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Postal Address:

Postal Box 36
Sumy 40014
Ukraine

Tel: +380-542-698125
Fax: +380-542-698125
e-mail: alex_kostyuk@virtusinterpress.org
www.virtusinterpress.org

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Почтовый ящик 36
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Украина

Тел.: 38-542-698125
Факс: 38-542-698125
эл. почта: alex_kostyuk@virtusinterpress.org
www.virtusinterpress.org

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EDITORIAL

Dear readers!

The recent issue of the journal *Corporate Ownership and Control* pays attention to issues of executive compensation, investments risks management, corporate audit issues, corporate codes etc. Board of directors issues and peculiarities of corporate governance in developing countries are also under the scope of researches. More detailed issues are given below.

Gurmeet Singh Bhabra and Chris Wood explore the shareholder wealth impact of proxy contests and find that over the three years preceding the contest, target stock prices significantly underperform their industry peers. *Marco Maria Mattei's* study shows that both the intensity of earnings management for tax purposes and the effect of regional tax compliance are more material for small firms. *J. Young* aims to provide guidelines to corporate organisations during the setting of a realistic operational risk appetite statement that could add value during the pursuance of business objectives within the approved tolerance levels.

Shafi Mohamad, Mary Hendrick, Conor O'Leary and Peter Best develops a model of IT competences boards should have, to achieve appropriate IT governance; the model is then pilot tested, using Ireland as a case study, to evaluate two issues. *Andrea Tomo, Alessandro Hinna, Danila Scarozza, Ernesto De Nito and Gianluigi Mangia* try to understand how external factors and pressures can influence board composition and board interaction. *Merwe Oberholzer* investigates that there is no statistically significant difference between the remuneration of efficient and inefficient CEOs of large and small companies, but for medium-sized companies, the inefficient CEOs are statistically significantly higher remunerated. *Shirley Mo-Ching Yeung* identifies the elements for developing creativity in a learning organization; and this is important for the sustainability of different kinds of organizations in the business world.

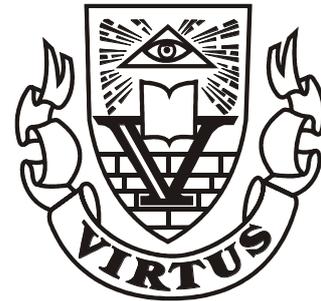
Poh-Ling Ho and Grantley Taylor highlight the importance of an effective governance regime and concentrated ownership structure in reducing information asymmetry and agency costs and thereby enhancing the level of voluntary disclosures. *Ravichandran K. Subramaniam, Mohammed Shaiban and Susela Devi K. Suppiah* find that growth opportunities is associated with less dividends payouts and that this relationship is weaker for Bumiputera ethnic controlled firms. *Tianxiang Xu and Yujie Zhao* find that information asymmetry, proportion of state owned share and risk are the mainly determinants of IPO underpricing in China.

We hope that you will enjoy reading the journal and in future we will receive new papers, outlining the most important issues and best practices of corporate governance!

CORPORATE OWNERSHIP & CONTROL

VOLUME 12, ISSUE 1, AUTUMN 2014

CONTENTS



EDITORIAL 4

SECTION 1. ACADEMIC INVESTIGATIONS AND CONCEPTS

AGENCY CONFLICTS AND THE WEALTH EFFECTS OF PROXY CONTESTS 8

Gurmeet Singh Bhabra, Chris Wood

In this paper authors examine the shareholder wealth impact of proxy contests and find that over the three years preceding the contest, target stock prices significantly underperform their industry peers. In addition, consistent with the monitoring role of proxy contests, the announcement and full contest periods result in a positive stock price reaction suggesting that the market views the initiation of a proxy contest as good news.

REGIONAL TAX COMPLIANCE AND TAX MOTIVATED EARNINGS MANAGEMENT: EVIDENCE FROM THE 2008 ITALIAN TAX REFORM 31

Marco Maria Mattei

The author investigates whether regional tax compliance affects earnings management activity in response to a decrease in the corporate tax rate and finds evidence that the higher the regional tax compliance where the company is based, the less managers engage in tax motivated earnings management. Finally, sensitivity tests show that both the intensity of earnings management for tax purposes and the effect of regional tax compliance are more material for small firms.

PRACTICAL GUIDELINES TO FORMULATE AN OPERATIONAL RISK APPETITE STATEMENT FOR CORPORATE ORGANISATIONS: A SOUTH AFRICAN PERSPECTIVE 46

J. Young

The paper approaches a risk appetite statement from an operational risk perspective, which could serve as a platform for other risk types. Therefore, the significance of this research aims to provide guidelines to corporate organisations during the setting of a realistic operational risk appetite statement that could add value during the pursuance of business objectives within the approved tolerance levels.

SECTION 2. CORPORATE BOARD PRACTICES

DEVELOPING A MODEL TO EVALUATE THE INFORMATION TECHNOLOGY COMPETENCE OF BOARDS OF DIRECTORS

63

Shafi Mohamad, Mary Hendrick, Conor O'Leary, Peter Best

This paper develops a model of IT competences boards should have, to achieve appropriate IT governance. The model is then pilot tested, using Ireland as a case study, to evaluate two issues. Firstly, whether these are the appropriate competences current boards need and second, whether boards appear to have those competences. A survey was completed by Chief Information Officers (CIOs) of Irish listed companies. Results indicate the model is an appropriate method with which to evaluate board IT competence, and companies in Ireland appear to be at a satisfactory competence level. The significance of the research is that the model can now be used to evaluate board IT competence in other jurisdictions. Furthermore comparisons of managements' evaluations and boards' evaluations can be assessed.

