (2002) found that the relationship between firm value and foreign ownership in the Jordanian case is non-linear. His results reveal that the value of Jordanian firms rises as foreign ownership increases from 0% to 1%, firm's value decreases as foreign ownership rises from 5% to 20%, and firm's vale increases as foreign ownership moves beyond 20%.

Zeitun and Tian (2007) examined the impact of ownership structure on Jordanian firm's performance and the default risk using a matched sample of 59 publicly listed firms in Jordan for the period 1989-2002. This paper investigates the effect of ownership structure on a firm's performance and its failure in Jordan using panel data of 167 firms.

A number of reasons make the choice of Jordan interesting. First, Jordan is a much smaller market than the US, UK, China, or Australia, which were the subjects of prior studies, and hence it is likely that managerial actions will be more translucent that may lead to a less conflict of interest between insiders and outsiders. Second, since 1990 privatisation of publicly held shares is an ongoing program in Jordan. Managing state holdings in Jordanian listed companies has become a top government priority, with the government supporting the private sector to takeover and participate more in economic growth[43] (see, for

example, CBJ (2003, 2006)); World Bank (2000)). So, it could be anticipated that privatisation in Jordan would affect a firm's performance and failure as it changed the ownership structure of firms and ownership concentration.

Third, the Jordanian Government undertook major reforms of the legislation that governs securities the law 22 of 1997, which is most recently amended in the law 76 of 2002, provides basic Company Law or Securities Law. This reform was intended to strengthen internal control, shareholders rights, and the protection of minority shareholders and, therefore, potentially could have an impact on the relationship between insider ownership and firm value. For example, shareholders have the right to take part in discussing matters presented thereto, and in voting on the resolutions adopted by assembly regarding this matter (see, for example, JSC (2001, 2004). In the event of bankruptcy or liquidation65, "if the company's assets are insufficient to meet its obligations as a result of the negligence of its Chairman, members of the Board, the General Manager, or its auditors, the court may charge those responsible for the deficit jointly and severally" (JSC, 2001, p.23). Furthermore, "shareholders representing not less than 15% of the subscribed share capital can require the Controller of Companies to inspect the company for possible violations" (JSC, 2001).

Finally, the ownership of ASE listed firms is highly concentrated. It is feasible that this significant concentration may help to increase the firm's performance, as the large shareholders may help reduce the free-rider problem of small investors. For example, the fraction held by companies seems to be on the rise; for instance, it increased from 26.4 percent in 1996 to 30.5 percent in 2006 (See Zeitun 2009).

This paper examines the non-linear effects of ownership structure (variables) on corporate performance. To the best of the author's knowledge, this is the first study that real figures about ownership structure (mix and concentration) to investigate the non-linear effects of ownership structure (variables) on corporate performance for Jordanian companies using a large sample. It is worth noting that collecting the data on ownership structure (mix and concentration) for each firm and for each year over the period 1989-2006 constituted a large part of the research for this thesis as the data were collected manually. This vast effort made this research possible.

The remainder of this paper is organized as follows. Section 2 provides a descriptive discussion

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[43] Privatisation is part of the overall economic package that the government has adopted since the economic adjustment program of the early nineties, and self-reliance in the

aftermath of the economic crisis in 1989 that befell the country.

about ownership concentration and ownership mix for the Jordanian companies used in the study. Section 3 introduces the estimation method. Section 6.4 introduces the empirical results. Section 5 concludes the paper

2.   Ownership Structure and Firm Performance: a Descriptive Discussion

The corporate governance mechanisms vary around the world which could affect the relationship between ownership structure and corporate performance (Shleifer and Vishny, 1997). For example, in Europe and Japan, there is less reliance on elaborate legal protection, and more reliance on large investors while, in the US, firms rely on legal protection. So, due to the differences between US corporate governance and other systems, a different relationship between ownership and firm value could be expected. Also, recent studies of corporate governance suggest that geographical position, the tax system, industrial development, and cultural characteristics, along with other factors, affect ownership structure which in turn impacts on a firm's performance and its failure (Pedersen and Thompson, 1997). Therefore, this study is important as it provides evidence from the emerging markets and, more specifically, from Middle Eastern countries using Jordan as a case study[44].

The Amman Stock Exchange (ASE) provides some evidence about the ownership structure of the companies traded on the ASE. There are five types of shares. First, government shares are those held by the central government. Government shares are not available for trading on the ASE, but government ownership has fallen during the last ten years as a result of privatization. Second, government agency shares are shares owned by the government agencies. Third, company shares are shares owned by domestic institutions. The company is defined as a legal person or a non-individual legal entity or institution. Fourth, individual shares are held and traded by individuals. Fifth, foreign and Arab shares are those held by Arabs and foreign owners. All these shares entitle shareholders and have the same voting rights and dividend payment.

Table 1 shows the average ownership mix of stock companies listed on the ASE. The fraction of government shares appears to have declined from 1994 to 2006. The fraction of Arab ownership appears to have increased from 10.20 percent in 1994 to 13.5 percent in 2006. The fraction of foreign owned shares

appears to have been unstable as it both increased and decreased over this time period. However, it appears to have increased to 15 percent in 2006. The fraction held by companies seems to be on the rise; for instance, it increased from 26.4 percent in 1996 to 30.5 percent in 2006.

Foreign ownership has been on the rise since the beginning of the 1990's. The ASE has categorized the foreign (Non-Jordanian) ownership as Arab and non-Arab investors. Foreign investors can trade (buy and sell) on the ASE without any restriction. Furthermore, non-Jordanian investors are also allowed to invest in any project within any sector according to regulation No. 54 of the year 2000 (Non-Jordanian Investment Regulation). This regulation allowed foreigners to own up to 100% of any investment project in any sector, with the exception of the mining sector, trade and industry sector, transport sector, and clearance services, and allowed foreign investors to own a high percentage of the traded companies on the ASE (World Bank, 2003).

Table 2 shows the percentage of foreign ownership in the shareholding listed companies by sector as a percentage of capital market capitalisation for the period 1999-2008. According to Table 2, the year 1999 recorded the highest foreign ownership percentage in the financial sector at 56.65 percent; while the year 2008 recorded the highest foreign ownership percentage in the industrial sector at 53.35 percent of the total market capitalisation (MC). The foreign ownership increased by more than 20 percent in both industrial and services sectors during the period 1999-2008. For example, the highest foreign ownership percentage in the service sector reached 36.55 percent in 2006 compared with 13.98 percent in 1999.

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[44] For more details about the effect of corporate governance on the incentives for the private sector to invest, see Stone, Hurly and Khumani (1998).

Table 1. Ownership Structure of ASE Listed Companies at the End of the Year (%)*

Year	Gov. Agency	Government	Companies	Individual	Arab	Foreigners
	4.5	6.3	30.5	47	13.5	15
2006	-14.8	-12.8	-19.4	-25.3	-11.4	-10.8
	5.5	6.4	30.2	46.3	13.1	14.2
2005	-21.4	-22.1	-21.3	-25.3	-12.3	-13.7
	7.5	10.2	28.2	46.5	13.3	13.2
2004	16.3	18.5	27.4	55	9.5	11.3
	9.5	12	27.9	46.7	12.8	7.5
2003	-12.3	-16.1	-22.1	-26.1	-18.7	-15.1
	8.3	18	28	46	10.8	11.9
2002	-12.4	-24.3	-22.2	-25.3	-15.6	19.2
	7.6	16.4	28.4	46.3	13.8	7.4
2001	-8	-22.2	-22.1	-25.1	-17.9	-13.1
	10.6	16.6	27.4	50.7	7.9	9.3
1997	-11.4	-23.1	-20.3	-25.1	-11	-13.5
	15.2	16.2	26.8	51.9	7.1	9.6
1996	-14.4	-22.2	-18.9	-25.1	-10.2	-14.4
	15.3	16.5	26.4	53	8.5	7.3
1995	-14.8	-23.8	-19.1	-25	-11.4	-11.8
	22	15.6	24.6	52.8	10.2	7.4
1994	-20.7	-22.7	-19.3	-25.3	-13.6	-13

*Cross-firm average with standard deviations in parentheses. Calculated by the author based on data from ASE Statistics and Annual Reports.
Sources: Annul reports of listed companies

Table 2. Percentage of Foreign Ownership in the Shareholding Companies by new sectoral specification (1999-2008) *

Period	Financial	Services	Industrial	General
1999	56.647	13.977	30.483	43.099
2000	55.181	21.257	30.213	41.672
2001	47.426	19.676	27.872	38.507
2002	47.564	26.792	26.093	37.43
2003	46.275	24.285	30.098	38.844
2004	47.441	25.593	36.791	41.264
2005	49.77	26.185	38.088	45.043
2006	47.733	36.553	43.709	45.531
2007	50.733	36.152	51.881	48.947
2008	52.102	33.811	53.347	49.247

*As a percentage of market capitalization
Sources: Amman Stock Exchange

However as reported by Zeitun (2009), despite its privatisation program, the government still holds a large stake in Media, Utility and Energy, and Steel, Mining and Heavy Engineering companies (43.20%, 33.70 %, and 22.04 %, respectively) because they are considered strategic industries. Table 3 shows the trading activity of foreign investors for the period 2001-2008. For example, the value of shares

purchased by foreign investors amounted to USD 5943.4 million in 2008, representing 20.8 percent of total trading volume, with a 2.29 percent decrease from 2007. The percentage of total buying to the total trading reached its highest percentage in 2007, at about 22.88 percent. Net foreign investment showed negative balances of USD 151.4 million in 2001. The net foreign investment reached the highest in 2007 amounted USD 656.6 million.

Table 3. Trading of Non-Jordanian (Foreign) Investment during 2001-2008

Year	Foreign Ownership of Market Capitalisation. (%)	Total Buying (USD million)	Total Selling (USD million)	Net Investment (USD million)	Market Capitalization / GDP (%)
2001	38.5	147.2	298.6	-151.4	75.7
2002	37.4	328.7	327.5	1.3	80.4
2003	38.8	395.9	280.7	115.2	116.8
2004	41.3	535.6	438.6	97.2	184.7
2005	45	3031.3	2449.6	581.7	326.6
2006	45.5	2810.0	2555.6	254.4	233.9
2007	48.9	3979.3	3322.7	656.6	289
2008	49.2	5943.4	5507.0	436.3	226.3

Source: Amman Stock Exchange

The ownership structure in the ASE is highly concentrated (the median largest shareholder in Jordan is large by Anglo-American standards but within the range of those in France and Spain, 20 and 34 percent respectively (see e.g. Becht and RÖell, 1999)[45]. In theory, the concentration of control in the hands of a few shareholders can reduce the agency problem. Shleifer and Vishny (1997) argued that the agency problem comes from the conflict between controlling owners and minority shareholders, instead of between managers and diffuse shareholders, which reflects the legal protection of minority investors. Corporate governance systems are affected by several institutional factors such as the legal protection of investors, the level of ownership concentration, the level of capital market development, the role of the market for corporate control, and the effectiveness of boards (La Porta et al., 1997, 1998, 2000).

Table 4 reports the ownership structure of listed companies in 2006 by sectors, namely the Industrial, Services, Insurance, and Banking sectors. Table 4 shows that the government holds a large stake in the Industrial and Services sectors, while it holds a small stake in both Insurance and Banking sectors. This is because the government participates in utility companies such as electricity companies and mining industries. For instance, in 2006, the government shares in the electricity were about 30 percent of the total shares in this sector. The average proportion of institutional shares is greater in Services and Industrial than in the Banking and Insurance sectors. Arab investors have their largest stake in the Banking sector and then the Insurance sector. The average proportion of foreign shares is greatest in the insurance sector, while it is still very low in all sectors.

Furthermore, Table 4 shows that the largest five shareholders[46] own more than 50 percent in the four sectors. This indicates that ownership of ASE listed firms is highly concentrated. It is feasible that this significant concentration may help to increase the firm's performance, as the large shareholders may help reduce the free-rider problem of small investors and therefore decrease the likelihood of default.

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[45] For more detail about the ownership concentration in the ASE, see Zeitun (2009).

[46] The threshold of ownership used by the ASE in 2002 was 5%.

Table 4. Ownership Structure and Concentration of Listed Companies in 2006 by Sector* as a (%)

	Government**	Companies	Individual	Arab	Foreigners	Largest 5 Shareholders
	9.2	30.3	45	12.2	10.3	53.9
Industrial	-33.1	-22.3	-26.4	-14.9	-13.6	-25.6
	15	35.5	40.4	12.1	12.3	63.2
Services	-27.3	-22.3	-27.2	-15.1	-11.4	-22.2
	3	21.9	49.7	14.7	20.2	59.9
Insurance	-4.5	-19.7	-22.3	-18.2	-17.3	-24.7
	4.7	16.8	40.1	30.5	13.9	56.9
Banking	-3.7	-22.6	-23.9	-26.5	-7.2	-22.5

*Cross-firm average with standard deviations in parentheses. Calculated by the author based on data from ASE Statistics and Annual Reports of listed companies, 2006. ** includes government and government agencies. Government includes both government shares and government agency shares.

3. Data and Estimation Method

3.1 Data

The data used in this study is derived from publicly traded companies quoted on the Amman Stock Exchange (ASE), over the period 1989-2006**.** The data set contains detailed information about each enterprise. The major items of interest are: balance sheets, income statements, ownership structure, and the percentage holdings of all direct shareholders[47]. The full balance sheets and income statements are usually available from firms as the law requires disclosure.

The ownership data was collected manually, as it is not available for all firms and for all years from the Amman Stock Exchange (ASE) reports. Collecting this data on ownership structure and concentration for each firm and for each year constituted a large part of the research for this thesis. This vast effort made this research possible, since the analysis uses real figures rather than dummy variables for ownership structure. Furthermore, the changes in real figures over years are more valuable, as they shed light on the effect of changes in ownership structure on both the firm's health and failure. It is worth noting that the unavailability of data for the managerial ownership and ownership held by outside block holders prevented the researcher from further investigation for the effect of these variables.

The sample includes pooled cross-sectional and time-series data for 167 firms (47 defaulted and 120 non-defaulted) over the period 1989-2006. These firms ranged from old to newly established ones.

3.2 Variables Selection

Four ratios to measure firms' performance were calculated for both the panel data sample and matched sample, namely return on equity (ROE), return on assets (ROA), Tobin's Q, and MBVR. Tobin's Q and MBVR are used to measure the market performance of firms, while the ROE and ROA are employed as measures representing accounting performance measures. The explanatory variables are ownership fractions, concentration ratios, and other control variables.

The ownership fraction (mix) is divided into the fraction owned by government (GOV), GOV the fraction owned by the foreigner (FORG), the fraction owned by companies (INSTIT), and the fraction owned by individuals (CITIZEN). By controlling for both ownership concentration and mix, we hope to be able to distinguish which factors are more significant in poorly performing enterprises.

Factors other than ownership structure may also affect a firm's performance and health. To take them into account, we introduce a set of control variables. Dummy variables for industries are used to control the difference between sectors, *DUMi, i= 1, 2,...,5*, for Manufacturing, Trade, Steel and Mining, Utility, and Real Estate in the matched sample, and 16 industrial dummy variables in the panel data regressions (see Table 6-2 for sector definitions). To control for other factors with potential to affect firm value, I include the following variables that proxy for these factors. Firm size (SIZE)[48], according to Short and Keasey (1999)

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[47] The ownership concentration is defined as any owner possessing more than 5% and 10% of the company's shares.

[48] In the previous work, the value of total assets is used to control size effect (see e.g. Morck et al., 1988 and McConnell and Servaes, 1990). Other studies used sales to control for size (see e.g. Xu and Wang, 1997). The logarithm

size has a significantly positive effect on firm performance, since larger firms have access to the external sources of funds. firm's age (AGE), capital structure variable (DEBT), which is defined as total debt to total assets (TDTA), following McConnell and Servaes (1990) and Morck et al. (1988), Short and Keasey (1999) includes a control variable to proxy for the level of indebtedness.. Growth opportunity (GROW) is defined as growth in sales (GROW1), or net income to capitalisation (NICAP) [49].

Table 5 and Table 6 presented the descriptive statistics of firm-specific variables used in the analysis.

Table 7 presented a correlation matrix for the variables of interest. Consistent with Scott (1976), size is positively correlated with leverage but contrary to intuition I find a positive association between size and the price to earnings ratio. Larger firms also seem to be more profitable, as the correlation between log of sales and return on equity is significantly positive.

3.3 Non-Linearity of Ownership

The primary hypothesis I examined was that the value of Jordanian firms is non-linearly related to the percentage of equity held by government and institutional. A non-linear relation between a firm's value and ownership structure has been theoretically predicted, and empirical evidence has shown the non-linearity of this relationship (Morck, Shleifer, and Vishney (1988), McConnell and Servaes (1990), and Lodered and Martin (1997)). Following Lodered and Martin (1997), and McConnell and Servaes (1990), the squared values of government and institutional ownership are included as independent variables to capture the non-linear relationship between ownership structure and firm performance. Four measures of performance are used: ROA, ROE, Tobin's Q, and MBVR. The logarithm of total assets is used to control for size, growth in sales is used to control for growth, and the debt level is used to control for leverage. In order to investigate if there is a non-linear relationship between ownership structure and firm performance pooled and panel regressions are carried out using the random effects model to estimate the following equations:

$$Y = \beta_0 + \beta_1 Goverment + \beta_2 Goverment^2 + \beta_3 Foreign + \beta_4 SIZE + \beta_5 DEBT + \beta_6 GROW + \varepsilon$$

$$(1)$$

$$Y = \beta_0 + \beta_1 institutional + \beta_2 institutional^2 + \beta_3 Foreign + \beta_4 SIZE + \beta_5 DEBT + \beta_6 GROW + \varepsilon$$

$$(2)$$

$$Y_{it} = \beta_0 + \beta_1 Goverment_{it} + \beta_2 Goverment^2_{it} + \beta_3 Foreign_{it} + \beta_4 SIZE_{it} + \beta_5 DEBT_{it} + \beta_6 GROW_{it} + \varepsilon_{it}$$

$$(3)$$

$$Y_{it} = \beta_0 + \beta_1 institutional_{it} + \beta_2 institutional^2_{it} + \beta_3 Foreign_{it} + \beta_4 SIZE_{it} + \beta_5 DEBT_{it} + \beta_6 GROW_{it} + \varepsilon_{it}$$

$$(4)$$

Based on theoretical and empirical studies, government ownership is hypothesised to have a negative impact on a firm's performance as government has other objectives rather than firm value maximisation. Previous research, such as Boardman and Vining (1989), Megginson and Netter (2001), and Wei, Xie, and Zhang (2005), found that government ownership has a negative impact on firm performance.