CHALLENGING GOVERNANCE BETWEEN INTERNAL AND EXTERNAL ACTORS: A RESOURCE DEPENDENCE APPROACH FOR STUDYING BOARD DYNAMICS AND INTERACTIONS

75

Andrea Tomo, Alessandro Hinna, Danila Scarozza, Ernesto De Nito, Gianluigi Mangia

The authors aim to investigate continuation of a previous systematic research conducted few years ago by some of the authors (Hinna et al. 2010, 2014). In order to focus on the need to deepen the study on board dynamics in public organizations, this study presents an overview of international literature regarding boards in public organizations, in order to evidence if, and in which terms "board dynamics and interactions" has been a topic of research in public governance in recent years. Then, using a resource dependence approach the paper tries to understand how external factors and pressures can influence board composition and board interaction. The results will contribute and provide suggestions to further research on board dynamics in public organizations.

ARE EFFICIENT CEOs HIGHER REMUNERATED? A DATA ENVELOPMENT ANALYSIS OF SELECTED JOHANNESBURG SECURITY EXCHANGE COMPANIES

92

Merwe Oberholzer

The author aims to determine whether there is a difference in remuneration of CEOs who are efficient and inefficient, as estimated by data envelopment analysis. A sample of 167 Johannesburg Stock Exchange-listed companies, divided into large, medium and small, from the industrial and resource sectors is empirically investigated. According to the Student t test, the study found that there is no statistically significant difference between the remuneration of efficient and inefficient CEOs of large and small companies, but for medium-sized companies, the inefficient CEOs are statistically significantly higher remunerated.

LESSON LEARNT FROM QUALITY CEO – CREATIVITY DEVELOPMENT FOR LEARNING ORGANIZATION WITH IMPACTS

105

Shirley Mo-Ching Yeung

The purpose of this paper is to explore the factors to develop creativity for building a learning organization. Methods of developing creativity from a quality CEO have also been investigated. This paper draws conclusions from a qualitative content analysis with reporting on the CEO of Apple in 2011 to identify the key factors for a quality CEO to develop creativity. The paper details the elements for developing creativity in a learning organization; and this is important for the sustainability of different kinds of organizations in the business world.

SECTION 3. CORPORATE GOVERNANCE IN DEVELOPING COUNTRIES

THE IMPACT OF GOVERNANCE AND OWNERSHIP STRUCTURE ON DISCLOSURE PATTERNS TRANSCENDING MAJOR REGULATORY CHANGE IN MALAYSIA

114

Poh-Ling Ho, Grantley Taylor

This study intends to investigate the extent of voluntary disclosures between 2006 and 2009 that transcends major regulatory and governance changes in Malaysia and to assess the association between strength of corporate governance structure, and ownership structure on the extent of voluntary disclosures of Malaysian listed firms over that period. Firms with concentrated ownership structure are associated with more extensive voluntary disclosures. These findings highlight the importance of an effective governance regime and concentrated ownership structure in reducing information asymmetry and agency costs and thereby enhancing the level of voluntary disclosures. These findings also have practical implications for policy-makers, analysts, auditors and regulators in Malaysia as well as East Asian countries.

GROWTH OPPORTUNITIES AND DIVIDEND POLICY: SOME EVIDENCE ON THE ROLE OF ETHNICITY IN AN EMERGING ECONOMY

126

Ravichandran K. Subramaniam, Mohammed Shaiban, Susela Devi K. Suppiah

This article examines the association between growth opportunities and dividend payouts and moderates the relationship between growth opportunities and dividend payouts. The sample consisted of the Malaysian top 300 public listed companies (in terms of market capitalization) for a period from 2004 to 2011. Based on a specified selection process, the sample contained 1330 firm-year observations, after excluding firms with missing data. This paper finds that growth opportunities is associated with less dividends payouts and that this relationship is weaker for Bumiputera ethnic controlled firms. Furthermore, the results show that this negative association exists only for non-Government Linked Controlled firms.

AN EMPIRICAL STUDY OF IPO UNDERPRICING: EVIDENCE FROM CHINESE STOCK MARKET

139

Tianxiang Xu, Yujie Zhao

This article is conducted for the question why Chinese IPO are so heavily underpriced and the determinants of IPO underpricing, also the possibility of IPO be underpriced in China. We confirm again that Chinese IPOs are heavily underpriced and the average underpricing level is about 110%. Further, Chinese IPO will experience a negative short term return starting from 10 days after listing, and there are significantly different characteristics for state owned IPOs and private IPOs. This study finds that information asymmetry, proportion of state owned share and risk are the mainly determinants of IPO underpricing in China.

SUBSCRIPTION DETAILS

153



AGENCY CONFLICTS AND THE WEALTH EFFECTS OF PROXY CONTESTS

*Gurmeet Singh Bhabra**, *Chris Wood***

Abstract

We examine the shareholder wealth impact of proxy contests and find that over the three years preceding the contest, target stock prices significantly underperform their industry peers. In addition, consistent with the monitoring role of proxy contests, the announcement and full contest periods result in a positive stock price reaction suggesting that the market views the initiation of a proxy contest as good news. Interesting differences emerge between firms in which dissidents win seats and those where they do not win seats. While target firm stock prices appreciate for all firms at the announcement, such wealth gains are permanent only for the subsample of targets which not only are afflicted with elevated levels of agency problems but also make significant reduction in discretionary expenditures. When dissidents do not win seats, no attempt to reduce agency costs is apparent, and as a result, these firms experience a sustained wealth loss over the years surrounding the contest. The steps taken to reduce agency costs primarily in firms in which dissidents win seats suggests that proxy contests fulfil their intended role of disciplining the board and improve firm performance.