However, other studies, such as Anderson, Lee and Murrell (2000) and Gupta, Ham and Svejnar (2001) found that government ownership has a positive impact on firm performance in a transition economy. Institutional ownership is expected to have a positive impact on firm performance as institutional ownership motivation is to maximise a firm's profit.

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of total sales is used in this research. It has lower explanatory power than assets, and its inclusion in regressions of ROA and ROE makes the results not significant.

[49] The growth in total assets and the book value of total assets minus book value of equity plus market value of equity divided by book value of total assets are used in this study. However, while all the measures of growth are found to have a similar result, the growth in sales and NICAP are provide the best results regarding the model explanatory power.

Table 5. Description Statistics for the Variables Used in The Study

Variable	Obs	Mean	Std. Dev.	Min	Max	CV	Skewness	Kurtosis	Shapiro-Wilk	Probability
ROA	1586	0.012	0.152	-4.071	0.681	12.6667	-13.460	343.435	465.132	0.000
ROE	1586	-0.142	4.195	-159.39	1.998	-29.542	-35.248	1317.897	930.45	0.000
Tobin's Q	1408	1.701	15.443	0.000	538.734	9.0788	31.815	1066.859	840.099	0.000
MBVR	1277	1.947	12.636	-2.556	450.000	6.4900	34.959	1239.922	758.284	0.000
TDTA	1586	0.357	0.268	0.0002	2.600	0.7507	2.184	15.356	128.768	0.000
Growth	1270	0.716	8.633	-1.000	292.979	12.0573	30.888	1037.096	736.898	0.000
SIZE	1450	14.81	2.0564	0.000	20.4917	0.1389	-0.5394	5.6287	26.154	0.000
AGE	1575	14.625	12.903	1.00	65	0.8823	1.3301	4.3507	123.389	0.000

Table 6. Ownership Structure for the Sample

	TDTA	SIZE	AGE	GOVE	INSTIT	FOREIG
TDTA	1					
SIZE	0.227	1				
AGE	0.165	0.430	1			
GOVE	0.079	0.053	0.123	1		
INSTIT	-0.095	-0.126	-0.075	0.135	1	
FOREIG	-0.003	0.203	0.005	0.226	-0.236	1

Table 7. Correlation Matrix of the variables used in the study

	Mean	Median	Std.Dev	Maximum	Minimum
Government	14.88	2.40	23.87	100	0
Companies	25.29	25.41	17.72	85.26	0
Individual (Citizen)	44.36	47.50	24.56	97.77	0
Foreign	9.89	5.20	15.04	96.017	0

4. Empirical Results

The empirical results that consider the relationship between government ownership and firm performance are presented in Table 8. From the pooled data sample, it is documented that government ownership is significantly positively related to ROA and MBVR, at the 1% and 5% level, respectively. This finding is not consistent with our hypothesis, or with previous findings such as Wei, Xie, and Zhang (2005).

The results also show that the relationship between government ownership and ROA and MBVR is a hump-shaped curve. The value of a firm increases when government ownership is low, but the value of a firm decreases when it is high. As the government reduces its stake in a privatised company to below a specific point, perhaps market monitoring become ineffective and this increases the agency costs. Therefore, after some point, firm value will decrease as government ownership declines. However, this effect does not exist for the ROE and Tobin's Q regressions in the panel data. Also, it does not exist for any regression using the panel random effects model. Our finding is consistent with the hypothesis of Morck et al. (1988) about how inside ownership affects a firm's value. However, these results are inconsistent

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with previous findings such as Tian (2003) and Wei, Xie and Zhang (2005).

Furthermore, the results show that foreign ownership is negatively significantly related to firm value Tobin's Q, and firm performance ROA, indicating that foreign investors may influence management of the firm negatively. It may also indicate that the presence of foreign ownership forces management to allocate resources for their own benefit as they are not sure about the foreigners' strategies. However, this result is inconsistent with previous findings such as Smith, Cin, and Vodopivec (1997), who find a positive and significant relationship between firm performance and foreign ownership.

Table 8. Ownership Structure and Firm's Performance: Non-linear Specification for Government and Institutional Ownership

	Pooled Data					Panel Data			
Variables	ROA	ROE	Tobin's Q	MBVR	Variables	ROA	ROE	Tobin's Q	MBVR
SIZE	0.057	0.053	-0.057	0.371		0.054	-0.035	-0.136	0.476
	(9.23)***	(0.65)	(-0.06)	(3.62)***	SIZE	(5.00)***	(-0.21)	(-0.13)	(2.87)***
DEBT	-0.192	-0.643	-0.848	-0.385		-0.163	-0.469	-0.851	-0.328
	(-16.65)***	(-4.2)***	(-0.47)	(-1.68)*	DEBT	(-10.69)***	(-2.18)**	(-0.45)	(-1.22)
GROW1	0.001	0.003	-0.051	-0.012		0.001	0.002	-0.048	-0.005
	(2.6)***	(0.56)	(-1.01)	(-0.59)	GROWT	(2.48)**	(0.45)	(-0.94)	(-0.25)
GOV	0.118	0.290	0.620	1.510		0.086	-0.073	0.595	0.377
	(2.68)***	(0.5)	(0.09)	(2.05)**	GOV	(1.17)	(-0.07)	(0.08)	(0.34)
GOV2	-0.148	0.030	-1.000	-2.003		-0.035	0.590	-1.009	-0.853
	(-2.62)***	(0.04)	(-0.11)	(-1.99)**	GOV2	(-0.38)	(0.44	(-0.1)	(-0.59)
FORG	-0.038	0.120	-6.925	-0.355		0.043	0.169	-7.440	-0.290
	(-1.75)*	(0.41)	(-2.00)**	(-1.04)	FORG	(1.45)	(0.41)	(-2.01)**	(-0.65)
Constant	-0.381	-0.332	87.020	-1.572		-0.382	0.198	85.751	-2.300
	(-7.97)***	(-0.52)	(10.42)***	(-1.86)*	Constant	(-4.4)***	(0.13)	(9.46)***	(-1.68)*
F-statistic	19.15	2.17	12.81	5.88		170.12	31.23	230.72	31.83
	(0.00)***	(0.00)**	(0.00)***	(0.00)***	Wald test	(0.00)***	(0.06)*	(0.00)***	(0.06)*
R-square	0.2313	0.019	0.1755	0.0842	R-square	0.2084	0.0249	0.1904	0.0942

	Pooled Data					Panel Data			
Variables	ROA	ROE	Tobin's Q	MBVR	Variables	ROA	ROE	Tobin's Q	MBVR
SIZE	0.066	0.102	-0.009	0.407		0.066	-0.003	-0.050	0.410
	(10.71)***	(1.25)	(-0.01)	(3.97)***	SIZE	(6.07)***	(-0.02)	(-0.05)	(2.42)**
DEBT	-0.190	-0.627	-1.534	-0.392		-0.169	-0.479	-1.674	-0.266
	(-16.38)***	(-4.05)***	(-0.85)	(-1.71)*	DEBT	(-10.99)***	(-2.18)**	(-0.88)	(-0.98)
GROW1	0.001	0.002	-0.053	-0.009		0.001	0.002	-0.050	-0.001
	(2.49)**	(0.36)	(-1.03)	(-0.46)	GROWT	(2.41)**	(0.41)	(-0.97)	(-0.03)
INSTIT	0.133	0.039	-16.006	0.708		0.037	0.113	-19.882	1.191
	(2.95)***	(0.06)	(-2.23)**	(0.97)	GOV	(0.58)	(0.13)	(-2.55)**	(1.21)
INSTIT2	-0.189	-1.108	15.775	0.314		-0.115	-0.594	19.755	-0.718
	(-3.11)***	(-1.37)	(1.62)	(0.31)	GOV2	(-1.34)	(-0.5)	(1.88)*	(-0.54)
FORG	-0.036	-0.138	-8.595	-0.121		0.023	0.070	-9.536	-0.051
	(-1.61)	(-0.47)	(-2.44)**	(-0.35)	FORG	(0.78)	(0.17)	(-2.53)**	(-0.11)
Constant	-0.449	-0.554	88.785	-2.021		-0.452	0.029	87.473	-2.081
	(-9.4)***	(-0.87)	(10.56)***	(-2.38)**	Constant	(-5.29)***	(0.02)	(9.5)***	(-1.5)
F-statistic	20.22	2.63	13.090	6.25		185.08	31.96	234.27	33.48
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	Wald test	(0.00)***	(0.06)*	(0.00)***	(0.04)**
R-square	0.2427	0.0265	0.18	0.0905	R-square	0.229	0.0267	0.1945	0.1028

Note: ***, **, * indicate significant at a 1%, 5%, and 10% level, respectively. Statistical significance t-statistics is determined with White (1980) standard errors to correct for heteroskedasticity. Industrial dummy variables are included in the regression.

Table 8 presents the empirical results of the regression that investigates the relationship between institutional ownership and firm performance using the pooled and panel data. The results show that institutional ownership is positively related to the firm value and the results for the pooled sample are significant at the 1% and 5% level for the ROA and Tobin's Q, respectively. These results show that government ownership and institutional ownership are positively related to the firm's value. The results also document that the relation between institutional ownership and ROA and Tobin's Q is a hump-shaped curve. When institutional ownership increases above a specific point, institutional shareholders negatively influence a firm's activities. Thus, increasing institutional ownership will decrease the firm's value and firm performance, measured by Tobin's Q and ROA, respectively. The non-linear relationship between firm value and Tobin's Q is documented by using the panel random effects model. Furthermore, foreign ownership is found to have a negative effect on the firm value Tobin's Q.

The adjusted R-squared statistics show that the independent variables combined can explain a substantial amount of the variation in firm value, ranging from 3% in the ROE to 24% in the ROE. Furthermore, as the effect for the same proportion of government or institutional ownership may be different in one industry than in others, 15 industrial dummy variables were used to control for potential industry effects. During the sample period of 1989-2003, Jordanian macroeconomic variables, such as interest rate, GDP, unemployment, and other economic variables, were different from one year to another. Controlling for the effect of time-series, dummy variables for the years were used in both the pooled and panel sample. When the time dummy variables were added to the model, the ownership structure variables became insignificant.

5. Conclusion

The possible impact of ownership structure on a firm's performance has been central to research on corporate governance, but evidence on the nature of this relationship has been decidedly mixed. While some theories and empirical investigations suggest that ownership structure affects firm performance, others suggest the irrelevance of the relationship between ownership structure and firm performance. Furthermore, most of the studies are conducted in developed countries and in some Asian countries where the characteristics of ownership structure are

different from Middle Eastern countries. So, implications from the theory may not be applicable to other countries. This study provides evidence from Middle Eastern countries and expands the previous studies by investigating the effect of ownership structure on the firm's failure.

This paper examines the non-linear effects of ownership structure (variables) on corporate performance. The data used in this study are derived from 167 publicly traded companies quoted on the Amman Stock Exchange (ASE), over the period 1989-2003. The ownership structure is measured by the percentage of shares held by each type of owner (state, institution, foreign concentrated owners, and individuals). Results in this study confirm earlier findings of a curvilinear relationship reported for larger markets. The results also show that the relationship between government ownership and ROA and MBVR is a hump-shaped curve. The value of a firm increases when government ownership is low, but the value of a firm decreases when it is high. As the government reduces its stake in a privatised company to below a specific point, perhaps market monitoring become ineffective and this increases the agency costs. Our finding is consistent with the hypothesis of Morck et al. (1988) about how inside ownership affects a firm's value. However, these results are inconsistent with previous findings such as Tian (2003) and Wei, Xie and Zhang (2005).

The results also document that the relation between institutional ownership and ROA and Tobin's Q is a hump-shaped curve. When institutional ownership increases above a specific point, institutional shareholders negatively influence a firm's activities. Findings in this study contribute to the growing body of international evidence that the non-linear cubic relationship between ownership structure and corporate performance is robust to differences in governance structures across markets.

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SECTION 3
CORPORATE
GOVERNANCE IN JAPAN

MERGERS DECISION IN JAPANESE SMALL MUTUAL BANKS: EFFICIENCY IMPROVEMENT OR EMPIRE BUILDINGS?[#]

Nobuyoshi Yamori, Kozo Harimaya***

Abstract

With the number of bank consolidations increasing around the world since the 1990s, several studies have examined what factors drive banks to consolidate, and some argue that bank managers who have a motive of empire buildings choose mergers. In this study, we deal with mergers among Japanese small mutual banks (credit associations or Shinkin banks) during the period 1996 to 2005. Japanese credit associations have been experiencing an unprecedented wave of consolidation, with their number decreasing from 410 (March 1996) to 292 (April 2006). Interestingly, unlike stock companies, mutual companies are often expected to be weak in terms of disciplining managers. If so, mutual banks tend to choose inefficient mergers at the expense of other stakeholders. Here, we use the stochastic frontier approach (SFA) to obtain "cost efficiency" proxy. We find that while the efficiency of acquiring credit associations decreases during the merger period, mergers do ultimately improve efficiency. Based on our results we find that raising efficiency, not for building empires, is an important goal for such credit association mergers.

Keywords: Corporate Governance, Efficiency, Mergers, Japanese credit associations

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1. Introduction

The financial services industry has been subject to consolidation around the world since the 1990s, and Japan has been no exception to these developments with megabank groups in particular having been established through mergers and acquisitions among city banks. Japan's 13 city banks of the early 1990s were gradually reduced to the present four city bank groups. In addition to these megabank mergers, the number of small and medium financial institutions such as credit associations (Shinkin banks) has also been decreasing through a rise in mergers and acquisitions in recent years (from 410 (March 1996) to 292 (April 2006)).

The underlying motivation for mergers of credit associations may be different from that of banks, however, given that credit associations are "mutual" organizations (Davis, 2001). More precisely, irrespective of the size of the individual member's deposits and loans, "one member, one vote" remains the basic principle guiding these institutions' actions. Furthermore, the fundamental objective of credit associations is maximization of members' benefits rather than institutional profits. Despite this, however, the managerial environment of Japanese financial institutions—including credit associations—has changed considerably in recent years. Credit associations have traditionally been classified as cooperative regional financial institutions serving small- and medium-sized enterprises (SMEs) and local residents, which were underserved by private stock banks. As large firms turn to the financial markets in recent years, banks are increasingly focusing on SMEs and the retail market. This has led to increasingly severe competitive pressure on credit associations to the extent that while mutuality remains a basic principle of such associations, the revenue structure of cooperative financial institutions has deteriorated. The recent increase in consolidation of credit associations might be a response to such environmental changes. If so, it is likely that seeking an improvement in efficiency is the main purpose behind this recent wave of consolidations among Japanese credit associations.

Studies that examine the causes and consequences of consolidation in the U.S. banking industry often highlight improvements in profit efficiency and risk diversification, although improvements in cost efficiency are harder to find (Berger *et al.*, 1999). In contrast to these findings, and while the evidence remains limited, studies dealing with "mutual" financial institutions obtain quite different results. A study of U.K. building societies found significant efficiency gains following acquisitions (Haynes and Thompson, 1999). A U.S. study of credit unions similarly found that mergers resulted in improved efficiency, whereas roughly half of acquiring credit unions and roughly 20% of acquired credit unions experienced a decline in efficiency after a merger (Fried *et al.*, 1999) Similarly, another study of Australian credit unions revealed that some mergers do produce efficiency benefits (Ralston *et al.*, 2001; Worthington, 1999, 2001). In contrast, a study of Japanese credit associations found that the cost efficiency of consolidated institutions was significantly lower than that of non-consolidated institutions shortly after the merger, while the cost efficiency of consolidated institutions improves over time (Yamori and Harimaya, 2008). These suggest that it is therefore premature to conclude that mutual institutions inevitably choose value-decreasing mergers.

This paper aims to provide new evidence by focusing on the efficiency effect of mergers of Japanese credit associations during the period 1996 to 2005 [50] . Specifically, we examine why credit associations choose consolidation and whether consolidation actually improves efficiency. If any efficiency improvements were not realized, the recent unprecedented wave of consolidation have been considered to be occurred by a sacrifice of member's interests. Thus, the motivation for empire buildings seems to be a critical factor.

Our analysis proceeds in two stages. Cost efficiency scores were calculated by employing a stochastic frontier approach in the first stage, and regression analysis was then applied to investigate the efficiency effect in the second stage. The analytical method we employ in this study has been widely used in previous studies investigating efficiency gains of consolidation in the financial sector[51].

This paper is divided into six sections. Sections 2 and 3 describe the methodology and data used in this study. Section 4 outlines the efficiency scores, and Section 5 presents and interprets the estimation results. A summary and conclusions are given in Section 6.

2. Empirical methodology

Two main approaches have been adopted in the literature studying efficiency in the public and private sector - a parametric and non-parametric approach. In sharp contrast to the non-parametric Data

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[50] Credit associations are not marginal institutions: Their loans amounted to 63.5 trillion yen or about 12.6% of Japanese loan markets (as of March 2007).
[51] See Amel et al. (2004) for a more detailed survey of the available empirical evidence.

Envelopment Analysis (DEA) method, which does not require any statistical assumption, the Stochastic Frontier Approach (SFA) focuses on the distribution of the error term, a part of which is considered to be inefficiency. While no consensus has been reached on the best frontier approach for efficiency analysis, the SFA is consistent with production theory and is flexible[52]. In this paper, we therefore employ the parametric Stochastic Frontier Approach (SFA).

In an attempt to estimate the stochastic frontier model, we first need to assume a functional form. In this study, we employ the standard translog function in contrast to the Fouier-flexible functional form that has been employed in recent literature, which requires a large sample size to obtain accurate results and is more suitable when applied to large banks (McAllister and McManus, 1993; Mitchell and Onvural, 1996). In addition, although the mean difference in average efficiency is statistically significant, efficiency rankings are virtually identical to the results of the standard translog function (Berger and DeYoung, 1996).

We specify the frontier cost function as:

$$\ln C = \alpha_0 + \sum_{k=1}^{n} \alpha_k \ln Y_k + \sum_{l=1}^{m} \beta_l \ln P_l + \frac{1}{2} \sum_{k=1}^{n} \sum_{j=1}^{n} \alpha_{kj} \ln Y_k \ln Y_j$$
$$+ \frac{1}{2} \sum_{l=1}^{m} \sum_{h=1}^{m} \beta_{lh} \ln P_l \ln P_h + \sum_{k=1}^{n} \sum_{l=1}^{m} \delta_{lk} \ln Y_k \ln P_l + v + u \quad (1)$$

where C is total costs, Y_i are the outputs and P_k are the input prices, v is statistical noise, assumed to be distributed as a two-sided normal with zero mean and variance σ^2, u is the inefficiency term, assumed to be distributed as a one-sided positive disturbance, and α, β, and δ are coefficients to be estimated. The SFA requires *a priori* distributional assumptions regarding the inefficiency term, u. Following previous studies (Mester, 1996; Allen and Rai, 1996, Altunbas *et al.*, 2000), we specify the distribution to be half-normal. Furthermore, the usual symmetry and linear homogeneity restrictions are imposed *a priori*.