Keywords: Agency Conflicts, Shareholder Wealth Impact, Agency Costs

This paper is based on a Master of Commerce thesis submitted by Chris Wood. The paper has benefitted from comments received from Scott Linn. The usual disclaimer applies.

* Department of Accountancy and Finance School of Business, University of Otago Dunedin, New Zealand

Email: gurmeet.bhabra@otago.ac.nz

** Department of Accountancy and Finance School of Business, University of Otago Dunedin, New Zealand

1. Introduction

Strong and effective corporate governance has become a central issue for companies, shareholders and regulators over the last couple of decades, especially in light of the high profile governance failures during the Asian financial crisis of 1997-98 and the more recent bankruptcies of Enron and World Com leading to significant shareholder losses. The destructive effects of agency conflicts and corporate fraud arising out of a separation of

ownership from control has therefore assumed centre stage in recent years highlighting the need for better regulatory oversight and tighter governance. This increased awareness has manifested in increased shareholder activism in monitoring managers. In this paper we examine the role of proxy contests as one such corporate control arrangement designed to mitigate agency conflicts. Dodd and Warner (1983) hypothesise that proxy contests are a good way to transfer corporate resources to higher valued users. We examine

whether proxy contests do in fact facilitate changes at the target firm and whether such changes result in increased shareholder wealth.

In the United States, shareholder activism is an integral part of corporate governance practice and is an important form of expression of what shareholders demand from those entrusted with the management of their wealth. Proxy contests are a mechanism through which shareholders who disagree (the 'dissidents') with the incumbent board and management, or have concerns about the performance of the firm may engage in a proxy fight. The primary aim of dissidents is to gain seats on the board in order to enact changes within the target firm and potentially limit the divergence of the interests of agents (the board and management) and principals (shareholders).

Existing literature is largely inconclusive in its findings vis-à-vis the reasons for initiating proxy contests and the outcome of such contests. For example, in the period preceding the contest Dodd and Warner (1983) and DeAngelo (1988) find that stock prices increase, while Ikenberry and Lakonishok (1993) report significantly negative stock price performance. However, in the post-contest period, much of the past literature finds that firms in which dissidents win seats actually under-perform relative to firms in which dissidents do not win seats. Borstadt and Zwirlein (1992) and Ikenberry and Lakonishok (1993) find that firms in which the dissidents win seats experience highly negative and statistically significant abnormal returns after contest resolution, yet firms in which the dissidents fail to gain a seat experience insignificant returns over the same period. This is puzzling since proxy contests in which the dissidents win seats on the board should experience significantly higher abnormal returns than those in which dissidents do not win any seats. On the contrary, however, Mulherin and Poulsen (1997) find that firms where dissidents win seats tend to replace management and restructure the firm resulting in a positive and significant wealth appreciation. Collectively these studies suggest that the wealth effect of proxy contests remains an unanswered question.

In the spirit of Safieddine and Titman (1999) and Mulherin and Poulsen (1997), we extend prior research by examining changes made by target firms subsequent to the proxy contest. Specifically, we posit that managers may feel vulnerable by the mere fact that a proxy contest has occurred potentially resulting in an increase in the probability of the firm subsequently becoming a takeover target and this may trigger alteration of capital structures in ways that would reduce the likelihood of repeat takeover attempts. Analytical models developed in Zweibel (1996) and Novaes and Zingales (1995) show that managers use debt more as a potent antitakeover device rather than to

increase shareholder welfare while Garvey and Hanka (1999) show that adoption of second generation antitakeover amendments induce firms to reduce debt. However, while debt has the potential to entrench managers, it also has the potential to increase performance pressure on managers due to the increased threat of default. Therefore, in an attempt to stave off financial distress, management may reduce discretionary expenditures thereby increasing efficiency.

Consistent with prior research, we find that for the full sample of proxy contests the mere initiation of a contest results in a positive and significant stock price response over the announcement period while abnormal returns over the post-announcement period are statistically insignificant. In addition, we also find that after the contest resolution, all firms increase their leverage ratios. However, only firms in which dissidents win seats and that subsequently reduce both capital expenditures and research and development expenditure experience significantly positive abnormal returns. These findings suggest that only the firms where dissidents win seats on the board take value enhancing restructuring measures such as reducing capital expenditure and research and development expenditures sufficiently to reduce agency problems.

In an effort to examine the direct role of proxy contests in mitigating agency conflicts we also examine long-run performance of subsamples of firms where targets are afflicted with varying degrees of agency conflicts. In the subsample where dissidents win seats we observe a sustained wealth appreciation resulting primarily from a reduction in capital and research and development expenditures. In sharp contrast, when dissidents do not win seats, no attempt to reduce agency costs is apparent and, as a result, these firms experience a sustained wealth loss over the years following the contest. All our results are robust to the use of different pre and post-contest time periods and to the use of alternative investment opportunity proxies.

The remainder of this paper is set out as follows: Section 2 gives a brief overview of the proxy process. Section 3 details and justifies the hypotheses tested in this study. Section 4 describes the data collection process and the characteristics exhibited by the data. Section 5 describes the event study methodologies employed to measure both short and long term shareholder wealth effects. Section 6 contains the presentation and discussion of our primary results while section 7 contains results of several robustness tests. Section 8 concludes the paper

2. The Proxy Process

The proxy contest process is governed by Section 14(a) of the 1934 Securities and Exchange Commission (SEC) Act which sets out strict

guidelines that must be adhered to by both the dissidents and the incumbents engaging in a proxy contest.

The proxy process itself can be broken down into three main areas: initiation, solicitation, and voting. The initiation process begins with the dissidents deciding that something has to be done about the poor performance of the firm, namely through the replacement of some or all of the incumbent board. In order to replace the board, a shareholder vote must take place just prior to a shareholders' meeting the results of which are announced at that meeting (usually at the annual shareholder meeting). However, if the regular shareholder meeting is not scheduled for some months, the dissidents may attempt to call a special meeting at which the proxy contest results are formally announced. The right for a group of shareholders to call a special meeting is governed by the firm charter and state incorporation laws¹.

Prior to the SEC Proxy Disclosure rule changes in 1991 dissidents had to announce their intentions to the SEC and the market by filing a Schedule 14A form before contacting any shareholders. However, the rule change now permits dissidents to contact shareholders even before announcing their intentions to the SEC². This allows dissident shareholders to canvas other shareholders for their views prior to formally announcing their intentions.

The solicitation process involves both the incumbents and the dissidents contacting shareholders to convince them of the merits of voting for/against the proxy proposal. Both the dissidents and management often hire proxy firms to carry out this part of the proxy process. These proxy firms contact shareholders through a variety of mediums including newspaper advertisements, mailings and telephone conversations to try and convince them of the merits of voting for their client's position.

The 1991 SEC rule changes have meant that it has become much easier for the dissidents to mount a proxy challenge. Before the rule changes, the incumbent board had the upper hand in the solicitation process, as dissidents found that extracting shareholder details from the firm was a tedious process, often leading to court battles. The 1991 rule change has made it compulsory for the firm to provide full access to shareholder details. This has made the solicitation process much smoother and has removed some of the major advantages that the incumbent board enjoyed over challengers.

Finally, in the last stage, the voting process, shareholders are mailed out proxies that enable

them to cast a vote on the proposed board changes. Generally, one share in the firm entitles the holder to one vote in the proxy fight. However, in some instances, certain share types may have special voting rights entitling the bearer to a higher (or lower) number of votes per share³. Once shareholders have voted, the proxies are then mailed to a designated collector who counts the votes and submits the results to the firm just before the proposed meeting date. The results of the proxy contest are then announced at the shareholder meeting. If the dissidents are successful, the board changes become effective immediately.

Due to the complexity of each of these stages, a proxy contest can be very expensive to initiate due to various costs, including professional fees for the hiring of proxy solicitors and attorneys; communication costs, including printing and mailing of information to shareholders; litigation costs; and other fees, such as vote tabulation costs.

3. Hypotheses development

Proxy contests are usually initiated when dissidents believe that the decline in firm performance is primarily driven by management inefficiency or the result of a heightened level of agency conflicts. The primary objective of dissidents in such contests is to gain seats on the board which would then enable them to take an active role in improving management. To achieve this objective, dissidents must convince shareholders that there has been a substantial decline in performance and that a change in the board (and hence management direction) will increase the performance and value of the firm. This is typically done by waging a campaign that publicises multiple facts "that collectively raise doubts about incumbents' performance" (DeAngelo and DeAngelo, 1989).

Manne (1965) hypothesises that proxy contests occur in response to poor management and that targets are likely to exhibit deterioration in performance prior to initiation of the contest. Using operating income before depreciation, Ikenberry and Lakonishok (1993) find that firms that are the subject of proxy contest substantially underperform control firms by 28.3%. They also report significantly negative performance for a number of other accounting variables including net sales, cash flow and dividends. However, the proxy contest literature is divided on target stock price performance prior to the contest announcement since Dodd and Warner (1983) document an appreciation in stock price. Given these conflicting results, we therefore test the following hypothesis:

¹ Many companies have attempted to pass an amendment to their corporate charter to limit shareholders' rights to call such a meeting.

² See Kaplan (1997) or Pound (1992).

³ For example, many companies specify that preference shares have no attached voting rights.

H1: Firms involved in a proxy contest exhibit significantly negative abnormal returns in the period prior to the initiation of the contest.

Given the deterioration in performance and the dissidents' beliefs that this performance can be improved, the initiation of such a contest should send a positive signal to the market, "reflecting a rise in both the market value of the vote and the discounted value of the potential gain in the underlying share interest if the outsider wins" (Manne, 1965). Bradley, Desai and Kim (1983) suggest that, even if the outsider doesn't eventually win, the fact that a proxy contest has occurred may result in increased firm performance due to more prudent management and decision making thereby reducing agency costs and increasing firm efficiency. As Dodd and Warner (1983) state, proxy contests "are a way of transferring corporate resources to higher valued users". In line with this argument, empirical evidence shows positive abnormal returns around both the announcement and full contest periods. Although this evidence agrees on the stock price reaction over these periods, we use an updated sample (34% of our sample is from the most recent period and this is not examined in prior research) to re-examine this hypothesis in order to test whether more recent proxy contests still evoke such market response. Thus, we test the following hypothesis:

H2: Firms subject to a proxy contest will experience positive abnormal returns around the contest announcement period and over the full contest period.

The efficient market hypothesis (EMH) states that zero abnormal returns should be earned following the proxy contest announcement, as all relevant information regarding the contest is impounded into stock prices at the announcement. Except for Ikenberry and Lakonishok (1993), who find a barely significant negative abnormal return of -17.24% over the post-contest period, no prior studies have found significant abnormal returns following contest resolution. In addition, most prior empirical research which agrees that firms experience zero abnormal returns following a proxy contest was completed before the development of current, more widely accepted methodologies for long-term event studies with Mulherin and Poulsen (1997) being the only exception although even they only investigate a one-year period following the contest resolution, a period arguably too short to reflect the full value of the changes made by a successful acquirer. Maksimovic and Titman and Safieddine and Titman (1999) argue that capital structure changes (especially debt) can change a firm's incentives by boosting short-run profits through cutting costs at the expense of long-run reputation and profits hence examining

performance may not reflect the true value of contest-related changes. Ikenberry and Lakonishok (1993) and Borstadt and Zvirlein (1992) show that a large part of the shareholder wealth effect occurs over the period that extends beyond 12 months post contest resolution. For example, Ikenberry and Lakonishok (1993) report -7.78% abnormal returns 12 months after the proxy contest which deteriorate to -18.43% by the 36th month post contest resolution. Therefore we believe that the longer post-contest period of three years needs to be used to allow for contest-specific structural changes to be impounded into firm value. This leads us to test the following hypothesis:

H3: Firms will experience zero abnormal returns over a three-year period following the contest resolution.