Estimates of this model can be carried out through the maximum likelihood procedure[53]. As Jondrow *et al*. (1982) pointed out, observation-specific estimates of inefficiency are obtained as the mean of the conditional distribution (i.e., $E[u_i|\varepsilon_i]$ ($\varepsilon_i = v_i + u_i$)). In this study, we employ the alternative point estimator proposed by Battese and Coelli (1988), which can be expressed as follows:

$$CE_i = E(\exp\{-u_i\} \mid \varepsilon_i) = [\frac{1 - \Phi(\sigma_* - \mu_{*i}/\sigma_*)}{1 - \Phi(-\mu_{*i}/\sigma_*)}] \cdot \exp\{-\mu_{*i} + \frac{1}{2}\sigma_*^2\} \quad (2)$$

where $\mu_{*i} = \varepsilon_i \sigma_u^2/\sigma^2$ and $\sigma_* = \sigma_u \sigma_v/\sigma$ ($\sigma^2 = \sigma_u^2 + \sigma_v^2$). The efficiency scores obtained from (2) have a value of between 0 and 1.

After obtaining a "cost efficiency" measurement, we then employ a multinomial logit regression to investigate whether the efficiency could be considered as a determinant of merger activity. We identify an acquiring credit association as a legally surviving institution and an acquired credit association as an institution that has legally disappeared. Accordingly, the dependent variable of the multinomial logit model is divided into the following three groups: Taking value zero if a credit association was not involved in a merger; value one if a credit association acquired another credit association (acquiring); and value two if a credit association was acquired by another credit association (acquired). In addition to the pre-merger investigations, we also empirically examine the post-merger efficiency gains. To avoid a shortage of degree of freedom, we pool our data from the period 1996 to 2005. Table 1 shows fluctuations in numbers of each group for the sample period. As shown in Table 1, there are 410 credit associations for the sample from 1996, while recent consolidation reduced the sample size to 292 credit associations by 2005[54].

3. Data

With regard to the input and output specification, we employ the intermediation approach commonly used in the literature on modeling bank behavior (e.g., Sealey and Lindley, 1977). We define three inputs and outputs, so that credit associations are viewed as financial intermediaries that use labor, capital, and funds as inputs and produce loans and securities services as outputs. Here, we use interest income on loans and discounts (Y_1), other interest income (Y_2), and fees and commissions (Y_3) as output variables. Three input prices are defined as follows: The labor price (P_1) is the ratio of personnel expenses to the number of employees, the price of capital (P_2) is the ratio of non-personnel expenses to the value of movable and immovable capital, and the price of funds (P_3) is the ratio of interest expense on deposits to the total amount of deposits. Total costs are defined as a sum of labor expenses, interest expenses, and capital expenses. All the data used in this study are taken from *The Analysis of Financial Statement of All*

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[52] Although several studies attempt to compare analytical techniques, the results differ with regard to efficiency scores and rank correlations (Berger and Mester, 1997; Bauer *et al.*1998; Weill 2004).

[53] See Kumbhakar and Lovell (2000) for more details.

[54] In this paper, all years are expressed in fiscal years. For example, the Japanese fiscal year 1999 runs from April 1, 1999 to March 31, 2000.

Credit Associations for the period 1996 to 2005. Table 2 provides descriptive statistics of the relevant variables for fiscal 1996 and 2005.

For the second stage multinomial logit regression, we chose financial health, market power, and profitability in addition to the cost efficiency discussed above as important independent variables. For the financial health variables, we use the capital ratio (*CPR*), which is defined as the ratio of total capital to total assets[55]. We expect that acquired credit associations are financially unhealthy and acquiring credit associations are financially healthy.

We use the share of loans of associations within each prefectural market (*LMS*) for the market power proxy. If size is an important factor in credit association mergers, a positive coefficient is expected in terms of regression in acquiring credit associations and a negative coefficient for acquired credit associations. For profitability variables, we use the following two variables: The loan-to-deposit ratio (*LDR*) and the general and administrative expenses ratio (*GAER*). The first measure (*LDR*) relates to differences in demand for loans, quality of borrower, and management skill in lending. A positive (negative) coefficient is thought to exist *ex-ante* for acquiring (acquired) credit associations. The second measure (*GAER*) is defined as the ratio of administrative expenses to total income. That is, it captures the possibility that an association's operating costs exceed its revenues. We expect that acquiring (acquired) credit associations have lower (higher) *GAER*. Moreover, for the variable reflecting mutual financial characteristics of credit associations, we have included the degree of dependence on interest on deposits with banks (*DDID*), which expresses dependency on the Shinkin Central Bank, which serves as the central bank for credit associations[56]. If a credit association with profitable loan opportunities does not make deposits to the Shinkin Central Bank, a higher *DDID* suggests lower profitability. We therefore expect that acquired (acquiring) credit associations are likely to have a higher (lower) *DDID*. Finally, as control variables, we use the logarithm of the number of cooperative members (*LCM*), and dummy variable (*DDM*), which takes one for the deficit credit association and zero otherwise.

4. Summary of cost efficiency scores

Due to space limitations, we do not include details of the parameters of the frontier cost function in this study[57]. The majority of the parameters, including those of dummy variables, are approximately estimated. The regularity conditions of the cost function evaluated for the mean values are also satisfied. Furthermore, results of the LR test for the presence of a stochastic element of inefficiency reject the null hypothesis of no inefficiency at the 1% significance level.

Table 3 shows the time-varying average cost efficiency scores. In addition to the results of pre-merger credit associations, the table also displays those of the just-merged credit associations in each year. Results from the full sample indicate that cost efficiency scores vary only very slightly around the 90% mark. With regard to a comparison between pre- and post-merger values, average cost efficiency is generally higher in pre-merger credit associations, whereas that for post-merger credit associations is usually lower. The latter results are highly consistent with the findings of Yamori and Harimaya (2008) that institutions subject to merger experience significant declines in their DEA efficiency scores in the year of amalgamation. In contrast, however, the yearly average measures of acquiring credit associations are more efficient than those of acquired credit associations in 7 out of 10 years, while these differences between average efficiencies are statistically insignificant[58].

5. Empirical results of credit association mergers

The estimated coefficients for the multinomial logit regressions are presented in Table 4. In these regressions, credit associations that have not been subject to any consolidation are provided as a reference group. We initially pay attention to the coefficient of the cost efficiency (*CE*), which is considered an important determinant of credit association consolidation. In an attempt to verify the consistency of the results, we also estimate a reduced model formed by omitting the *CE* variable. As shown in the results of the full model, our findings reveal that the estimated coefficient of the cost efficiency (*CE*) is significant with the hypothesized sign only for acquiring credit associations. It should

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[55] As credit associations were not obligated to disclose the amount of non-performing loans until recently, we were unable to take the bad loan ratio into account.

[56] The main role of the Shinkin Central Bank lies in the effective investment of the credit associations' surplus funds, adjusting supply and demand for funds among the credit associations, and functioning as a clearing bank for credit associations.

[57] Estimation results are available from the authors upon request. While not shown in (1), annual dummy variables (reference year: 1996) are employed.

[58] A study of Australian credit unions found that acquired credit unions are less efficient than acquiring credit unions (Worthington, 2004). A study of U.S. credit unions, in contrast, found the exact opposite result (Fried *et al.*, 1999).

therefore be noted that more cost efficient credit associations are more likely to acquire other credit associations. This suggests that credit associations under good management tend to improve the efficiency of their acquired institutions by using their inherent management skills. Expected efficiency-gains can therefore be seen as an important motive behind credit association mergers; thus, empire buildings motives are not revealed. These results are consistent with the findings of a study of Australian credit union mergers (Worthington, 2004).

Turning to the other results regarding the full model, in the case of the probability of acquiring credit associations, the coefficients relating to the loan-to-deposit ratio (*LDR*), the general and administrative expenses ratio (*GAER*), and the number of cooperative members (*LCM*) are significant with positive signs. The fact that the capital ratio (*CPR*) and the share of loans within each prefectural market (*LMS*) are insignificant, however, indicate that both financial health and market power are not relevant determinants for credit associations in deciding whether to acquire other institutions. We observed an interesting result in terms of the coefficient of the *GAER* variable; its sign is opposite to the *ex-ante* prediction. The results for the *LCM* variable indicate that larger credit associations are more likely to acquire other credit associations.

In looking at acquired credit associations, we find that the estimated coefficients are significant for all factors but the *LDR* variable. In particular, and in sharp contrast to the results from acquiring credit associations, the variables for financial health and market power conform to the hypothesized sign. These results suggest that credit associations in a relatively weak financial condition and with a small market share are more likely to be acquired compared to a credit association that does not involve consolidation. Furthermore, the positive coefficient of the *GAER* is identical to the results provided by acquiring credit associations. We found it noteworthy that the coefficient of the degree of dependence on the Shinkin Central Bank (*DDID*) is negative - its sign is also the reverse of the *ex-ante* prediction. The results for the *LCM* and the *DDM* variables are consistent with our general expectations - the smaller and less profitable the credit association, the more likely it is to be acquired.

Finally but equally importantly, we investigate the post-merger performance of the acquiring credit associations. In order to examine the post-merger efficiency improvement, we use a simple OLS regression analysis method with cost efficiency scores as the dependent variable and the time dummy variables indicating the years after the merger as independent variables. As part of the regression analysis we also use the cost efficiency rank as the dependent variable on the basis that the efficiency scores obtained from SFA are not statistically consistent. By using the cost efficiency scores for each year, the ranks are converted to a uniform scale over the [0, 1] interval using the formula $(order_{it}-1)/(n_t-1)$, where $order_{it}$ is the order rank of the ith credit association in the tth year evaluated from the cost efficiency scores, and n_t is the number of credit associations in year t. The credit association with the lowest cost efficiency score therefore has the worst rank of 0, and the credit association with the highest cost efficiency score has the best rank of 1 in each year.

Results of the regression analysis are presented in Table 5. As the table shows, we consider a set of dummy variables for years t, t+1, t+2, t+3 and t+4 – namely, from the year of merger to four years after the merger. Despite the low explanatory power and insignificant estimates, some interesting results can clearly be observed.

First, in terms of the results of cost efficiency scores, the estimated coefficients are clearly negative in the period t to t+2 but positive in the periods t+3 and t+4. This indicates that mergers experience efficiency declines over periods of up to two years following a merger, and become relatively efficient as time passes. The former findings are in contrast to the findings of Fried *et al.* (1999) regarding U.S. credit unions. Such differences may be caused by different adjustment speeds between Japan and the U.S. It generally takes longer to rebuild and reallocate management resources such as branch offices and employees in Japan than in the U.S. Indeed, it is extremely rare to observe any substantial reduction in management resources following mergers between Japanese financial institutions, so it should be noted that efficiencies are temporarily reduced due to the small cost reduction at the initial stage of the merger process[59]. However, as shown in the coefficients on the year dummy variables for t+3 and t+4, we find that there is a tendency for such institutions to increase in efficiency over time. Although it may take several years to realize the benefits of mergers, these results are consistent with our previous findings that most Japanese credit associations chose mergers to enhance their efficiency. The results of cost efficiency ranks also present the same findings - the efficiency effect of credit association mergers is apparent several years later.

In sum, although mutual companies are said to be weak in corporate governance, managers in Japanese

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[59] Some U.S. banking studies also found that acquirers failed to improve efficiency after the merger (Rhoades, 1993; DeYoung, 1997; Peristiani, 1997; Berger, 1998).

mutual banks are actually well disciplined. One of reasons is that recent severer market competition in Japan does not allow managers to choose inefficient mergers. Another interesting finding is that Japanese mutual bank managers can implement mergers from the long-term perspective. If stakeholders has short-term horizon, they may make an objection of managers' merger decisions, which erode short-term profitability. We need further research on whether stakeholders have similar long-horizon or managers have strong discretion power.

6. Concluding remarks

In this present study we set out to investigate the underlying motives of mergers by Japanese credit associations during the period 1996-2005 and also consider the consequences of these mergers. Our findings can be summarized as follows.

First, the cost efficiency obtained from SFA is an important factor on mergers between credit associations, and cost efficient credit associations tend to be acquirers of other associations. Second, the cost efficiency of acquiring credit associations declines over a period of up to two years following a merger, and become relatively efficient as time passes.

These results suggest that efficiency improvement is one of the important motives for credit associations in undertaking mergers. In other words, as sound corporate governance in mutual institutions in Japan is confirmed, our results supports that empire building of bank managers is limited regarding Japanese small banks. Also, we find that it may take several years to achieve an improvement in efficiency. This means that Japanese mutual banks managers are allowed to have a long-term perspective, while managers in stock companies are under strong pressure of short-term profits maximization. We need further research on these interesting facts.

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Appendices
Table 1.

Database Sample Size of Credit Association Merger Study, 1996-2005

Year	Total	Pre-merger	
		Acquiring	Acquired
1996	410	8	9
1997	401	3	5
1998	395	5	9
1999	386	7	7
2000	370	11	16
2001	343	14	17
2002	326	14	20
2003	306	7	7
2004	298	5	6
2005	292	3	5

Table 2

Descriptive Statistics of Relevant Variables used for DEA to Measure Efficiency (millions of yen)

Variable		1996		2005	
		Mean	Std. dev.	Mean	Std. dev.
Y_1	Interest income on loans and discounts	5,901	7,429	5,300	6,764
Y_2	Other interest income	2,209	3,223	1,653	1,971
Y_3	Fees and commissions	420	527	755	976
P_1	Labor price	6.6384	0.7731	0.0006	0.0004
P_2	Physical capital price	0.4514	0.1596	7.1657	0.8996
P_3	Deposit interest price	0.0067	0.0010	0.3756	0.1492
C	Total costs	5,944	7,793	5,105	6,064
	Number of observations	410		292	

Table 3

Time-Varying Average Cost Efficiency

Year	Total	Pre-merger		Merged
		Acquiring	Acquired	
1996	0.9002	0.9087	0.9233	0.8010
1997	0.9000	0.9075	0.8959	0.7724
1998	0.8997	0.9089	0.8625	0.7970
1999	0.8977	0.9116	0.8824	0.7195
2000	0.8976	0.9216	0.8953	0.8612
2001	0.8961	0.9035	0.8991	0.7952
2002	0.8942	0.9034	0.8893	0.7679
2003	0.8931	0.9065	0.9097	0.7661
2004	0.8957	0.9119	0.9099	0.7603
2005	0.8963	0.8792	0.8989	0.8455

Table 4

Multinomial Logit Regressions Results

	Full model						Reduced model					
	Acquiring			Acquired			Acquiring			Acquired		
Variable	Coefficient		Std. error	Coefficient		Std. error	Coefficient		Std. error	Coefficient		Std. error
CONS.	-20.8832	***	3.9666	3.3187		2.9585	-14.0595	***	2.4811	5.9807	***	1.8842
CE	7.0100	**	3.1674	2.8163		2.4230						
CPR	-0.7819		6.0270	-21.2692	***	4.2955	2.3410		6.1480	-20.0980	***	4.2057
LMS	-0.0436		0.0454	-0.7764	***	0.1745	-0.0494		0.0465	-0.7829	***	0.1738
LDR	2.7897	**	1.3494	-0.7058		1.0270	3.2217	**	1.3258	-0.4102		0.9872
GAER	3.3379	**	1.5394	2.4135	*	1.2523	2.2704		1.4644	1.9429		1.1871
DDID	-5.5851		5.6530	-18.9671	***	6.1745	-7.2935		5.6718	-19.8826	***	6.1218
LCM	0.7341	***	0.1553	-0.8893	***	0.1702	0.7095	***	0.1565	-0.8955	***	0.1692
DDM	-0.3563		0.4179	1.2686	***	0.2398	-0.3493		0.4160	1.2837	***	0.2387

Table 5

OLS Regressions
Results

Variable	Coefficient		Std. error	Coefficient		Std. error	Coefficient		Std. error	Coefficient		Std. error
Const.	0.8989	***	0.0030	0.8974	***	0.0031	0.5145	***	0.0176	0.5045	***	0.0182
$Year_t$	-0.0533		0.0510	-0.0518		0.0510	-0.1104		0.1679	-0.1004		0.1680
$Year_{t+1}$	-0.0045		0.0203	-0.0030		0.0204	-0.0383		0.1405	-0.0283		0.1405
$Year_{t+2}$	-0.0330	***	0.0096	-0.0315	***	0.0097	-0.2445	***	0.0537	-0.2345	***	0.0539
$Year_{t+3}$				0.0137		0.0134				0.1008		0.0890
$Year_{t+4}$				0.0270	**	0.0107				0.1690	**	0.0860
Adj. R^2	0.0280			0.0320			0.0245			0.0316		

** Significance level at the 5% l
*** Significance level at
the 1% level.

STOCK MARKET REACTIONS TO THE JAPANESE SARBANES-OXLEY ACT OF 2006*

Kosuke Seino and *Fumiko Takeda***

Abstract

This article investigates stock market reactions to announcements related to the introduction of the Financial Instruments and Exchange Law or the so-called Japanese Sarbanes-Oxley Act (J-SOX), which was enacted to reinforce corporate accountability and responsibility. We find that the announcements leading to the passage of the J-SOX raised stock prices of firms listed on the First Section of the Tokyo Stock Exchange. Another finding is that firms with a high ratio of foreign shareholders or leverage experienced more positive stock price reactions. By contrast, whether the firm was audited by Big 4 audit firms did not seem to matter to investors. In addition, large firms tended to have more negative stock price reactions than small firms.

Keywords: Sarbanes-Oxley Act, corporate governance, internal control, financial reporting, event study

1.   Introduction

The high-profile corporate scandals in Japan after the fall of 2004 generated discussion on reinforcing corporate governance and the accounting profession. In order to restore investors' confidence and regulate internal control over financial reporting, the Japanese Diet passed bills in June 2006 called the Financial Instruments and Exchange Law (FIEL),[60] or the so-called the Japanese Sarbanes-Oxley Act (J-SOX). Although the J-SOX has induced significant benefits to investors, anecdotal evidence indicates that the J-SOX has imposed substantial compliance costs. For instance, the Nikkei newspaper reported on August 12, 2009 that audit fees paid by 297 major Japanese companies increased by 32% from the previous year in March 2009 as the internal control reporting system requirements went into effect in fiscal year 2008.

Several studies have examined shareholder wealth effects of the U.S. Sarbanes-Oxley Act of 2002 and determinants of such effects. However, it is still controversial whether the U.S. SOX positively affected stock markets: Jain and Razaee (2006) and Li et al. (2008) found a total positive effect of the U.S. SOX on stock prices, while Zhang (2007) reported a

total negative effect of the U.S. SOX on stock prices. The difference in results is partly due to the fact that these studies identified different key dates; hence, their interpretation differed as to whether the events on these dates would have been interpreted by shareholders as increasing or decreasing the likelihood of passage of the U.S. SOX.