The next group of hypotheses analyse subsamples to determine whether the value creation results from all contests or is instead driven primarily by those contests in which other firm-specific changes are made subsequent to the contest. For example, it may be the case that the dissidents need only acquire one or more board seats in order to motivate changes within the firm that will result in a turnaround in performance. In other words, partial success may be all that the dissidents need to gain control of the board. Therefore firms in which the dissidents are successful in gaining at least one board seat may experience significantly higher positive abnormal returns throughout the contest period and in the post-contest period than those firms in which dissidents fail to gain any board seats. Therefore, we test the following hypothesis:

H4: Firms where dissidents win seats on the board will experience more positive abnormal returns in the post-contest period than those in which dissidents fail to gain any board seats.

Prior research on the long-term effects of proxy contests has mainly focused on successful contests, and there has been little on firms involved in a failed contest. After a failed proxy contest, management may feel threatened by the fact that a proxy contest has occurred and that another potential acquirer may attempt to acquire the firm. Saffiedine and Titman (1999) find that targets of failed acquisition attempts implement significant capital structure and investment policy changes to ward off future acquisition attempts. Jensen (1986) posits that takeover targets tend to be of two types: firms with high free cash flows and firms with poor management. Management of both these types are likely to make value-destroying investments. To decrease this over-investment and potentially increase the value of the firm, management can

increase dividends, repurchase stock or increase debt. As Jensen (1986) points out, these have the effect of reducing the amount of cash flow that managers have under their control, hence reducing managers' ability to over-invest in projects returning less than the cost of capital. However, repurchasing stock and increasing dividends are non-binding and may not result in a substantial decrease in agency conflicts.

On the contrary, an increase in leverage bonds managers to their promise to pay out future cash flows since failure to meet debt obligations may lead to bankruptcy. Therefore, higher debt forces managers to seek higher profits through efficiency improvements rather than risk sacrificing their job through the possibility of bankruptcy (Grossman and Hart, 1982). Thus, increasing leverage reduces the agency costs of free cash flow by reducing managerial discretion over the firm's future cash flows thereby increasing efficiency. Indeed, Lang, Ofek and Stulz (1996) provide evidence that over-investment can be restricted by increasing firm leverage. Therefore, consistent with Saffiedine and Titman (1999), because of the increased threat faced by incumbent managers after a failed proxy contest, managers may increase leverage to fend off potential acquirers. Safieddine and Titman (1999) find that firms that increase leverage more than the median experience positive abnormal performance over a five-year period following a failed takeover attempt, while those that fail to increase leverage report significantly lower returns.

Models developed in Novaes and Zingales (1995) and Zweibel (1996) show that leverage has potential to entrench management. In fact Garvey and Hanka (1999) empirically demonstrate that managers of firms in states that adopted the Second Generation of Antitakeover statutes responded by significantly lower debt levels suggesting that debt previously was employed to guard against takeover threats. Therefore, for increased leverage to have any beneficial effects, firms must also make value enhancing investment policy changes. One way to increase the efficiency of a firm is to undertake restructuring such as cuts in discretionary capital expenditure or the sale or liquidation of major divisions. These events usually lead firms to increase focus on core activities. Cuts in expenditure and the liquidation or sale of assets have been shown to have a positive effect on both long-term stockholder wealth and operating performance measures, as they enable the firm to focus on employing the remaining assets more profitably (Daley et al., 1997; Desai and Jain, 1999; Megginson et al., 2003). Safieddine and Titman (1999) find that firms that increase their leverage ratios the most also reduce capital expenditures, research and development expenditure, sell assets and increase focus. Therefore, we test the following hypothesis:

H5: Firms inflicted with higher degrees of agency conflicts will exhibit higher stock price performance upon decrease in discretionary investment expenditures post contest resolution.

4. Description of Data

Proxy contest announcements over the period starting December 1987 and ending April 2000 were extracted from the Securities Data Corporation (SDC) Proxy Fight database. This search resulted in an initial sample of 419 firms with a clearly identifiable contest announcement date and other pertinent contest specific information. Daily and monthly stock returns and returns on the market index were obtained from the Centre for Research in Security Prices (CRSP) database, while the Compustat database was the source of all firm specific accounting information.

From our initial sample of 419 firms, 48 were dropped because the proxy fight was not for board seats and an additional 25 were dropped due to lack of stock price data around the announcement and contest resolution dates. This left a total of 346 sample firms (the "full sample") with sufficient market and financial data to permit examination of stock price reaction around the proxy contest. A second sample (the "restricted sample") was also created to allow examination of long-run stock price performance, as well as analysis of capital structure and capital expenditure changes subsequent to the contest resolution⁴. The restricted sample has fewer firms than the full sample because of the more stringent data requirements imposed on it to allow for analysis over an extended time period post contest. Stock price performance and capital structure and expenditure changes were examined for a period starting three years before the contest announcement through to three years following the contest resolution⁵. Therefore, measurement of the long-run stock price performance requires that firms have stock price data on CRSP for a seven year period surrounding the proxy contest⁶. The study of capital structure changes requires firms to have data on Compustat for total assets, total debt, shares outstanding, book value of common equity, operating income before depreciation, income tax, interest expense, dividends on preferred and

⁴ The restricted sample was also used to estimate the stock price reaction surrounding the proxy contest announcement and resolution dates in order to compare results with the full sample

⁵ The reason a three-year horizon is used instead of a five-year horizon is due to the substantial number of firms lost when the sample period is extended any further. The results for the extended time period are similar; however, substantial power is lost in subsample analyses with the reduced sample size.

⁶ The three years before the contest announcement, the year of the announcement and three years after contest resolution.

common stock and the liquidating value of the firm's outstanding preferred stock for the same seven year period surrounding the proxy contest⁷. Therefore, starting with the 346 firms in the full sample, 87 were dropped due to insufficient stock price data to permit a long-term analysis and a further 101 firms were dropped because of insufficient Compustat data. This left us with a final restricted sample of 158 firms.

Table 1 reports the annual distribution of proxy contests. The incidence of contests is highest in the late 1980s and early 1990s, with a gradual decline over the mid to late 1990s⁸. This decline could be due to a number of factors including the large merger wave and stricter corporate governance practices in place over this period. The sustained bull market in the 1990s along with the fifth merger wave which began in approximately 1993 and the explosive growth in performance based compensation may have reduced the need for external disciplining that proxy contests provide⁹. Kaplan (1997) posits that boards and managers in the 1990s have applied the insights and strengths from the 1980s LBOs and, as a result, less activism on the part of shareholders is needed to keep companies in line¹⁰.

There is no real discernable pattern in the mean equity values over time for either the full or the restricted sample. However, the median equity values show a slightly increasing trend over the mid- 1990s with a slight decrease towards the end of the sample period. The mean (median) equity value of \$608.3 million (\$52.8 million) for the full sample and \$781 million (\$55.1 million) for the restricted sample are substantially higher than that of the \$354 million reported by Mulherin and Poulsen (1997) and the \$278.8 million (\$33.8 million) as reported by Borstadt and Zwirlein (1992).

Table 2 reports a number of important attributes of the firms in our sample. The median contest length for the full sample is 51 days while that for the restricted sample is 43 days. The median dissident stake for firms in the full sample at the time of the proxy contest announcement is 9.5%, which is similar to that of firms in the restricted sample (median of 9.4%) and that reported in Borstadt and Zwirlein (1992), Ikenberry and Lakonishok (1993), and Mulherin and Poulsen (1997).

DeAngelo (1988) points out that a high degree of industry clustering would suggest that industry-

wide poor performance might be an important factor in proxy contests. However, in untabulated results we find that although the majority of firms involved in a proxy battle happen to be asset intensive (66% of the full sample and 77% of the restricted sample when the sample is split on a one-digit SIC code) there is a striking lack of any industry clustering¹¹. The full sample reports 50 different two digit SIC codes for the 346 firms (an average of 7 firms to each two-digit SIC code), with the highest incidence of 25 firms occurring between SIC codes 3800-3900 (measuring, analysing, and controlling instruments; photographic, medical and optical goods; watches and clocks), 6000-6100 (depository institutions) and 7800-7900 (motion pictures). In addition, these contests are spread over the entire sample period, with the highest incidence being three contests in one year. The restricted sample shows even less industry concentration with 39 different two digit SIC codes for the 158 sample firms, an average of four firms per two-digit SIC code¹². This lack of industry clustering is similar to results reported by DeAngelo (1988) and helps confirm his conjecture that proxy contests might be harder to wage in troubled industries as incumbents maybe able to convince shareholders that poor firm performance is due to industry-wide factors and hence beyond management's control.

5. Development of methodology

All prior studies with the exception of Mulherin and Poulsen (1997) measure long-run stock price performance using the traditional cumulative abnormal returns which has a number of problems including serial dependence and non-normality of abnormal returns, new-listing bias, rebalancing bias and skewness bias. This methodology predates the development of current methodologies for long-run event studies. In fact, even Mulherin and Poulsen (1997) uses a methodology which does not control for cross-sectional dependence in sample observations. We employ the Lyon, Barber and Tsai (1999) methodology which circumvents many of the econometric problems encountered with the use of cumulative abnormal returns to compute long-run performance post contest resolution.

In addition, Mulherin and Poulsen (1997) only study the effect of proxy contests for a one-year period following the contest resolution. Ikenberry and Lakonishok (1993) and Borstadt and Zwirlein show that the majority of shareholder wealth effects occur in the period greater than one year

⁷ All of these variables are measured at the fiscal year end.

⁸ The small number of observations in the year 2000 is due to the sample period ending in April 2000.

⁹ See Gaughan (2000).

¹⁰ The insights from the 1980s LBOs include imposing a cost of capital on management, increasing the use of contingent compensation and pressuring boards to become more active. See Kaplan (1997) for a more in depth discussion.

¹¹ Asset intensive firms are defined as those with an SIC code of less than 6000. Firms with SIC codes greater than 6000 are generally much less asset intensive.

¹² The highest incidence of proxy contests for the restricted sample is in SIC codes 2800-2900 (chemicals and allied products) and 7300-7400 (business services). Again, further inspection reveals that these contests are spread over the entire sample period.

post contest resolution. For example, Ikenberry and Lakonishok (1993) report a -7.78% stock price performance over the twelve months post contest resolution which drops to -18.43% by the end of 36 months. In this research, we extend the post-contest period out to three years, as this will better determine any long-run effects of the proxy contest on shareholder-wealth.