Studying the Japanese case enables us to avoid such an identification problem associated with the interpretation of the events. Because the U.S. had already enforced the SOX and because Japan was also experiencing high-profile corporate scandals after the autumn of 2004, there was little uncertainty over whether the J-SOX would be introduced. However, shortly after the enactment of the J-SOX, the U.S. SEC relieved smaller public companies from responsibility for compliance to Section 404 of the U.S. SOX. In addition, the Japanese Financial Service Agency (FSA) attempted to incorporate the criticisms of the U.S. SOX concerning the large costs of implementation by employing a more concise and efficient way of implementing the regulation. Thus, key events prior to the enactment of the J-SOX can be expected to have had positive effects on the Japanese stock market, since presumably the J-SOX would lead to an increase of future firm values, while the market reaction to events between the enactment (June 2006) and the enforcement (September 2007) is an empirical question, because these actions may reduce both the

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[60] To be more precise, the FIEL, or the J-SOX, incorporates the Amendment of the Securities and Exchange Law, which was approved and enacted at the 164th Diet session on June 7, 2006 and promulgated on June 14, 2006.

benefits from improved financial reporting and the costs that arise from preparation for the J-SOX compliance.

The objective of this article is twofold. First, it complements existing studies by examining the Japanese case. We investigate stock market reactions to news leading to the introduction of the J-SOX. In contrast to the existing U.S. studies, our sample includes not only events leading to the passage of the J-SOX but also the events between the enactment and the enforcement. The latter events include the U.S. regulator's attempts to revoke some of the regulations set by the U.S. SOX and the Japanese FSA's attempts to set the guidelines on the implementation standards of the J-SOX by taking into account criticism against the U.S. SOX for imposing large implementation costs.

Second, we examine whether firm-specific attributes (corporate governance, audit functions, and financial conditions) are associated with their individual market reactions. In particular, it is quite valuable to examine how abnormal stock returns are associated with the governance structure of firms during the period of legal and economic changes.[61] Traditionally, Japanese firms depend upon a bank-centered governance system, in which main banks provide debtor firms with both monitoring and certifying services, with a quite limited role of independent auditors. However, recent legal and economic changes in Japan, including the revision of the Commercial Code in 2002 and the enactment of the new Company Law of 2005, have enhanced the role of auditors. Because Japan was in a transitional period, we investigate how shareholder composition and audit quality affect stock returns during the events leading to the introduction of the J-SOX.

We find that the announcements that increased the likelihood of the passage of the J-SOX raised stock prices of firms listed on the First Section of the Tokyo Stock Exchange (TSE). Another finding is that firms with a high ratio of foreign shareholders or leverage experienced more positive stock price reactions, perhaps because these firms were more prepared for J-SOX compliance. On the other hand, whether the firm was audited by a Big 4 audit firm did not seem to matter to investors. In addition, large firms tended to have more negative stock price reactions than small firms, perhaps due to the high costs of preparing for the J-SOX compliance.

The rest of the article is organized as follows. Section 2 provides a literature review, background, and hypotheses development. Sections 3 and 4 describe methodology and data, respectively. A discussion of empirical results is provided in Section 4.

Concluding remarks are given in Section 5.

2. Literature review, background, and hypotheses development

2.1 Literature review

Several papers have discussed stock market reactions to the U.S. SOX of 2002. Two papers in particular reported that the passage of the U.S. SOX had a positive effect on stock markets. Jain and Rezaee (2006) and Li et al. (2008) found a positive abnormal return after legislative events that increased the likelihood of the passage of the U.S. SOX. In addition, Jain and Rezaee (2006) reported that abnormal returns were more positive for firms that were closer to compliance with the corporate governance provisions of the U.S. SOX prior to the bill's passage. Li et al. (2008) found that the positive return was associated with the extent of earnings management. However, Zhang (2007), who selected different event dates and used non-U.S.-traded foreign firms as a control group, showed that stock prices reacted negatively to news related to the U.S. SOX.

These prior studies provide mixed results on whether the U.S. SOX increased stock prices. As mentioned by Chhaochharia and Grinstein (2007) and Wintoki (2007), these studies suffered from identification problems - i.e., these studies identified different key dates and news items; hence their interpretation differed as to whether the U.S. SOX was likely to pass. The Japanese case provides a favorable opportunity to avoid such identification problems. Because the U.S. had already enforced the SOX and because Japan had also experienced high-profile corporate scandals after the fall of 2004, there was little doubt about the introduction of the J-SOX. However, shortly after the enactment of the J-SOX, the U.S. SEC relieved smaller public companies from compliance to Section 404 of the U.S. SOX. In addition, the Japanese FSA attempted to incorporate criticism of the U.S. SOX concerning large costs of implementation by employing a more concise and efficient way of implementing the regulation. Thus, we expect that key events prior to the enactment of the J-SOX were likely to have positively affected stock prices of listed Japanese companies, assuming that the J-SOX was expected to enhance the future firm value. By contrast, the effect of the events after the enactment is an empirical question, because the actions taken by the U.S. SEC and the Japanese FSA may reduce both the benefits from improved financial reporting and the costs that arise from preparation for the J-SOX compliance. The next subsection describes the background of the development of the J-SOX in more detail.

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[61] Numata and Takeda (2008) explain details about the changes associated with the main bank system and the role of auditors.

2.2 Japanese context

Similar to the Enron/Andersen scandal in the U.S., Japan experienced high-profile corporate scandals after the fall of 2004, which generated doubts about firms' compliance in financial reporting. In particular, accounting frauds committed by Seibu Railway Co. and Kanebo[62] led to a discussion of the introduction of J-SOX by councils of the FSA. In order to restore investors' confidence and ensure credible disclosure on financial and corporate information, the working group of the Financial System Council of the FSA proposed a mandatory requirement for listed companies. These requirements included managers' evaluation of the validity of internal control over financial reporting, which would be subject to audits by certified public accountants or auditing firms, and managers' submission of "certification," stating that descriptions in financial statements are appropriate and in compliance with laws and regulations (FSA, 2006). Then, the subcommittee of the Financial System Council released a report, titled "Legislation for 'the Investment Services Law (provisional title),'" on December 22, 2005.

Following the debates in councils of the FSA, the Japanese Diet approved and enacted the Amendment of the Securities and Exchange Law on June 7, 2006, and promulgated it on June 14, 2006. Later, it was incorporated into the Financial Instruments and Exchange Law, the so-called J-SOX. The J-SOX required listed companies to submit to a quarterly reporting system, an internal control reporting system, and certification by a management system, which were enforced on September 30, 2007 and were applicable from the fiscal year beginning on or after April 1, 2008.

However, around the enactment of the J-SOX, the U.S. SEC looked for a way to offer further relief from Section 404 compliance for smaller public companies and many foreign private issuers to the U.S. SOX and published a final rule, titled "Management's Report on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports," in December 2006, which exempted IPO companies from submitting reports for the first year.

Taking into account the criticism of the U.S. SOX for imposing huge implementation costs on listed companies, the FSA looked for more concise and efficient way to implement the J-SOX. There are four major differences between the U.S. SOX and the J-SOX. First, the J-SOX employs a top-down risk approach, which enables firms to focus on major risks rather than to evaluate all the detailed check items under the baseline approach employed by the U.S. SOX. Second, the J-SOX employs only two criteria for deficiencies in internal control – material weakness and control deficiency - while the U.S. SOX uses

these two categories plus another, "significant deficiency." Third, the U.S. SOX requires independent auditors to directly evaluate and report the internal control system of the listed companies. By contrast, under the J-SOX, evaluation of the validity of internal controls over financial reporting is conducted by managers and then checked by independent auditors. Fourth, in the U.S., different auditors audit internal controls and financial reporting separately, despite the fact that these audits overlap in some part. The J-SOX allows the same auditor to audit both internal controls and financial reporting, cooperating with internal auditors, in order to reduce audit fees.

Incorporating these concise and efficient ways, in February 2007, the Business Accounting Council of the FSA published a recommendation, titled "On the Setting of the Standards and Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)." This recommendation became a guideline for implementing a new system of internal control reporting. Although the J-SOX currently requires all listed firms to be subject to the standards for management assessment and audits concerning internal control over financial reporting, an attempt to offer relief for small firms may be discussed in the future, since the large costs associated with internal control reporting deter small firms from their IPOs (Osaki, 2008).

2.3 Hypotheses development

In the present study, we first test whether the announcements related to the J-SOX affected the stock prices of Japanese firms. As shown in Table 1, we select 12 events that are expected to have had a potentially great impact on Japanese firms.[63] Events G1 to G5 correspond to general news leading to the passage of the J-SOX. These events occurred between December 2005 and June 2006. Events A1 to A3 correspond to the U.S. announcements. These events occurred between August 2006 and December 2006. Events I1 to I4 are announcements regarding guidelines for the implementation of the J-SOX. These events happened between November 2006 and February 2007.

[Table 1 here]

If investors expected that the introduction of the J-SOX would lead to better internal control over financial reporting practices, stock prices of Japanese firms should have increased in Events G1 to G5. Thus, our first hypothesis is:

Hypothesis 1: The stock market reacted

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[62] Numata and Takeda (2008) analyze the impact of Kanebo/ChuoAoyama scandal.

[63] We do not include September 30, 2007, when the J-SOX was enforced. This is because the stock market was damaged by subprime loan problems in the world's major countries.

positively to the news, indicating an increase of the possibility of enactment of the J-SOX.

By contrast, the effect of the events between the enactment and the enforcement is an empirical question, because the measures taken by the U.S. SEC and the Japanese FSA were likely to reduce both costs and benefits of the compliance of the regulations on internal control over financial reporting. Thus, the null hypothesis associated with Events A1 to A3 and I1 to I4 becomes:

Hypothesis 2: The stock market did not react to the news that the regulations included in the U.S. SOX would be loosened for small firms and the news concerning guidelines of the implementation of the J-SOX.

Finally, we examine what factors contributed to individual stock price fluctuations. In particular, we are interested in how firms' governance structure is associated with stock price reactions. Considering the fact that the J-SOX attempts to discipline firms' internal control and financial reporting practice, we expect that firms with better governance are likely to experience more positive stock market reactions, because such firms would bear low costs of the J-SOX compliance. Thus, our final hypothesis becomes:

Hypothesis 3: The positive market reactions were larger for firms that had more effective governance structure.

The next section describes the methodology and data used to test the above hypotheses.

3. Methodology and Data

3.1 Univariate Stock Price Analysis

In order to examine stock price reactions to the J-SOX-related news, we employ event study methodology. Because the J-SOX is applicable to all listed firms in Japan, the entire market is expected to have been affected by the announcements related to the introduction of the J-SOX. If we employ a simple event study methodology in which the abnormal returns of individual stocks are aggregated, we would face a clustering problem in evaluating the market-wide effect. That is, the cross-sectional dependence among abnormal returns can generate the bias in test results. In order to avoid the bias from the test, we employ a portfolio approach using two market portfolios – namely, the Tokyo Stock Price Index (TOPIX), which is the market capitalization of all floating stocks listed on the First Section of the TSE, and the other market index, which is the equally weighted average stock prices of 1526 firms listed on the First Section of the TSE. Then, we estimate the following model.

$$R_{mt} = \alpha + \sum_{j=1}^{N} \beta_j D_j + \varepsilon_t \quad (1)$$

where R_{mt} represents a return of a market portfolio, which is the TOPIX or equally weighted market index, on day t. D_j is a dummy variable equal to one for the three-day event window ($t = 0,1,2$) of Event j ($j = 1,2,...,12$) and zero otherwise. ε_t represents the zero mean disturbance term.

We use least squares estimation with White heteroskedasticity-consistent standard errors and covariance to estimate the model over the 531 trading days from January 2005 to February 2007. The intercept (α) represents the average daily stock return across the 495 nonevent trading days. The coefficient on each event dummy variable (β_j) represents an estimate of the average daily abnormal return related to the event. We also estimate (1) for our three event classifications: (a) general news leading to the passage of the J-SOX (Events G1 to G5); (b) U.S. news (Events A1 to A3); and (c) announcements regarding guidelines for the implementation of the J-SOX (Events I1 to I4).

3.2 Cross-sectional analysis

In order to investigate what factors contribute to individual stock price fluctuations, we employ a standard event study methodology for the cross-sectional analysis to estimate abnormal returns (AR_{it}) for each firm as follows.

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \quad (2)$$

where R_{it} is the daily stock return for firm i during period t and R_{mt} represents the return of the TOPIX. $\hat{\alpha}_i$ and $\hat{\beta}_i$ are parameters estimated by the standard market model, per MacKinlay (1997), for an estimation window from February 10, 2005 to December 22, 2005, which corresponds to 200 transaction days prior to the first event (Event G1). The cumulative abnormal return (CAR) is then calculated by summing up the ARs over the event window ($t = 0,1,2$):

$$CAR_i(0,2) = \sum_{t=0}^{2} AR_{it} .$$

$$(3)$$

We next conduct cross-sectional analysis for the four G events, which could have been interpreted as increasing the likelihood of the passage of the J-SOX, in order to investigate what factors affect the mean CAR. We estimate the following multivariate regression models by using the least squared estimation with White heteroskedasticity-consistent

standard errors and covariance.

$$CAR_i = \beta_1 + \beta_2 Big4 + \beta_3 GAAP + \beta_4 IFRS + \beta_5 Foreign + \beta_6 Free$$
$$+ \beta_7 Asset + \beta_8 Salesgrowth + \beta_9 ROA + \beta_{10} Leverage + \beta_{11} Beta + u_i$$

(4)

where:

CAR	=	mean cumulative abnormal return.
Big4	=	1 if the firm is audited by a Big 4 audit firm, 0 otherwise.
GAAP	=	1 if the firm is listed on the U.S. market, 0 otherwise.
IFRS	=	1 if the firm is listed on the European or Singaporean market, 0 otherwise.
Foreign	=	foreign shareholders' share of total shareholders (%).
Free	=	weight of listed shares available for trading in the market (%).
Asset	=	logarithm of total assets.
Salesgrowth	=	rate of change in sales from the previous settlement (%).
ROA	=	net profit divided by total assets (%).
Leverage	=	liabilities divided by assets (%).
Beta	=	stock's beta (β), estimated using a standard market model.

To test *Hypothesis 3* on the effect of the governance structure, we include five variables (*Big4, GAAP, IFRS, Foreign,* and *Free*). The first *Big4* dummy variable becomes 1 if the firm is audited by a Big 4 audit firm and 0 otherwise. We expect positive coefficients for this variable, because the Big 4 audit firms are supposed to provide better audit quality to clients than the non-Big 4 audit firms.

The following two variables, *GAAP* and *IFRS*, are dummy variables, which take 1 if the firm is listed on the U.S., European, or Singaporean markets and 0 otherwise. The firms listed there have to prepare their financial statements in accordance with U.S. GAAP and/or International Financial Reporting Standards (IFRS). Because the U.S. GAAP and IAS require greater disclosure to listed firms than the Japanese accounting standards, we expect positive signs for these two variables. In other words, firms listed on the U.S. are likely to react positively to the news leading to the passage of the J-SOX because they are expected to be more prepared for the J-SOX compliance.

The next two variables are included to capture the effect of shareholder composition. *Foreign* is the percentage of foreign shareholders among total shareholders, and *Free* is the free float ratio, which is the weight of listed stocks available for trading in the market. Firms with high ratios of foreign shareholders are required to provide disclosure that is more demanding than that required by domestic investors and thus could have reasonably been expected to be more prepared for the J-SOX compared with firms that have low foreign shareholders' ratio. The effect of the free float ratio is ambiguous. If blockholders,

including main banks, provide better governance than other short-sighted investors, CAR should be negatively associated with the free float ratio. However, if short-sighted investors are more concerned about firms' performance than blockholders, CAR should be positively correlated with the free float ratio. Thus, whether there is a positive correlation between CAR and the free float ratio is left as an empirical question.

Asset is a logarithm of total assets. We include this variable to capture the size effect. We predict that *Asset* is negatively associated with CAR, because investors could have reasonably assumed that large firms conduct more complex operations than small firms and would therefore incur higher costs in preparing for J-SOX compliance. *Salesgrowth* is a rate of change in sales, and *ROA* is the return on asset ratio, which is net profit divided by total assets and is used for measuring a firm's profitability. If investors regard firms with higher sales growth or ROA as more capable of preparing for the J-SOX compliance, the estimated coefficients of these variables should be positive.

Leverage is calculated as liabilities divided by assets. The sign of *Leverage* is an empirical question. Firms with a high leverage ratio may lack resources to prepare for J-SOX compliance, so that the news on the introduction of the J-SOX would affect them more negatively. This would result in a negative sign for *Leverage*. However, if main banks provide debtor firms with better governance, the news on the introduction of the J-SOX is likely to positively affect firms with high debt-equity ratio. This would result in a positive sign for *Leverage*. Thus, whether firms with high leverage ratio experienced positive or negative stock price reactions is tested.

The last variable, *Beta*, is stock's beta (β), estimated using a standard market model. This variable is included to capture the firm's sensitivity to systematic risk.

3.3 Data

Our sample for univariate analysis consists of 1526 firms listed on the First Section of the TSE[64] for which stock price data are available throughout both event and estimation windows. For cross-sectional analysis, we delete firms that lack the financial data needed to estimate equation (4). This elimination process gives us 1339 firms with available data. We note that firms in the financial industry, such as banks and security companies, are eliminated in this process.

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[64] We limit our sample to firms listed on the First Section of the TSE, because the stock price data of the other markets are less useful due to the fact that stocks on the other markets are less actively traded, with many days without any deals.

We rely on *Toyo Keizai's Kabuka CD-ROM* and *Toyo Keizai's Kaisha Shikiho (Japan Company Handbook) CD-ROM* to obtain stock price data and other financial variables, respectively.

[Tables 2 & 3 here]

Tables 2 and 3 present the descriptive statistics and correlation matrices for the variables used in our cross-sectional analysis. We note that the correlation between *Foreign* and *Asset* is 0.51%. This indicates that large firms tend to have higher ratios of foreign shareholders than small firms. By contrast, *Free* is negatively associated with *Asset*, with correlation coefficients of -0.31%. This means that small firms tend to have a higher free float ratio than large firms. As a result, the correlation between *Foreign* and *Free* is negative, with correlation coefficients of -0.49%.

4. Discussions
4.1 Univariate analysis

Table 4 presents the regression results during 12 event windows. Panel A reports results for each event date, and Panel B reports results for aggregated events G, A and I.