Duvall and Austin (1965) state that a proxy contest results from “shareholders who are dissatisfied with inept management and wish to install new management to instigate reforms and potentially employ the resources of the firm more profitably” which implies that the majority of shareholder wealth effects of a proxy contest may result from firms that undergo some form of restructuring. Mulherin and Poulsen (1997) is the only study that looks at the wealth effects of restructuring and even their focus is solely on asset sales, while other forms of restructuring such as changes in ownership, board composition and capital structure changes are not taken into account. Following Saffiedine and Titman (1999), we also focus on the changes in capital structure and investment policies post contest.

In addition, we also investigate whether firms in our sample reduce capital expenditure and/or research and development expenditure. Jensen’s free cash flow theory suggests that proxy contests should limit the divergence of the agents’ (the board of governors and management) actions from the principals’ (shareholders’) best interests through a decrease in over-investment. We posit that this decrease in over-investment will be shown through decreases in research and development and capital expenditures. This analysis of leverage, capital expenditure, and research and development expenditure changes makes the longer post-contest period of three years especially important, as Maksimovic and Titman (1991) argue that these changes can change a firm’s incentives by boosting short-run profits by cutting costs at the expense of long-run reputation and profits. Therefore, to gauge the actual gains from the proxy contest, a long time period must be examined following the contest resolution.

5.1 Long-Run Abnormal Stock Returns

Barber and Lyon (1997) raise concerns over the use of cumulative abnormal returns (CARs) and a reference portfolio since comparing CARs to a reference portfolio comprised of a market index may result in a positive bias leading to rejection of the null hypothesis more often than is theoretically predicted. Barber and Lyon identify new-listing, rebalancing, and the skewness biases as primary causes affecting long-run studies. The new-listing bias arises because new firms may enter the market subsequent to the event month, hence affecting the

returns on the reference portfolio. The bias results from the difference in performance of newly-listed firms and the market. If these newly listed firms underperform the market, the return on the reference portfolio will be dragged down, resulting in an overstatement of the abnormal returns leading to the researcher erroneously concluding that sample firms earned positive abnormal returns. Likewise, if the new listings out-perform the market, the return on the reference portfolio will increase, understating the sample firms’ abnormal returns. Ritter (1991) finds that firms that go public substantially under-perform an equally weighted index and Barber and Lyon (1997) point out that these firms are likely to make up a substantial proportion of newly-listed firms. Hence, newly-listed firms are likely to drag returns of reference portfolios down, causing overstatement of sample firms’ abnormal returns.

The rebalancing bias occurs because the returns of the sample firms are compounded without rebalancing while the returns on the reference portfolio are usually calculated using monthly rebalancing. In the example of an equally-weighted reference portfolio, monthly rebalancing is used to maintain equal weights for each firm within the portfolio. Likewise, for value-weighted portfolios, rebalancing is used to maintain the correct weightings for individual companies within the portfolio. Finally, skewness bias results because some sample firms may experience large positive returns, while it is highly unlikely that the reference portfolio will experience a similar sized positive return.

Barber and Lyon (1997), Kothari and Warner (1997), and Lyon et al. (1999) believe that the aforementioned biases in traditional methodologies can result in grossly miss-specified test statistics¹³. Barber and Lyon (1997) also document a correlation between the magnitude of the bias and the time horizon of the study. As our long-run study encompasses a three-year period following contest resolution, these biases become especially important. To correct for these biases, Lyon et al. suggest the use of two different approaches that yield well-specified test statistics in most instances.

The first approach uses the simple buy and hold abnormal returns (BHAR) with carefully constructed reference portfolios that are free of the rebalancing, new listing and skewness biases. However, this approach does not control for two additional sources of misspecification pointed out by Kothari and Warner (1997) and Mitchell and Stafford (2000) namely, cross-sectional dependence in sample observations and a poorly specified asset

¹³ For studies that focus on actual corporate events, rather than theoretical papers, see Ritter (1991), Loughran and Ritter (1995), Ikenberry, Lakonishok and Vermaelen (1995), Speiss and Affleck-Graves (1995) or Michaely, Thaler and Womack (1995)

pricing model. Cross-sectional dependence occurs because many of the sample firms overlap in calendar time, resulting in an overstatement of the actual number of independent observations¹⁴. The problem of a poorly specified asset pricing model, commonly known as the joint-test problem, occurs because the model used to generate expected returns may only be an imperfect description of such returns. Hence the measure of abnormal returns may include the effects of both stock mispricing and model misspecification¹⁵. Despite these disadvantages, the BHAR methodology has the advantage that it precisely measures investor experience (see Barber and Lyon, 1997).

The second approach uses a variant of the calendar time abnormal returns (CTAR) method first used by Jaffe (1974) and Mandelker (1974). This method has a number of advantages over both cumulative and buy-and-hold abnormal returns. First, CTARs eliminate the cross-sectional dependence problem, as sample firms are aggregated into a single portfolio. By aggregating sample firms into a single portfolio, the cross-sectional correlations of individual firms can be taken into account in the portfolio variance. As individual event firm abnormal returns are cross-sectionally correlated (see Mitchell and Stafford, 2000), this methodology represents a strong improvement over traditional CARs and BHARs which assume independence of individual-firm abnormal returns. Second, as Lyon et al. (1999) and Mitchell and Stafford (2000) point out, the CTAR methods yield more robust test statistics than the traditional approaches of CARs and BHARs.

One disadvantage with the CTAR approach is that it does not precisely measure investor experience because of the way abnormal returns are calculated. Lyon et al. (1999), Loughran and Ritter (2000) and Mitchell and Stafford (2000) also point out a number of other potential problems with this method. First, Mitchell and Stafford (2000) explain that the number of firms in the calendar-time portfolio is likely to vary from month to month and that events tend to cluster through time by industry. Thus, the portfolio may be weighted towards certain industries at different points in time which may cause biased estimates. However, this seems to present no concern for our sample since the samples in this study show a striking lack of industry clustering through time.