[Table 4 here]

We first discuss the results presented by Panel A. The coefficients on Events G2 and G3 are significantly positive at a 1% level for both the TOPIX and equally weighted market portfolio results. The coefficients on Event G1 are also positive but insignificant for both portfolio results. This is probably because the possibility of the introduction of the J-SOX was not clear at Event G1, when it was announced that a discussion of the J-SOX would take place. The coefficients on G4 are insignificant for both portfolio results. This may indicate that the passage of the J-SOX was not big news compared with the approval by the Cabinet Office.

By contrast, the coefficients on Event G5 are significantly negative at a 1% level for both portfolio results. This is surprising, since Event G5 is when the J-SOX was finally approved by the Diet on June 7, 2006 and thus should have positively affected the stock market. We suspect that stock prices are affected by other confounding events, because on the same day, stock prices declined in all major markets after Ben Bernanke, chairman of the U.S. FRB, had warned of the risk of inflation on June 5. Thus, we eliminate Event G5 from Event G in Panel B and from the cross-sectional analysis in the next subsection. As shown in Panel B, overall, the coefficient on Event G is significantly positive at a 1% level for both portfolio results. This indicates that the TSE on average reacted positively to the news that led to the introduction of

the J-SOX. In other words, our results are consistent with *Hypothesis 1*.

The next events, A1 to A3, are related to the news that the U.S. SEC was loosening the regulations established by the U.S. SOX. The results are ambiguous. Panel A shows that the coefficients on Event A1 are significantly negative for both portfolio results, while the coefficient on Event A2 is significantly positive for the TOPIX but is insignificant for the equally weighted market portfolio result. The coefficients on Event A3 are insignificant for both portfolio results. In addition, Panel B shows that the coefficient on Event A is insignificant for both portfolio results. These results indicate that the TSE's reaction to the announcement of the U.S. loosening the regulation was not obvious, perhaps because it was not clear that the Japanese government would follow the U.S. in making relief from the J-SOX compliance.

Lastly, we discuss stock market reactions to Events I1 to I4, the news on the guidelines for implementation of the J-SOX. Panel A shows that the coefficients on Event I1 are significantly negative at a 1% level for both portfolio results, while the coefficients on Events I2 to I4 are insignificant. In the aggregated table, Panel B also shows that the coefficients on Event I are insignificant for both portfolio results. These results indicate that the effects of the announcement of the guidelines of the J-SOX were not obvious, perhaps because the guidelines would have reduced both the benefits and the costs of the J-SOX compliance.

In summary, our univariate analysis provides evidence to support the notion that the events that increased the likelihood of the passage of the J-SOX positively affected the stock market in Japan. This result indicates that investors were confident that the J-SOX would increase the future value of Japanese firms. By contrast, neither the events that loosened the regulation set by the U.S. SOX nor the events that set the guidelines for the implementation of the J-SOX had obvious influence on stock market. The next section will examine what factors contributed to the stock market reactions for Events G1 to G4 using cross-sectional analysis.

4.2 Cross-sectional analysis

Table 5 shows the regression results obtained by employing mean CARs for a three-day event window (0,2) as dependent variables. The F-statistics of all regressions are statistically significant at a 1% level, with explanatory power ranging from 0.8% to 6.1%.

[Table 5 here]

We first discuss the effect of a *Big4* dummy variable on the CARs. All coefficients are insignificant for Events G1 to G4. This means that

whether firms were audited by a Big 4 audit firm or not did not affect the extent of stock price increases caused by the J-SOX-related news. In other words, Japanese investors appeared to regard Big 4 auditors and non-Big 4 auditors as providers of similar-quality auditing with regard to internal controls over financial reporting, which were new to all audit firms in Japan.

The coefficients on GAAP and IFRS provide inconclusive results. For GAAP, the coefficient is significantly positive for Event G3 and insignificant for the other three events. For IFRS, the coefficient is significantly negative for Event G2 and insignificant for the other three events. It should be noted that our sample contains only 26 firms listed on the U.S. markets and 33 firms listed on the European or Singaporean markets. Reliance on such a small number of firms may lead to ambiguous results in the present study.

With regard to the foreign shareholder composition, the coefficients of *Foreign* are significantly positive for two regressions and insignificant for two regressions. This result weakly supports our prediction that firms with a higher ratio of foreign shareholders would experience more positive stock market reactions to the J-SOX-related news. In fact, the presence of foreign shareholders in the Japanese stock market has increased dramatically in the past 10 years (Takahashi and Oyama, 2000; Ahmadjian and Robbins, 2005). According to the TSE, the ratio of foreign shareholders in the five Japanese stock exchanges increased from less than 10% in 1995 to 28% in 2006. Foreign investors are likely to demand greater transparency in financial reporting practices and auditing independence. Thus, our results indicate that foreign shareholders were interpreted by the market as tending to contribute to better governance by demanding greater transparency and that stock prices of firms with a high ratio of foreign shareholders increased more than firms with a low ratio of foreign shareholders.

By contrast, the coefficients on *Free* are significantly negative for two regressions and insignificant for two regressions. This result weakly indicates that firms with higher free float ratios experienced more negative stock market reactions to the J-SOX-related news, perhaps because short-sighted investors did not seem to contribute to the preparation for the J-SOX compliance.

We next discuss the size effect. The coefficients of *Asset* are significantly negative for all regressions. This result indicates that investors assumed that large firms had more complex operations and thus would suffer from larger auditing costs by the introduction of the J-SOX. Accordingly, stock prices of large firms experienced less positive market reactions than small firms. Our results are in contrast to previous studies that reported a negative relationship between stock returns and firm size, as the U.S. SOX imposed larger costs for small firms than for large firms (Chhaochharia and Gristein, 2007; Wintoki, 2007). However, the following news may support our results. For instance, the Nikkei newspaper reported on August 12, 2009 that audit fees paid by 297 major Japanese companies increased by 32% from the previous year in March 2009, while audit fees increased by 44.5% for SONY, 43.6% for Mitsubishi UFJ Financial Group, 40.1% for Sumitomo Mitsui Financial Group, 36.2% for Mitsui and Co., and so on. Thus, the size effect of the SOX may depend on the country in question.

We next discuss the effect of financial variables and beta. The effects of *Salesgrowth* and *ROA* are minimal, with insignificant coefficients for all regressions. With regard to the effect of *Leverage*, three regressions (Events G2 to G4) provide significantly positive coefficients, while one regression (Event G1) gives insignificant coefficient. This result indicates that investors regarded firms with a high leverage ratio as better prepared for the introduction of the J-SOX, perhaps because of the monitoring of the main banks. The effect of *Beta* is minimal, as the coefficient on *Beta* is significantly negative for Event G1 but insignificant for Events G2 to G4.

5. Concluding remarks

In the present study, we investigated stock market reactions to news related to the introduction of the Japanese version of the Sarbanes-Oxley Act of 2006, using event study methodology. We found that the announcements that would have been interpreted as increasing the likelihood of the introduction of the J-SOX increased stock prices of firms listed on the First Section of the TSE. Another finding is that firms with a high ratio of foreign shareholders or leverage experienced more positive stock price reactions, perhaps because these firms were more prepared for J-SOX compliance, with a better governance structure. By contrast, whether the firm was audited by Big 4 audit firms did not seem to matter to investors. In addition, large firms tended to have more negative stock price reactions than small firms, perhaps due to the high costs of J-SOX compliance.

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Appendices

Table 1. Events

Event	Date	News Announced
G1	26/12/05	Subcommittee of Financial System Council of the Financial Service Agency (FSA) released a report titled "Legislation for 'the Investment Services Law (provisional title)'" on Dec. 22, 2005.
G2	24/01/06	The FSA announced the inclusion of new restrictions on limited partners for investment into the Financial Instruments and Exchange Law (FIEL).
G3	10/03/06	The FIEL was approved by the Cabinet Office.
G4	17/05/06	The FIEL was approved by the House of Representatives.
G5	07/06/06	The FIEL was passed by the House of Councillors and enacted.
A1	24/08/06	The U.S. SEC announced its intention to offer further relief from Section 404 compliance for smaller public companies and many foreign private issuers to the Sarbanes-Oxley Act.
A2	14/12/06	The U.S. SEC voted to propose interpretive guidance for management to improve Sarbanes-Oxley 404 implementation on Dec. 13, 2006.
A3	20/12/06	The U.S. SEC published a final rule titled "Management's Report on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports."
I1	07/11/06	The Subcommittee on Internal Control of Business Accounting Council of the FSA discussed a draft of the internal control rule on Nov. 6, 2006.
I2	21/11/06	The Subcommittee on Internal Control of Business Accounting Council released an exposure draft on the implementation standards of the FIEL on Nov. 20, 2006.
I3	01/02/07	The Subcommittee on Internal Control of Business Accounting Council approved of the guidelines on the implementation standards of the FIEL on Jan. 31, 2007.
I4	16/02/07	The Business Accounting Council published a recommendation titled "On the Setting of the Standards and Practice Standards for Management Assessment and Audit concerning Internal Control Over Financial Reporting (Council Opinions)" on Feb. 15, 2007.

Table 2. Descriptive statistics

	G1	G2	G3	G4	Big4	GAAP	IFRS	Foreign	Free	Asset	Salesgrowth	ROA	Leverage	Beta
Mean	0.37	1.14	0.78	0.71	0.85	0.02	0.02	14.50	18.87	11.73	7.35	2.96	52.67	0.86
Median	-0.13	0.64	0.51	0.48	1.00	0.00	0.00	11.70	16.80	11.50	5.03	2.82	54.05	0.83
Maximum	27.56	27.53	16.73	13.91	1.00	1.00	1.00	73.60	63.30	17.17	205.28	55.78	98.78	5.81
Minimum	-12.61	-26.52	-12.16	-18.04	0.00	0.00	0.00	0.20	0.20	7.07	-65.38	-45.54	6.38	-0.06
Std. Dev.	3.45	3.74	2.76	3.41	0.36	0.14	0.16	11.76	11.14	1.40	15.18	5.06	19.74	0.33
Skewness	1.72	0.94	0.73	0.32	-1.93	6.97	6.13	1.22	0.70	0.73	3.92	-0.26	-0.12	2.81
Kurtosis	11.57	9.67	5.52	6.38	4.71	49.52	38.60	4.81	2.93	3.57	37.90	30.18	2.23	38.49
Observations	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339	1,339

Table 3. Correlation matrix

	G1	G2	G3	G4	Big4	GAAP	IFRS	Foreign	Free	Asset	Salesgrowth	ROA	Leverage	Beta
G1	1.000													
G2	0.129	1.000												
G3	0.110	0.110	1.000											
G4	0.041	0.109	0.015	1.000										
Big4	0.023	-0.028	0.019	-0.027	1.000									
GAAP	-0.020	-0.075	-0.014	-0.033	0.045	1.000								
IFRS	-0.010	-0.126	-0.051	-0.023	0.068	0.431	1.000							
Foreign	-0.020	-0.064	-0.019	-0.025	0.087	0.232	0.177	1.000						
Free	-0.060	0.094	-0.047	0.065	-0.129	-0.087	-0.039	-0.492	1.000					
Asset	-0.081	-0.203	-0.103	-0.075	0.125	0.294	0.282	0.513	-0.309	1.000				
Salesgrowth	-0.000	0.049	0.043	0.022	0.057	-0.006	-0.010	0.119	-0.113	0.058	1.000			
ROA	0.010	-0.026	-0.038	-0.041	0.089	0.069	0.000	0.255	-0.285	0.053	0.199	1.000		
Leverage	-0.083	0.037	0.023	0.039	0.021	-0.004	0.004	-0.195	0.247	0.271	-0.002	-0.282	1.000	
Beta	-0.122	-0.011	-0.037	0.026	0.003	0.023	-0.008	0.099	0.039	0.214	0.109	0.138	0.328	1.000

Table 4. Results from least squares regression with White heteroskedasticity-consistent standard errors & covariance on dummy variables for event dates leading to the implementation of the J-SOX

Panel A: Results from least squares regression on dummy variables for each event date

			TOPIX		Market	
			Coefficient	(t-stat)	Coefficient	(t-stat)
Constant			0.093	(2.03) **	0.086	(1.87) *
Event G1	:	Dec. 26, 2005	0.235	(0.56)	0.342	(0.89)
Event G2	:	Jan. 24, 2006	1.058	(3.26) ***	1.334	(4.81) ***
Event G3	:	Mar. 10, 2006	1.324	(2.95) ***	1.554	(3.69) ***
Event G4	:	May 17, 2006	-0.218	-(0.38)	0.034	(0.08)
Event G5	:	Jun. 7, 2006	-2.504	-(6.22) ***	-2.774	-(4.38) ***
Event A1	:	Aug. 24, 2006	-0.912	-(3.46) ***	-0.892	-(2.55) **
Event A2	:	Dec. 14, 2006	0.436	(3.77) ***	0.091	(1.21)
Event A3	:	Dec. 20, 2006	0.447	(1.37)	0.133	(0.33)
Event I1	:	Nov. 7-9, 2006	-0.692	-(3.80) ***	-0.972	-(4.12) ***
Event I2	:	Nov. 21, 2006	0.000	(0.00)	0.204	(0.31)
Event I3	:	Feb. 1, 2007	-0.198	-(0.33)	-0.009	-(0.02)
Event I4	:	Feb. 16, 2007	0.020	(0.18)	0.091	(0.57)
Observations			531		531	
Adjusted R^2			4.02%		5.60%	
S.E. of regression			0.995		0.999	
DW stat			1.983		1.837	
F-stat			2.849	***	3.620	**:

Notes: 1. ***, **, * indicate statistical significance at a 1%, 5%, and 10%, respectively.

2. TOPIX is the market capitalization of all floating stocks listed on the First Section of the TSE.

3. Market is the equally-weighted average stock prices of 1526 firms listed on the First Section of the TSE.

Panel B: Results from least squares regression on dummy variables for aggregated event dates

		TOPIX		Market	
		Coefficient	(t-stat)	Coefficient	(t-stat)
Constant		0.093	(2.05) **	0.086	(1.89) *
Event G	(Events G1 to G4)	0.600	(2.07) **	0.816	(3.06) ***
Event A	(Events A1 to A3)	-0.010	-(0.04)	-0.223	-(0.92)
Event I	(Events I1 to I4)	-0.285	-(1.37)	-0.286	-(1.18)
Event G5		-2.504	-(6.27) ***	-2.774	-(4.41) ***
Observations		531		531	
Adjusted R^2		3.70%		5.11%	
S.E. of regression		0.997		1.001	
DW stat		1.961		1.818	
F-stat		6.092	***	8.135	***

Notes: 1. ***, **, * indicate statistical significance at a 1%, 5%, and 10%, respectively.

2. TOPIX is the market capitalization of all floating stocks listed on the First Section of the TSE.

3. Market is the equally-weighted average stock prices of 1526 firms listed on the First Section of the TSE.

Table 5. Cross-sectional analyses

	Event G1			Event G2			Event G3			Event G4		
	Coefficient	(t-stat)		Coefficient	(t-stat)		Coefficient	(t-stat)		Coefficient	(t-stat)	
Constant	3.976	(3.85)	***	7.627	(7.44)	***	4.865	(5.64)	***	2.889	(3.12)	***
Big4	0.219	(0.78)		0.003	(0.01)		0.183	(0.86)		-0.128	-(0.50)	
GAAP	-0.087	-(0.12)		0.367	(0.61)		0.747	(1.75)	*	-0.282	-(0.53)	
IFRS	0.260	(0.47)		-1.842	-(3.46)	***	-0.504	-(1.54)		0.113	(0.26)	
Foreign	-0.005	-(0.45)		0.041	(3.52)	***	0.012	(1.16)		0.021	(2.11)	**
Free	-0.025	-(2.19)	**	0.015	(1.31)		-0.027	-(3.38)	***	0.013	(1.31)	
Asset	-0.194	-(2.11)	**	-0.729	-(7.20)	***	-0.379	-(4.63)	***	-0.284	-(3.31)	***
Salesgrowth	0.001	(0.17)		0.014	(1.44)		0.009	(1.52)		0.007	(0.98)	
ROA	0.001	(0.05)		-0.004	-(0.09)		-0.028	-(1.27)		-0.022	-(0.77)	
Leverage	-0.002	-(0.34)		0.024	(4.13)	***	0.015	(3.26)	***	0.010	(1.69)	*
Beta	-0.995	-(3.65)	***	-0.173	-(0.18)		-0.256	-(0.61)		0.254	(0.45)	
Observations	1,339			0.068			0.033			0.015		
Adjusted R^2	1.76%			6.09%			2.57%			0.77%		
S.E. of regression	3.416			3.623			2.724			3.400		
DW stat	1.895			1.921			1.850			1.956		
F-stat	3.391	***		9.673	***		4.531	***		2.034	***	

Note: ***, **, and * indicate statistical significance at a 1%, 5%, and 10% level, respectively.

HAS THE THREAT OF A TAKEOVER IMPROVED THE MANAGEMENT OF TARGET FIRMS?
AN ANALYSIS OF FIRMS IN WHICH M&A CONSULTING, JAPAN'S FIRST HOSTILE BIDDER, ACQUIRED STAKES

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Abstract

This paper examines the new development of hostile takeovers and shareholder activism in Japan. The hostile bidders claim that the threat of takeover which they pose on the management of a poorly managed company is not only to their benefit, but also to that of the target company in general, because the management will run the company better to maximize its value. Nearly a decade having passed since the first-ever hostile TOB attempt in Japan by M&A Consulting (MAC), an investment fund led by Mr. Yoshihiro Murakami in January 2000, we examine the stock price and operating performance of the companies whose shares were bought by the MAC. We find that the shareholders of the target companies indeed enjoyed large positive abnormal returns in the two years following the news. We report, however, that their operating performance declined over the four fiscal years following such news. There is little evidence so far that the threat of a hostile takeover improved the actual operating performance of the target firm.

Keywords: Hostile Takeover, Corporate Governance

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1. Introduction

In January 2000, the investment fund M&A Consulting (MAC hereafter) run by Mr. Yoshihiro Murakami, a former METI (Ministry of Economy, Trade and Industry) bureaucrat, launched the first-ever hostile tender offer bid (TOB) in Japan for Shoei Inc. Although unsuccessful, the TOB attempt alerted Japanese managers of a new era of corporate governance. In particular, poor performance of a public company might result in the ousting of its incumbent management through a hostile takeover.

The MAC-Shoei case was the first of many hostile TOB and shareholder activism events at listed companies. These events have sparked a heated argument regarding the virtue of the threat of hostile takeovers and shareholder activism. Some observers claim the threat of a hostile takeover is an important aspect of corporate governance. They believe that when the incumbent management of a listed company cannot manage the company well, potentially more adept new management will replace it through a hostile takeover. Also, the threat of a hostile takeover will exert pressure upon the existing management to perform better. For example, the increase in the payout to fend off potential bidders might also bring a positive effect on the management of the company, since a payout increase results in the reduction of agency costs of free cash flow (Jensen, 1986).

Others believe the pressure from the threat of hostile takeovers might force the management to become short-sighted, sacrificing long-term growth to maximize the short-term performance. Besides, once the battle over the corporate control has started, there is a concern that management may concentrate too much on defensive strategy and will not be able to make decisions on the day-to-day operations of the company. Japanese managers are generally very skeptical about the effectiveness of a hostile takeover in Japan.[65]

Naturally, hostile bidders have stressed the virtue

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[65] For example, refer to the discussion by the CEO of Canon Inc., Mr. Fujio Mitarai during the Nikkei Corporate Governance Symposium, which appears in July 22, 2005 edition of Nikkei Newspaper.

of the threat of a hostile takeover, claiming that it is not only to the benefit of the bidder and other shareholders, but also to the target company in general because it will precipitate improvements in the overall management and governance of the target firm. Mr. Murakami of MAC was the first Japanese investor who repeatedly claimed such benefit.[66] Currently, a similar battle is being waged regarding hedge fund activism in the United States.

The effectiveness of the threat from an activist is particularly relevant in Japan as many companies identified as potential hostile targets hold a large amount of cash beyond their need for the future investment. In fact, HSBC Securities reports that as of 2000, there were 21 companies whose market capitalization was less than the net cash on their balance sheets.[67] Moreover, as of March 2004, more than 40% of Japan's 3000 listed companies had a market capitalization less than the book value of their equity.[68]

Traditionally sheltered from the threat of a hostile bid through inter-corporate shareholdings, management of Japanese listed companies are generally unprepared about protecting its corporate control rights. As companies sell their cross-shareholdings, many are now vulnerable to other, more-active, shareholders who are taking their place (see Kuroki, 2003, for a description of the unwinding of the cross-shareholdings). As of March 2008, foreign investors owned about 25% of all Japanese shares, an increase from 9.8% of 10 years ago.[69] The recent hostile attempts prompted management to implement defenses. With a support from the economic ministry (METI), the use of a poison pill has been legalized in Japan.[70]

In addition to implementing legal defenses against potential hostile bids, some companies adopt corporate financial policy to deter hostile takeovers. The most common measure has been to increase the payout (either dividends or share repurchases) to existing shareholders hoping to raise share prices and discourage potential bidders.

The primary purpose of this paper is to examine the consequences of the threat of a potential hostile takeover. We attempt answer the following questions. How active are funds such as MAC? Do shareholders respond positively to the announcement of a MAC purchase of an ownership position (indicating the market believes the acquisition will bring about performance improvements)? Do MAC targets exhibit improvements in either share price or operating performance? By answering these questions, we hope to investigate the relative strength of the acquirers' arguments.

We examine a sample of firms which had public announcements of significant positions by MAC during 2000 to 2002. Although MAC launched only one hostile TOB, the companies whose shares were purchased by MAC after the failed TOB against Shoei regarded themselves as a potential target of a hostile TOB. Some of these companies increased payout to prevent a launch of a hostile takeover, others fought with the MAC over the management policy through a proxy contest. In any case, all companies felt the pressure from the shareholding of the MAC. Murakami was welcomed by Japanese investors as a corporate reformer providing discipline and changes to the management of companies with prolonged poor performance. At its peak in March 2006, MAC maintained more than 400 billion yen (4 billion US dollars) of assets under its management.

We examine the abnormal equity returns earned by the target companies surrounding the appearance of MAC as a major shareholder. We also examine changes in operating performance following MAC's acquisition. A typical long-term study based on operating performance requires 4 to 5 years of accounting data after the event occurred. Since MAC sold its stakes by the end of 2006, it is reasonable to assume that its influence also disappeared by fiscal year 2007. Between the first wave of MAC's share purchases that occurred between 2000 and 2002, and its closure at the end of 2006, we can find the 4 year post-event window of accounting data availability.[71]

We find that shares of companies whose shares had been purchased by the MAC performed significantly better than the market. We report, however, that the operating performance of the targets following the event is worse than that of their industry peers. Our results show that although the threat of a potential hostile takeover benefited the hostile bidder and the shareholders of the targets, we have no evidence of the improvement in operating performance of the target companies. Although we do not have sufficient sample size to claim our results are definitive, our research poses some skepticism over the benefit of the emergence of hostile bidders as "corporate reformers."

The paper is structured as follows. Section 2 provides additional background on hostile takeovers and shareholder activism. In Section 3, we briefly describe the case of the first hostile TOB against Shoei Company in the year 2000 by MAC. In Section 4, we explain the objective of our research, sample firms,

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[66] For example, refer to an article on January 25, 2000 edition of Nikkei Newspaper.

[67] As reported in the *Financial Times*, January 24, 2000, page 27.

[68] *Wall Street Journal*, April 15, 2004, page A1 using data from PacificData.

[69] As reported by the *Stock Ownership Distribution Report* by the Tokyo Stock Exchange.

[70] The Japanese Commercial Law has a principle that all shareholders must be treated equally. Therefore, the issue of warrants or convertibles that exclude a hostile bidder (which is also a target's shareholder) was considered to go against the principle, if not illegal.

[71] The next wave of hostile TOBs and the emergence of activist funds occurred after 2003, so that we do not yet have sufficient sample size or data points to analyze the operating performance of targets of other activist funds than MAC.

and research methodology and describe our sample. In Section 5, we report the results of our event studies on abnormal share returns and abnormal operating performance. Section 6 summarizes our findings and concludes.

2. Background

Hostile raiders, or activist funds, are "vultures and hyenas" according to Masao Yamaguchi, the executive director of Teikoku Hormone Manufacturing Company.[72] Mr. Yamaguchi made this comment after the Steel Partners Japan Strategic Fund, a U.S. based investment partnership purchased a stake of just over 5% in his company. Steel Partners had just made the news by launching a double hostile TOB against Sotoh Company and Yushiro Chemical Industries. Mr. Yamaguchi added "When we operate the company, we are not only looking at stockholders, we look at employees and creditors and everybody."

Historically, these attitudes have ensured that hostile takeovers would rarely be attempted in Japan (see Kester, 1991 for example). However, economic conditions in the 1990s and the ongoing deregulation of Japanese financial markets, particularly in the form of dismantling of inter-corporate shareholdings paved a way for a possible hostile takeover bid for publicly traded Japanese companies.

Soon after the TOB for Shoei, there were three additional attempts of hostile TOBs targeting four public companies.[73] While none were successful, the whole TOB process was dramatically portrayed in the media. For example, one Japanese news magazine ran the headline, "U.S. Fund On Wild Rampage."[74] In addition, the fight over control of Nippon Broadcasting Inc. between Fuji Television Network and Live Door Inc. may be classified as another hostile takeover attempt against a listed Japanese company. However, in this case Live Door used a regulatory loophole and avoided the TOB procedures. More recent examples abound between 2006 and 2007.

Many companies have taken steps to protect themselves from this new threat. First, with the blessing of METI, many firms have adopted poison pills. Also, firms are changing their financial policy to make themselves less attractive to would be raiders. In particular, they are using some of their cash reserves to increase payouts in the form of dividends and/or share repurchases. This strategy has the added benefit of potentially increasing share prices.

In theory, raising the payout in itself does not

necessarily increase shareholders' wealth. Miller and Modigliani (1961) show that in a perfect capital market, dividend policy is irrelevant to shareholders because an increase in dividend will be met with an offsetting change (fall) of share prices. A share repurchase does not change the wealth of remaining shareholders as long as the repurchase is made at the ongoing market price. Obviously, the payout policy is not irrelevant because there is no "perfect capital market" in a real world. The tax effect and the signaling effect under asymmetric information are examples of factors that ensure that payout policy is relevant to existing shareholders.

As mentioned in the introduction, there is an ongoing debate regarding the value of outsider pressure on companies in the form of hostile takeover attempts and shareholder activism. Proponents argue the pressure is forcing management to do a better job of managing their companies. Also, companies are returning more cash to their shareholders. However, others claim the raiders and activists have a short term focus and do not have the necessary experience to manage the target firms. In the end, they argue the targets are worse off.

Recently, hedge funds have become very active in the United States. Studies of this activism find significant abnormal returns of roughly 5 to 11% in the period surrounding the 13D filings, indicating the acquisition of a 5% ownership stake. (see Brav, Jiang, Thomas, and Partnoy, 2008, Clifford, 2008, Greenwood and Schor, 2009, and Klein and Zur, 2009). However, is less clear that the activism always enhances value. Specifically, the returns are greatest when the desired outcome is the sale of the target company and are not always significant given other activism goals. Greenwood and Schor (2009) focus on the impact of the sale of the target firms on performance. They report the abnormal returns in both the short and long terms are significant only if the target firm is put into play and ultimately acquired.

A primary goal of our study is to investigate whether a active raider will be able to bring about performance improvements at Japanese targets.

3. Information about MAC and Shoei Company

On January 24, 2000, M&A Consulting, (MAC), a private investment fund led by a former MITI bureaucrat, Mr. Yoshiaki Murakami, launched the first-ever hostile tender offer bid (TOB) in Japan against Shoei Company, a firm then listed on the second section of Tokyo Stock Exchange (TSE). Shoei was founded in 1931 as a silk manufacturer with the help of Yasuda Bank. Yasuda subsequently changed its name to Fuji Bank and then merged with other two major banks to create the Mizuho Financial Group. As Japan's economy grew, silk manufacturing became unprofitable and Shoei evolved into a real estate company. Its primary source of revenue is real estate based rental income, which accounts for about

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[72] *Wall Street Journal*, April 15, 2004, page A1.
[73] Early examples of hostile TOB's other than the one against Shoei are; (1) against Sotoh Company and Yushiro Chemical Industries by Steel Partners Japan Strategic Fund in December 2003, and (2) against Japan Engineering Consultants by Yumeshin Holdings Co., Ltd. in July 2005.
[74] As reported by the *Wall Street Journal*, April 15, 2004, page A1.

two-thirds of total revenue. Also, the company manufactures electronic and construction parts.

Shoei belongs to the Fuyo Group, one of the six bank-centered *keiretsu* groups, and its CEO at the time was a former Fuji Bank employee, Mr. Tanehiko Kamiura. Its largest shareholders at the time of the TOB included member companies of Fuyo Group, namely Canon Inc. (with a 19.5% stake), Yasuda Fire & Marine Insurance (10%), Yasuda Life Insurance (6%), Fuji Bank (5%) and Yasuda Trust Bank (5%), which in total accounted for 45.5% of outstanding shares. Mr. Murakami apparently came to know Shoei through his contact with Canon, Shoei's largest shareholder. In 1999, Mr. Murakami unsuccessfully tried to buy Canon's Shoei position; after collecting about 2 percent of Shoei's shares, he reportedly had a meeting with a board member of Canon in November 1999 suggesting a possible hostile TOB.

Mr. Murakami's TOB was for one hundred percent of Shoei's shares at the price of ¥1,000. The closing share price of Shoei on the previous trading day was ¥800, indicating an offered 25% premium. The deadline of the TOB was set to be February 14. On January 25, the day after TOB announcement, Shoei's board members issued a recommendation to the shareholders that they were against the bid, claiming that they would increase shareholders' value more than Mr. Murakami would. The TOB received huge media coverage in Japan, because it was the first-ever hostile bid in the sense that the board member of a target firm officially declared that they were against it. Major shareholders including Canon and other members of Fuyo Group quickly announced that they were reluctant to accept the deal because the bidding price was too low. In fact, because Shoei's large real estate holdings were valued far more than their book value, the company's liquidation value would have been at least ¥2,000 per share.

Shoei's share price soared to ¥1,280 immediately after the announcement (see Exhibit 1) and the highest closing price during the offer period was ¥1,302 on January 27. The market had anticipated an increase of the bid price, which never materialized. The offer expired on February 14 and Mr. Murakami could buy only 6.52% of Shoei's total shares. After the failure of the hostile bid, Mr. Murakami continued to own the shares that he bought through the TOB and requested that the management of Shoei take measures to increase its value. Shoei's share price stayed around ¥1,000 throughout the remainder of 2000 (see Exhibit 2).

On February 22, 2001, Shoei announced that it would increase its dividend for the fiscal year ending December 2000 to ¥14 per share, an increase of ¥6 over the previous year. In March 2001, Mr. Kenji Watanabe, another former Fuji Bank employee, replaced Mr. Kamiura as a CEO. Unlike Mr. Kamiura, who was reluctant to talk with Mr. Murakami, Mr. Watanabe started to implement drastic changes that reflected his orientation toward shareholders. Mr. Watanabe quickly introduced an employee stock option program and appointed external board members. In July and August 2002, Shoei repurchased its shares in an effort to increase its payout to equity holders. Mr. Murakami sold his shares to Shoei in response to the repurchase offer. Shoei sold the shares they repurchased through a secondary equity offering in March 2003, which led to the increased number of shareholders and consequently paved the way for a listing on the first section of the TSE.

As for Shoei's share price, it increased to around ¥1,400 after Mr. Watanabe's succession in 2001. It further increased to about ¥1,600 following the announcement of the listing on the TSE first section in 2003 (see Exhibit 2). In contrast to the rapid rise in share price, Shoei's operating performance improved rather slowly. Table 1 shows Shoei's sales, operating profit and operating profit margin (over sales) between 1995 and 2006. Because it manufactures electronic parts, its sales were affected by the silicon cycle, but even on the operating profit margin basis, the real improvement in performance was not realized until 2004, by which time MAC had already unwound its investment in Shoei.

In the years after its Shoei acquisition, MAC acquired significant stakes in an additional 27 companies, reaching the peak of its power in early 2006. Then in 2006, MAC experienced a rather abrupt downturn and subsequent dissolution. In June 2006, Murakami was arrested, allegedly having been involved in insider trading of Nippon Broadcasting System, one of MAC's portfolio companies. While the case is still being fought in the higher court, MAC dissolved itself shortly after Murakami's arrest and has sold off all of its stakes by the end of 2006.

4. Shareholder Gains and Operating Performance

4.1. Research Objectives

Following MACs failed hostile TOB for Shoei in early 2000, many Japanese managers became concerned about the potential threat of a hostile takeover. In fact, MAC invested in many listed companies other than Shoei following the failed TOB attempt. Japan's Securities and Exchange Law (SEL) stipulates that if a person or a firm owns more than 5 percent of the outstanding shares of a listed company for the first time, he (or it) must report a change in his ownership to the Ministry of Finance and the stock exchange within 5 calendar days, or at the end of every quarter in the case of a financial company or an investment fund. Subsequently, increases by more than or equal to 1 percent of the company's outstanding stocks, must be reported as well (Article 27-25 of the Securities and Exchange Law). These reports are called "A Report of Large Shareholdings," or *Kabushiki Tairyo Hoyuu Hokokusho*. Upon submission of a Report, it immediately becomes available to the public on the Internet through the TD (Timely Disclosure) Net system run by the Tokyo Stock Exchange. Thanks to

the TD Net, the name of companies whose shares are owned by the hostile bidder became public knowledge to the market. We also search the database to identify the date that such report of shareholdings about a certain firm was submitted.

We are interested in how the threat of a hostile takeover affects share prices and operating performance of the potential targets. We hypothesize the share prices of the target firms will increase at the disclosure of the shareholding information of the hostile bidders. It is well documented in the U.S. that the share price of a target of a takeover goes up by more than 40 percent on average (see Bruner, 2002, for a survey of the takeover literature). Although MAC has not launched any TOBs since its first attempt against Shoei, the mere threat raised by their acquisition of a stake might be sufficient to provide abnormal returns to potential targets. Furthermore, the target management sometimes increased the payout to shareholders, either by increases in dividend and/or share repurchases, which may be met with the positive share price reaction. We conduct a simple event study to examine the abnormal returns to the targets' shares generated by the announcement of a stock acquired by MAC.

The second subject of interest, which, we believe, is more important, is whether the potential threat of a hostile takeover of these companies resulted in an improvement of their operating performance. If the market is efficient, a rise in share price should be followed by the actual performance improvements by the targets. If this is indeed the case, it will support the hostile bidders' argument that the threat of a hostile takeover serves as a governance mechanism prompting the target companies to be operated more efficiently. Otherwise, we can infer that the threat benefits the targets' shareholders in the short run, but does not necessarily lead to the increase in the companies' operating cash flow in the long run, and that the market was too optimistic about the future operating performance improvement of target companies. This outcome is consistent with the common argument that shareholder activists are not always experts at managing their target firms.

4.2. Data and Methodology

We collect data on the MAC's targets from TD Net Database, the Nikkei Telecom Database and the Nikkei NEEDS Database to examine abnormal returns from the potential target companies. As we explained before, we searched TD Net to identify the name of the companies whose shares were purchased by MAC, and the date on which Report of Major Shareholdings was submitted to the stock exchange by MAC. In some cases, newspaper articles report lists of companies purchased by the MAC prior to the submission of Report. We collect such articles from Nikkei Telecom Database, which permits searches of articles appearing in four newspapers published by Nihon Keizai Shimbun.

Our event date is the earliest of the following three dates; (1) the date on which a Report of Large Shareholdings was submitted, (2) the date on which an article appeared in one of the Nikkei newspapers, or (3) the annual *yuuka-shoken hokokusho* was submitted to the relevant stock exchange. The above search identified 27 companies, including Shoei, whose shares were purchased by the MAC between 2000 and 2004. Since we analyze the long-term operating performance of target companies, we have limited our sample to non-financial firms and the events to those occurred between 2000 and 2002 to make four-year post-event accounting data available before the dissolution of MAC in late 2006. Our final sample consists of 21 observations.

We calculate the buy-and-hold abnormal returns around the event date (e.g., the report submission date). Our benchmarks are the TOPIX Index, a value weighted index of all stocks listed on the First Section of the Tokyo Stock Exchange, and returns on a control firm that we identify below. We subtract the return on the TOPIX Index and the control firm from our sample's buy-and-hold returns. Since the TOPIX Index does not take dividends into account, we report abnormal returns calculated excluding dividends. We note this will bias away from finding abnormal returns as many of the sample firms increased their payouts following MACs acquisition of shares.

We have assigned a control firm (benchmark) to assess the relative operating performance of our sample firms. Following by Barber and Lyon (1996), control firms operate in the same industry as that of our sample firms and exhibit similar operating performance (return on asset) in the pre-event year (year -1). We use ROA (operating profit over the book value of the total asset) as our performance measure.

4.3. Descriptive Statistics

We describe the characteristics of our sample in this subsection. Table 2 presents the summary of our sample firms. The 21 firms have an average market capitalization of 31,505 million yen (the median is 21,696 million yen), which is a little larger than the average market capitalization of the Second Section of the Tokyo Stock Exchange. MAC held an average stake of 5.86% of the sample firms. The average cash holding balance relative to the book-value of total assets in the year before the event was 15.1 percent, but varied from a minimum of 2.2 percent to a maximum of 89.1 percent. The average of the same ratio of cash holding balance for all firms on the First Section of the Tokyo Stock Exchange is about 13 percent in the Year 2000.

Table 3 shows the composition of the sample by industry. Trading, service, and engineering companies together account for more than half of our sample.

5. Results of Event Studies

5.1. Share Price Performance

Table 4 reports the announcement effects of MAC's purchase of shares in terms of the buy-and-old abnormal returns (BHAR) over those of the TOPIX Index and of a control firm.

Our results show that the average abnormal returns around the announcement date (days 0 to +2) is positive but not statistically significant. The long-term BHAR against TOPIX is significantly positive before the event (days −120 to −1), suggesting some run-up before the event. Because a looser disclosure rule is imposed on an investment fund like MAC to submit Report of Large Shareholdings only on quarterly basis, and because some of the event dates arise from the appearance of an article in the newspaper or when an annual 10K report was submitted, the market might have already known about the purchase of the MAC by the event date. The significant positive pre-event returns might well indicate the leak of information.

In terms of the post-event BHARs, we find that the target firms of the MAC significantly out-performed TOPIX Index over one year (~+250 days) and two years (~+500 days) after the news of the purchase by 15 to 20 percent. However the BHARs are not significant in any of the periods when we use a control firm as the benchmark. The latter results may be because of the spillover effect from the information that MAC targeted our sample firms. Our control firms share the industry and the characteristics of our sample firms, so they could have been regarded as a potential target for the future hostile activity, resulting in their share prices to be bid up in line with those of our sample firms. Admitting the weak robustness of our results as above, we report that MAC generally earned higher returns than the market in general.

5.2. Operating Performance

We show the operating ROA of our sample firms in Table 5. Panel A reports both the average adjusted and control firm adjusted ROA across all sample firms around our event year. Note that in year −1, the control firm adjusted returns are closest to zero due to our method of choosing control firms.

The unadjusted and control firm adjusted returns declined during the 10 years around the event. The unadjusted ROAs barely change in the years following the event, while the control firm adjusted ROAs are significantly negative in years +2 to +4, suggesting that ROAs of control firms have improved after the event.

Panel B examines the changes of ROA of each sample between Year −5 and +4 and Year −3 and +3. The decline of both adjusted and unadjusted ROA is significantly negative cross-sectionally between Year −5 and Year +4. Overall our results suggest that MAC was unable to bring about improvements in operating performance at its target firms. If anything, performance deteriorated.

6. Conclusion

We examine the share price and operating performance of companies whose shares were purchased by MAC following MACs hostile TOB of Shoei in January 2000. We find that the shares of our sample firms show significant abnormal returns over two years after the purchase became publicly known. On the other hand, we have shown that the raw ROA and control firm adjusted ROA declined following the MAC's purchase. The average control firm adjusted ROA becomes significantly negative after 2 years and on following the event.

Our sample size is limited, but at least we have shown that the first hostile TOB attempt followed by the threat of hostility by the first-ever activist fund in Japan has resulted in decent investment returns for the fund, but not in the improvement of the target's operating performance. Managers of the target companies frequently complain that outside activists do not have the necessary expertise to understand the business of the target. Moreover, many managers will see the effort as a threat to their jobs or autonomy. As a result, it is likely that the target management will resist making the changes proposed by the activists at all costs, devoting his time to defending his position rather than to managing his company's operations.

Anecdotal evidence supporting this claim is provided by the case of Tokyo Style Co., one of our sample firms. Tokyo Style's management fought back most fiercely against Murakami involving several lawsuits. The adjusted and the unadjusted ROA of the company at year +4 are −5.7 percent and 0.8 percent, respectively, which are below the mean and the median of our sample. More recent attempts by other activist funds in Japan, such as Steel Partners Japan Strategic Fund (SPJSF) that adopted similar activist strategies as MAC since 2003, will provide an opportunity to examine the robustness of our results within a few years. In the meantime, our preliminary investigation of other activist funds implies that a similar result may emerge.

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Appendices

Exhibit 1. Shoei's Share Price around the Hostile TOB
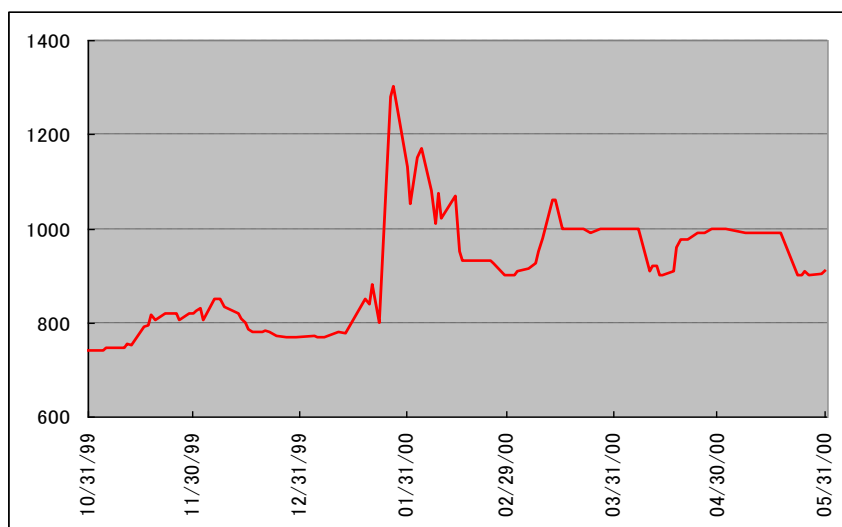

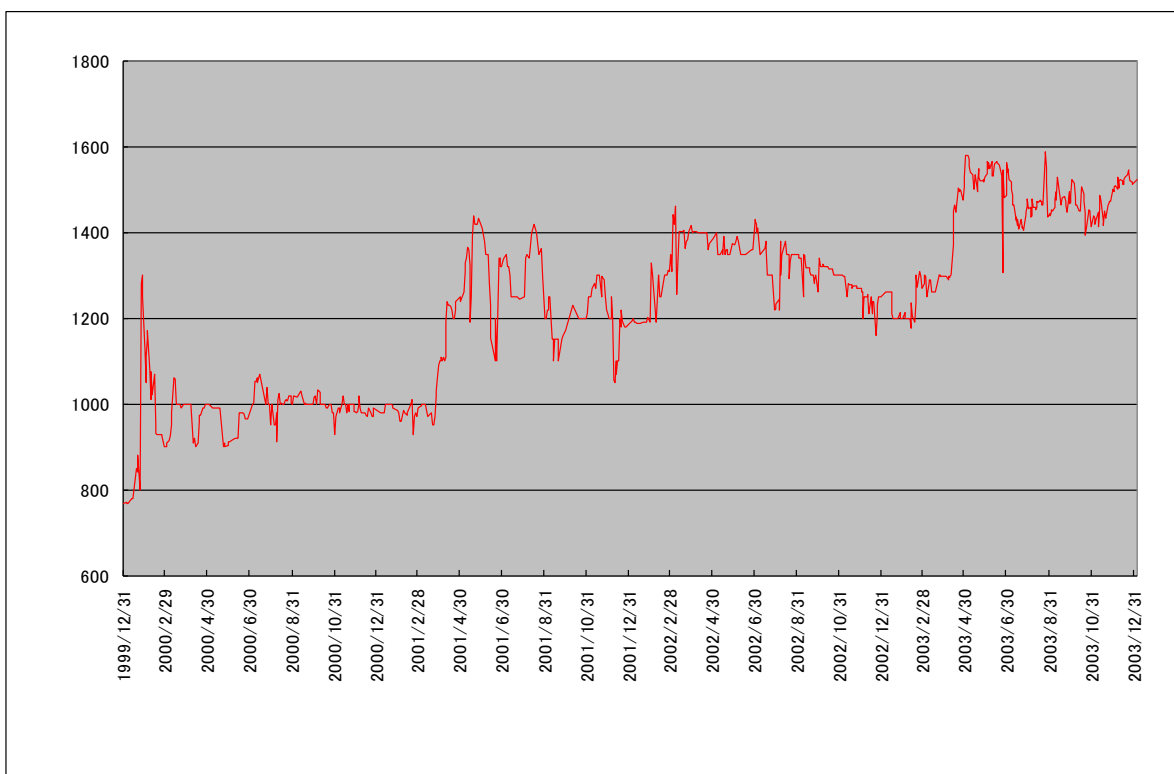**Exhibit 2.** Shoei's Share Price over Longer Period

Table 1. Sales, Operating Profit, and Operating Profit Margin of Shoei
Sales and operating profit are reported in millions of yen.

FY	SALES	OP. PROFIT	OP. PROF. /SALES
1995/12	10,104	1,046	10.4%
1996/12	8,072	671	8.3%
1997/12	8,812	850	9.6%
1998/12	7,280	1,029	14.1%
1999/12	5,880	801	13.6%
2000/12	7,475	953	12.7%
2001/12	4,908	585	11.9%
2002/12	7,702	820	10.6%
2003/12	8,100	898	11.1%
2004/12	9,101	2,014	22.1%
2005/12	13,707	2,813	20.5%
2006/12	16,904	6,044	35.8%

Table 2. Summary Statistics of Sample Firms

Event Year	# of Firms	Avg. Mkt Cap. (in Million Yen)	Avg. % of Hldg. by MAC	Avg. % of Cash to Total Assets
2000	5	17,213	6.44%	4.73%
2001	15	37,693	5.94%	17.76%
2002	1	10,150	1.73%	27.57%
TOTAL	21	31,505	5.86%	15.12%

Table 3. Sample by Industry

Industries	
Textile	2
Pharmaceuticals	1
Non-Iron Material	2
Transportation Machinery	1
Other Manufacturing	1
Engineering	4
Trading (Wholesale)	5
Retailing	1
Service	4
TOTAL	21

Table 4. Buy-and-Hold Abnormal Stock Returns (Excluding Dividends)

The table reports the average buy-and-hold abnormal returns over the TOPIX Index over the pre-and post-event period. "*" and "**" denote the significance at the 5% and 1% level, respectively.

Days (Event Date=0)	Raw BH Return		Adjusted BH Return			
			Against TOPIX		Against Control Firm	
	Mean	Median	Mean	Median	Mean	Median
-120~-1	7.38%	10.13%	18.80% **	24.53% **	-10.38%	17.98%
0~+2	3.76%	-0.30%	4.09%	-0.12%	3.98%	0.00%
0~+60	1.04%	0.00%	3.33%	-2.19%	-1.94%	-8.44%
0~+120	-3.07%	-2.46%	5.69%	0.82%	-4.44%	-5.70%
0~+250	-3.47%	-1.73%	14.40% **	15.85% *	0.96%	11.16%
0~+500	10.09%	9.83%	24.14% **	15.89% *	-16.89%	-4.45%
-120~+500	15.82%	10.79% *	41.55% **	33.47% **	-23.65%	10.64%

Table 5. Absolute and Relative Operating Performance of Sample Firms

Median pre- and post-merger unadjusted and control firm adjusted operating returns for 21 firms. ROAs are the operating profit divided by the book value of assets for the previous year. Control firm is chosen to be the one in the same industry as that of the sample firm, and must be the closest in ROA in the year −1. "*" indicates significance at the 5 percent significance level.

	Sample firms		Control firm adjusted	
	mean	median	mean	median
Panel A – ROA for year relative to event:				
−5	6.25%	3.49%	2.21%	-0.37%
−4	6.15	3.15	1.65	-0.17
−3	4.43	2.94	0.42	0.46
−2	1.84	2.64	-0.53	0.27
−1	1.15	2.14	-0.17	-0.01
0	1.32	1.31	-1.35	-0.76
+1	2.34	1.45	-1.15	-0.22
+2	1.79	1.79	-2.55*	-1.99*
+3	2.30	1.57	-2.48*	-1.31*
+4	1.98	1.82	-4.03*	-1.45*
Panel B – Change in ROA between:				
-5 to +4	-4.27*	-2.67*	-6.36*	-3.19*
-3 to +3	-1.21	-0.70	-2.77	-2.16

SECTION 3
PRACTITIONER'S CORNER

THE DANISH COMPANY LAW REFORM

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1. Introduction

Company law in the European Union is rapidly changing. Recent years have seen company law reform in large Member States such as the United Kingdom,[75] Germany[76] and France.[77] In the Nordic region, the Companies Acts of Finland [78] and Sweden[79] were extensively reformed in 2006 and now it is the turn of Denmark. This paper will present the background to the proposed reform of Danish company law and provide an overview.

2. Background to the reform

The present Danish legislation on limited liability companies is contained in two separate acts, one on

public limited companies (*aktieselskab, A/S*) and one on private limited companies (*anpartsselskab, ApS*). The distinction was introduced into Danish law in connection with the accession to the then European Economic Community in 1973. Until then, Danish company law only had one form of limited liability company, the A/S. Denmark introduced the ApS to emulate the distinction found in German law between the public company (*Aktiengesellschaft, AG*) and the private company (*Gesellschaft mit Beschränkter Haftung, GmbH*), each regulated by a separate act. This distinction was deemed necessary as the 2nd Company Law Directive on capital[80] that reflects the German doctrine on the protection of capital in a limited company to protect its creditors (*kapitalschutz*) applies only to public limited companies.

The A/S Act of 1973 has been amended several times, the last major reform being Act No 1060/1992. In 1996, the ApS Act, which also dated from 1973, was reduced considerable in an attempt to avoid unnecessary legislation. However, following the 1996 reform the users of the ApS Act had to look to the A/S Act for guidance in the absence of specific provisions in the ApS Act, and although some of the more important parts have since been reintroduced into the

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[75] For an insider's view of the 2006 reform, see P. Bovey, *A Damn Close Run Thing – The Companies Act 2006 (Legislative Comment)*, Stat. L. R. 2008, 29(1), 11 – 25.

[76] *Gesetz zur Modernisierung des GmbH-Rechts und zur Bekämpfung von Missbräuchen*;the law entered into force on 1 November 2008. See M. Beurskens & U. Noack, *The Reform of German Private Limited Company: Is the GmbH Ready for the 21st Century?*, 9 German Law J. No 9, Special Edition (available on-line on www.germanlawjournal.com).

[77] *Loi de modernisation de l'economie*; the law entered into force on 6 August 2008. For a comment on the reform in German, see C. Klein, *Frankreichs kleine und mittlere Unternehmen sollen gestärkt werden*, RIW 11/2008 770 - 773.

[78] Act (624/2006) on companies; the law entered into force on 1 September 2006.

[79] Act (2005:551) on companies; the law entered into force on 1 January 2006. For an insider's view, see R. Skog, *The New Swedish Companies Act*, Die Aktiengesellschaft 7/2006 238 - 242.

[80] Second Council Directive 77/91/EEC of 13 December 1976 on coordination of safeguards which, for the protection of the interests of members and others, are required by Member States of companies within the meaning of the second paragraph of Article 58 of the Treaty, in respect of the formation of public limited liability companies and the maintenance and alteration of their capital, with a view to making such safeguards equivalent. Later amended by Directive 92/101/EEC and, more substantially, by Directive 2006/68/EC.

ApS Act, it is still insufficient on its own.

In October 2006, the Minister of Economic and Business Affairs appointed a committee to advice on the modernisation of Danish company law. The mandate of the committee was to provide a flexible legislation allowing for new technology and to avoid over-implementation of EU law unless it was considered necessary for the protection of important vested interests. The Committee was quite large, consisting of 27 members including representatives of all major interests in Danish business life and the relevant public authorities. Its secretariat was vested with the Danish Commerce and Companies Agency that is the principal public authority in respect of company law. Although the Committee also comprised three university professors it was not intended to be engaged in an academic enterprise exploring various possibilities within company law but to produce a draft bill that would likely pass the legislative procedure. The Committee fulfilled these expectations and published a 1270 pages long Green Paper in November 2008 including a draft bill with comments.[81] After a brief public hearing, a proper bill was put before Parliament in March 2009,[82] where it had its first hearing out of three on April 14 and is expected to be passed within the end of the current session in June.

This lack of a greater academic discourse and the speed by which it was presented to Parliament has been the subject of some criticism especially among company law scholars excluded from the process. It is true that more academic scrutiny may have enhanced the product. On the other hand it is noteworthy that the Committee availed itself of the extensive literature from the other recent European reforms and as such was in no need of inspiration and the considerable width of the represented interests ensured that the necessary political compromises that inevitably trump academic propositions were reached during the Committee's tenure enabling a result that perhaps is more viable than a drawn out procedure would have produced.

3. The overall structure of the Act

The bill before Parliament closely resembles the draft presented by the Committee and as such reference is made both in commentary part of the bill itself and in this paper to the comments made by the Committee in its Green Paper to the various provisions.

The experience of the 1996 reform of the ApS Act had convinced the Committee that it was necessary either to expand that Act considerably, to avoid the need for references to the A/S Act, or to combine the two acts.[83] Since a combined act for both public and private limited liability companies is

well-known in several Member States, e.g. the United Kingdom and in the Nordic region, Finland and Sweden, and taking into consideration that the difference between public and private limited companies is diminishing,[84] the new act will cover both company forms. In this way certain provisions that would only be binding on public companies will either be a default solution for private companies, allowing the shareholders to decide otherwise, or an inspiration for them to follow the same procedure as a public company would be obliged to do. In this way, guidance is offered for private companies without compromising their greater freedom to choose differently.

4. Corporate governance

To a considerable degree the Nordic countries share a common understanding of company law, notably in respect of corporate governance.[85] All five Nordic countries, comprising the three EU Member States of Denmark, Finland and Sweden, and the EEA Member States of Iceland and Norway, still share the same corporate governance model known as the dual executive system originally introduced into Danish law in 1930.

This could be viewed as a hybrid between the one-tier system known in the United Kingdom with its board of directors and the two-tier system known in Germany with its distinction between a supervisory board (*Aufsichtsrat*) and a management board (*Vorstand*). In the Nordic system the general meeting of shareholders appoints a board of directors (*bestyrelse*), which hires a board of managers (*direktion*).[86] Collectively, these two executive organs are referred to as the management and share responsibility for their governance of the company. This may appear to be a two-tier system, but it is more closely related to the one-tier system. First of all, the board of directors is the superior executive organ and although it is also vested with the obligation of supervising the board of managers, it is itself engaged in management in a way that is irreconcilable with the role of a German supervisory board and more resembles the distribution of responsibilities between executive directors and outside directors in the English one-tier system. Second and equally like the English system, it allows for double mandates, i.e. a person can serve as a director and as a manager at the same

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[81] Cf. Green Paper (Betænkning) No. 1498/2008 on Modernising Company Law.

[82] Bill No. L 170 (Parliamentary session 2008/09).

[83] The 1996 reform is discussed in paragraph 2 above.

[84] The distinction between public and private companies is inapt as a public company does not have to be public, have more shareholders, or in any other way be larger than a private company. A more relevant distinction seems to be between a publicly traded company, i.e. listed companies, and other limited companies.

[85] See in general J. Lau Hansen, *Nordic Company Law*, DJØF Publishing (Copenhagen, 2003), Chapter III.

[86] One small difference is that in Finland, Norway and Sweden the board of managers usually comprises only the CEO, whereas in Denmark and Iceland it is a collective organ that can comprise more than one manager.

time comparable to the English notion of an executive director. Third, the system is strictly hierarchical with the shareholders in general meeting as the supreme decision makers and is as such more vested with the shareholder value approach than the stakeholder approach normally associated with the two-tier system. In fact, due to the widespread occurrence of dominant shareholdings even in publicly traded companies, the hierarchical nature of the Nordic system is more pronounced than in most other shareholder value jurisdictions, e.g. the UK and the US, which tend to be more a managerial controlled system than a shareholder controlled system.

As the international debate has so far proven unable to point to one system as being superior to the others, the Committee concluded that it was better to offer a freedom of choice to the shareholders of each company between the one-tier and the two-tier model as a supplement to the existing Nordic version of the one-tier model, which would leave the ultimate choice of governance model to the shareholders. Although the new act will offer a choice between one-tier and two-tier models, both models are curtailed by certain requirements mandated by law to provide good corporate governance. A manager may simultaneously serve as a director, but the majority of the board of directors may not consist of managers, nor can a manager chair the board of directors.[87] Thus, the powerful position of an American CEO chairing the board of directors or a French PDG is not available.

Section 111 of the new act offers a choice between the one-tier model and the two-tier model. The two-tier system is a novelty in Danish company law and consists of a supervisory board appointed by the shareholders in general meeting and a management board hired by the supervisory board. A manager cannot be member of the supervisory board but has the right to participate in its meetings unless the supervisory board decides otherwise *ad hoc*.[88] The management board is the only executive organ and the supervisory board lacks executive powers.

Whereas the two-tier system closely resembles its German origin, it becomes clear upon closer inspection that the one-tier model is divided into three different versions, which are already part of existing Danish company law but have been spelled out more clearly in Section 111:

(i) A solitary board of managers, however, this is only available for private companies.[89]

(ii) A board of directors and a board of managers, where all the managers are hired among the directors. This resembles the one-tier system known in English law. Although technically it does comprise two independent boards with different powers and corresponding obligations the dual capacity of the directors cum managers veils the distinction.

(iii) A board of directors and a board of managers, where some or all of the managers are hired from outside the board of directors. This is the present Nordic model and is expected to continue as the preferred model of choice.

To emphasise the position of the shareholders as the supreme decision-makers, at least the majority of the board of directors or the supervisory board must be appointed by the general meeting and may be dismissed by it at will.[90] Besides reducing the incentive for Danish nationals to avail themselves of the freedom to choose another company law regime than Danish law when forming a limited company afforded by the case law of the EC Court of Justice, the freedom to choose between different corporate governance systems is believed to offer an incentive for foreign companies to establish a subsidiary in Denmark as they will be able to chose a corporate governance model familiar to them.

To strengthen this incentive and to induce more foreign direct investment by individual investors as well as active participation in the management of Danish companies, the company will be able to decide in its Articles of Association that the company language shall be English or Scandinavian, in which case all members of the board including employee representatives would be obliged to speak the preferred language.[91] Even without an express provision in the Articles, the company can submit public documents, e.g. its annual accounts, to the Danish Commerce and Companies Agency in English or Scandinavian, thus avoiding the expense of translation. Any language can be used at the general meeting of shareholders as long as simultaneous translation into Danish is provided, and if a simple majority of shareholders so decide, the meeting can be held in English or Scandinavian without translation. As Danish company law has made on-line participation by shareholders in the general meeting legal since 2003, this possibility of conducting the

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[87] National corporate governance codes applying the comply-or-explain principle may further strengthen this division between directors and managers. The Danish code recommends that managers do not serve as directors in publicly traded companies. However, even if the CEO is not a director, he or she may attend the meetings of the Board of Directors unless the Board decides otherwise *ad hoc*.

[88] This is to overcome the problem of communication between management and supervisors that appears to inflict the German system.

[89] The new Finnish Companies Act of 2006 (footnote 4 above) provides this choice for public limited companies as

well.

[90] Employees may have a right to appoint directors, however such directors must form a minority of no more than 1/3 of the board. On co-determination, see paragraph 5 below. Although rare in practice, the Articles of Association may provide for the right of others, e.g. the original founder of the company, to appoint directors. Nonetheless, the majority of directors must be appointed by the shareholders in a general meeting which will appoint the whole board if nobody else has a right to appoint.

[91] The three Scandinavian languages of Danish, Norwegian and Swedish are closely related but different. A speaker may decide which Scandinavian language to speak.

general meeting in English and relying on documents and accounts in English would benefit foreign investors that could actively participate via electronic means without being physically present.

5. Co-determination

As the law stands, if a Danish company has employed on average 35 or more persons within the last three years, the employees or their unions may call for a referendum of the employees as to whether they should elect representatives to sit on the board of directors. If a majority is in favour, the employees have a right to appoint at least two directors to the board of directors or a higher number equal to half of the rest of the board, i.e. one third of the total number of directors. Employee representatives on the board will thus always constitute a minority. A director appointed by the employees is on par with all other directors on the board in respect of rights, obligations and payment, and an employee director may be disqualified *ad hoc*, as in the case of any other director, if that director has a substantial conflict of interest with regard to a particular matter so that the matter must be decided in his absence.

This system, which is viewed as favourable by both employer and labour organisations, is continued. However, some procedural requirements will be relaxed in the new act, making it easier to decide on employee representation and if the employees cannot provide the number of candidates to fill the seats available to them, they may settle for a lower number. The present system only applies to employees in Denmark, but under the new act the general meeting of shareholders may decide to expand the system to cover all its employees globally. If the company has employees in Denmark, however, they are entitled to at least one seat, and two seats if they form more than 10 per cent of the work force.

6. Minority protection

Danish company law already provides considerable protection of minority shareholders and this regime is continued in the new act. Each shareholder has a right to suggest issues for the agenda of the general meeting, may participate in the general meeting personally or by an attorney, may vote by proxy, may speak at the general meeting and put questions to the management in respect of any item on the agenda or in the annual accounts. Shareholders holding more than 5 per cent of the capital may call for an extraordinary general meeting to be convened.[92] Shareholders holding more than 10 per cent may require the appointment of an additional auditor by the Commerce and Companies Agency, and shareholders may by simple majority decide an examination of the company's accounts, and if the request is supported by shareholders holding

more than 25 per cent an examination may be ordered by the courts. Specific provisions, known as general clauses because in essence they codify broad principles, prohibit the majority of a general meeting from making decisions that may unjustly benefit certain shareholders or others to the detriment of the company or other shareholders, and equally they prohibit directors and managers from a similar abuse of their powers.

7. Capital

It is apparent from its Green Paper, that the Committee was in favour of affording wide discretion on the company and its shareholders *qua* investors in deciding how to organise the capital structure of the company unless the protection of creditors warrants otherwise. This, the Committee believed, was supported by experience and also in line with the development in other Member States and visible in the relaxation of the 2nd Company Law Directive by the reform in 2006.[93] Consequently, the Committee's proposal provided a very flexible regulation of capital. However, due to criticism in the media which argued that it would be irresponsible to abandon the stricter regime of the existing legislation, the bill presented before Parliament was less liberal in a few areas.

The present legal minimum of DKK 500,000 (EUR 67,120) for public companies in share capital will be maintained, although it is considerably above the EUR 25,000 required by the 2nd Company Law. The bill would reduce the legal minimum for a private company from DKK 125,000 (EUR 16,780) to DKK 50,000 (EUR 6,712).[94] Upon subscription, the shareholders must pay in at least DKK 50,000 but only 25 per cent of any additional capital.[95] Outstanding capital can be called in with 2 – 4 weeks notice from the management and shareholders who fail to pay loose their voting rights on all shares in the company including fully paid in shares. A shareholder may at any time volunteer to pay in the outstanding amount and may opt to do so in case of a transfer of shares as the obligation to pay rest on both the seller and any prospective buyers of the shares.

The requirement for a minimum share capital in private companies and a minimum ratio of paid in capital are the two only major areas where the bill departs from the draft proposed by the Committee. The Committee had suggested that the legal minimum for a private company should be abandoned and that the minimum ratio of paid in capital should set in only

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[92] The present threshold is 10 per cent. A company's own shares are not counted when calculating these figures.

[93] See footnote 6 above.

[94] The requirement for a legal minimum share capital follows from Article 6 of the 2nd Company Law Directive, but only applies to public limited companies. However, Danish law has applied a similar requirement to private companies.

[95] This requirement follows from Article 9 of the 2nd Company Law Directive. Again, it only applies to public companies, but would in the new act apply to private companies as well.

above the minimum threshold applicable to public companies of DKK 500,000, which would effectively have made it possible for a private company to have a guaranteed capital if it was kept below DKK 500,000. The reasoning was that the minimum share capital was so small that it was of no use as a protection of the creditors while proving an obstacle to new small entrepreneurs trying to set up a company. Furthermore, the Committee found it sufficient that both directors and managers are personally liable for maintaining at all times a sufficient level of capital for the company to meet its obligations and pointed to the similar trend in Germany and France and the new proposal for a European Private Limited Company.[96] However, this point was seized upon by the media which found it to be too risky in light of the present economic crisis. That a relaxation of an unnecessary capital requirement may actually help business in times of crisis as was the reasoning behind the German and French reforms was mostly ignored. By reducing the minimum share capital the bill has minimised the nuisance for small entrepreneurs. However, at the first hearing before Parliament, a majority appeared to be against lowering the minimum share capital for private companies and favoured maintaining it at DKK 125,000. It is yet uncertain whether the bill will be amended in this respect. If it is, it will greatly enhance the attractiveness of foreign private companies with no or less onerous requirements for share capital that the Committee tried to counter. The new act would introduces non-par value (npv) shares, which are already known in Finland and Sweden, as a supplement to traditional shares with a nominal value and a company may choose freely between the two forms of shares. In respect of voting rights attached to shares and other arrangements pertaining to control of the company, the Committee took note of the ISS report of 2007 which was unable to conclude that control-enhancing mechanisms would reduce the profitability of a company.[97] In the absence of clear empirical evidence that certain control arrangements may damage a company, the Committee decided to leave this for the existing and future shareholders to decide freely. The present restriction on voting differentiation, that differences in voting rights of shares representing the same capital may not exceed 1 – 10, will be abolished in the new act, leaving it to the company and the investors to decide.

As the law stands today private companies may issue voteless shares, which was possible also in public companies until the A/S-act of 1973. However, in the new act both public and private companies may issue such shares and there is no requirement that they should yield a minimum dividend or otherwise enjoy a

preferential standing as the discount expected at subscription and in later transactions compared to similar shares with voting rights is considered amble protection of the shareholders who prefer to acquire these shares.

8. Protection of capital

In the opinion of the Committee, the most important safeguard for the creditors of a limited liability company is the obligation of the directors and managers to ensure that the company is adequately funded at all times and the personal liability which that obligation entails on each member of the management. Consequently, the Committee proposed to introduce into Danish law some of the relaxations of the formal requirements for the protection of capital that have been allowed at EU level by the reform of the 2nd Company Law Directive in 2006.[98]

According to the new act, public and private companies will be allowed to acquire their own shares and the present 10 per cent threshold is abandoned. The most important safeguard is the requirement that only free reserves may be used to acquire the shares. Since these reserves may be paid out by the company as dividends, it is obvious that creditors are not put at any additional risk by abandoning the 10 per cent threshold. By the same reasoning, the provision of financial assistance for the acquisition of shares in the company, which is presently absolutely prohibited, will be allowed but only by payment from the free reserves available for dividends. As additional safeguards, a decision to provide assistance must be put before the general meeting of shareholders, the management must explain why the decision is deemed to be in the interest of the company and the company's shares must be acquired at market price. In the first hearing before Parliament, a majority also favoured that a declaration should be issued by the company's auditor. In the Committee, a minority presenting auditors had made such a suggestion, but a sizeable majority had declined, fearing that it would entail further costs to the company and in stead making it optional for the company. After the publication of the Green Paper, the auditors lobbied considerably for this proposition in the media, apparently with success.

In Danish law, the ban on providing financial assistance is accompanied by a ban on lending to shareholders. In contrast to the ban on financial assistance, the ban on lending has no basis in the 2nd Company Law Directive and was introduced into Danish law as a response to earlier cases of abuse. Similar prohibitions are found in the laws of other Nordic countries, but the ban in Danish law is the most wide-ranging of these. Inspired by the reform of the ban on financial assistance, the new act will permit lending to shareholders under conditions similar to those for offering financial assistance and with the further requirement that the financial status of the

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[96] See the Commission's Proposal for a Council Regulation on the Statute of a European Private company, COM(2008) 396.
[97] ISS, Sherman & Sterling, ECGI, *Report on the Proportionality Principle in the European Union*, 18 May 2007.

[98] See footnote 6 above.

shareholder should be assessed. Again, a majority in Parliament may be in favour of mandating a declaration issued by the auditor of the company.

9. Publicity

The new act will introduce a public register of shareholders with holdings above 5 per cent to be maintained by the Danish Companies and Commerce Agency and accessible on-line at all hours without charge. For publicly traded companies disclosure of major shareholdings is mandated by EU law,[99] but publication will apply to all companies, including private companies, as it will be helpful for society in general to know of major shareholdings even in small and non-public companies, and it may also benefit public prosecutors when investigating economic crimes, e.g. money laundering.

10. Transfer of seat

Cross-border mergers and divisions are already provided for in Danish law, but the new act will further make it possible for a company to move its registered seat in or out of Denmark, if that is acceptable to the other Member State affected by the move.[100] The registered seat of a company provides its link to the Member State and thereby determines the applicable company law.[101] A company moving its registered seat out of Denmark will cease to be Danish.[102] Conversely, a company moving its registered seat into Denmark will become a Danish public company (A/S) or private company (ApS) and may have to increase its share capital and otherwise conform to Danish company law. The move itself will not affect the company and it will remain the same legal person after the move as before. Certain safeguards are provided for to secure employee

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[99] On the obligation to disclose major holdings in publicly traded companies, see Article 9 of Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004 on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC.

[100] On cross-border mergers, see the judgment of 13 December 2005 by the EC Court of Justice in Case C-411/03, *SEVIC Systems*, [2005] ECR I-10805.

[101] Cf. Judgement of 28 January 1986 by the EC Court of Justice in Case 270/83, *Commission* v *France*, [1986] ECR 273 at Para. 18.

[102] It should be noted that Denmark does not apply the *Sitztheorie* previously applied in German law prior to the judgement of 5 November 2002 by the EC Court of Justice in Case C-208/00, *Überseering BV v Nordic Construction Company Baumanagement GmbH*, [2002] ECR I-9919, and as such a company may freely move its administrative seat or main business out of Denmark without loosing its Danish nationality. However, the registered seat may not be moved, which was upheld by the EC Court of Justice in its judgement of 16 December 2008 in Case C-210/06, *Cartesio*.

representation and minority shareholders that have opposed the transfer may call for their shares to be redeemed, which are provisions already known from the regulation of cross-border mergers and divisions.

11. Conclusion

The Committee's proposal for a new companies act was an attempt to introduce a whole new legislation, completely rearranging the existing legislation, combining two different acts into one, abolishing well known caveats once thought necessary and introducing a flexibility viewed by some as daring. The purpose was to provide a companies act that would bring Danish law at least on par with the best of other Member States in the European Union.

Although the new act envisaged by the bill now before Parliament may appear unfamiliar when compared to the existing legislation, it may be argued that it is more a collection of what has already been done in Denmark or elsewhere. Indeed, if the new act is passed as is expected, not a single Danish company will have to change its statutes as the bulk of changes consist of options not presently available. It may even be argued that it does not provide true innovation as it might have done had it been submitted to a more prolonged and academic procedure with open hearings and public debates in lieu of the horse-trading done by the Committee's members. That, however, may turn out to be its major strength. By accepting almost all of Committee's proposals in its bill, the Government appears to have judged it has sufficient backing among the leading actors of the Danish business environment that formed the Committee to make it a viable reform. The anxiety displayed by the legislators at the first hearing of the bill in Parliament may result in an abandonment of the proposed relaxation of the capital requirements applicable to private companies. If that happens, the new act will probably fail to prevent the increased use of foreign private companies with more lenient capital requirements that the Committee sought to achieve. Despite this failure, which appears to be more a failure of nerve than a long term policy choice, the new act will provide a flexibility that brings it on line with the most modern companies acts in most other respects.

Since nothing human is ever perfect, and since the upheaval of reform is in itself a major obstacle to success, perhaps this carefully negotiated reform will succeed in providing a companies act at the forefront of company law in the European Union as envisioned. New amendments will probably be necessary within a few years, e.g. in respect of the minimum share capital requirement for private companies or in respect of new financial instruments that have survived the present crisis and proved their value. The new act then will not be a monolith to be left untouched for generations to come, but a sound foundation for keeping up with the rest.

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"CORPORATE GOVERNANCE IN BANKS: ANTI-CRISIS PARADIGMS" A NEW INSTITUTIONAL OUTLOOK

Publishing house Virtus Interpress and Ukrainian Academy of Banking in September 2009 launched a new research project – "Corporate Governance in Banks: anti-crisis paradigms" A new institutional outlook. The main objective of the project is to investigate the main concepts and models of corporate governance in banks, and the recent problems the banks of the world faced since the financial crisis has started in 2008. We have already composed the academic group of contributors. These are 54 experts in corporate governance in banks representing 25 countries of the world. The group of contributors is represented by such experts as Harold Black, Tracei Woidtke (USA), Wei Rowe (China), Stefan Prigge, Matthias Köhler (Germany), Alex Kostyuk (Ukraine), Marina Brogi, Giacomo Nocera, Brunella Bruno (Italy), Johanna Palmberg (Sweden), Fumiko Takeda, Kaoru Hosono(Japan), Agnieszka Golebiowska (Poland), José António Cadima Ribeiro (Brazil), Rodlofo Apreda (Argentina), Carmen Galve (Spain), Anete Pajuste (Latvia), Theo Lynn (Ireland), David Tripe (New Zealand), Carlos Pombo (Colombia), Rashidah Abdul Rahman (Malaysia), Canan Yildirim (Turkey), Grace Liao (Taiwan), Ambika Pati (India), Pongsak Hoontrakul (Thailand) and other experts. In the context of the project we are going to publish a book and describe the corporate governance practices of banks from 25 countries of the world. General content of the book (for each country explored) is following:

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