Second, the changing number of firms in the monthly portfolio over time may introduce heteroskedasticity into the model as the variance and standard errors are related to the number of firms in the portfolio. A common correction to this problem and the one supported by Lyon et al. is the use of weighted least squares. This approach uses a

weighting factor based on the number of firms in the portfolio in each calendar month.

Third, Loughran and Ritter (2000) point out that if the calendar-time approach is used with equal weighting in each calendar month, months with large numbers of contests will be treated the same as months with a smaller number of event firms. If there is a differential in performance between periods of high and low activity, the CTAR method is less likely to uncover any abnormal performance. Mitchell and Stafford (2000) discount this possibility as they find evidence that is inconsistent with the Loughran and Ritter (2000) hypothesis that abnormal performance is related to the intensity of event activity. If in fact this relationship does exist, the use of weighted least squares should substantially reduce any possible bias.

Finally, Loughran and Ritter (2000) also raise the concern that CTARs have low power in detecting abnormal performance and conjecture that BHAR have greater power in this regard. However, Mitchell and Stafford (2000) show that CTAR portfolios have substantially more power to detect abnormal performance than BHARs. Due to the significance of the cross-sectional dependence bias as discussed by Cowan and Sergeant (1996), Brav (1997) and Mitchell and Stafford, and the fact that the above potential problems can be easily mitigated, we measure long-run stock price performance using the CTAR approach.

This study uses the Fama-French variant of the CTAR method as suggested by Mitchell and Stafford (2000) and Lyon et al. (1999)¹⁶. For each calendar month, a portfolio of firms that have undergone a proxy contest in the previous three years is formed. This portfolio is rebalanced monthly to add firms that have just reached the end of a proxy contest and drop firms that have reached the end of the three-year post-contest period. The return on this portfolio is then estimated using the following regression:

$$R_{pt} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + \beta_{si}SMB_t + \beta_{hi}HML_t + \epsilon_{it} \quad (1)$$

where R_{pt} is the monthly return on the calendar-time portfolio, R_{ft} is the monthly return on three-month Treasury Bills, R_{mt} is the return on a value-weighted market index, SMB_t is the difference in the returns of value-weighted portfolios of small and big stocks and HML_t is the difference in returns between value-weighted portfolios of high book-to-market and low book-to-market stocks¹⁷.

¹⁶ For past research that uses this methodology, see for e.g., Brav and Gompers (1997), Agrawal and Jaffe (2003), Gompers and Lerner (2003) or Eberhart, Maxwell and Siddique (2004).

¹⁷ For a more indepth discussion of the importance of these factors, see Fama and French (1992). These data were collected from Kenneth French's website.

¹⁴ For more detailed information, see Brav et al. (2000) or Bernard (1987).

¹⁵ See Fama (1970).

6. Results and discussion

6.1 Shareholder Wealth Effects

Shareholder wealth effects over a three-year period prior to the contest announcement, around the proxy contest period and over a three-year period following contest resolution are reported in panel B of Table 3¹⁸. Consistent with the market discipline hypothesis, and as postulated in hypothesis H1, we find that firms that become targets of proxy contest experience a period of poor performance leading up to the initiation of the contest. Our full sample exhibits a significantly negative CTAR of -25.92% (t-statistic of -2.65) for the three years preceding the contest.

When the sample is partitioned by contest outcome, the subsample of 70 firms where dissidents win seats exhibits a negative and significant CTAR of -34.20% (t-statistic of -2.08), while the 88 firms where dissidents do not win seats experience a slightly lower negative, but significant CTAR of -19.44% (t-statistic of -1.62). This poorer performance exhibited by the dissidents that win seats is expected, as the poorer the performance of a firm prior to the proxy contest, the stronger the dissidents' case should be for a change in the board and, hence, the greater the chance they should have of gaining board seats. However, this finding is reversed when the sample is split between contests where the dissidents succeed and those where they do not succeed in gaining the number of board seats originally sought after. When the dissidents succeed in winning the intended number of seats (35 firms), the CTAR for the three-year period prior to the proxy contest is a negative but insignificant -20.16%. When dissidents do not gain the desired number of board seats (123 firms), the CTAR is a significantly negative -27.00% (t-statistic of -2.70). This finding is interesting, because if there is a relationship between the dissidents' success in a proxy contest and prior performance, it is expected that the relationship would be stronger for the cases in which dissidents succeed in gaining the desired number of board seats.

The theory of the firm suggests that proxy contests should have a significant effect on shareholder wealth, as they allow shareholders to impose their will on the target firms. Therefore, the announcement of a proxy contest should be met with a positive reaction by the market. Panel A of Table 3 shows that for both the full and restricted samples, we find significantly positive abnormal returns of 8.90% (z-statistic of 8.95) and 9.19% (z-statistic of 5.30) respectively over the

announcement period. The subsamples, based on whether dissidents win or do not win seats, whether dissidents succeed or do not succeed, and whether dissidents successfully take over the firm or not, all exhibit similar significantly positive abnormal returns over the announcement period¹⁹. These results support our second hypothesis that firms subject to a proxy contest experience positive abnormal returns around the contest announcement. They are also consistent with the findings in Bradley, Desai and Kim (1983), suggesting that even if dissidents do not eventually win, a proxy contest may result in increased firm performance due to increased pressure from shareholders and other third parties, resulting in reduced agency costs. However, it is interesting to note that the subsamples when dissidents do not win and dissidents do not succeed show slightly higher positive abnormal returns than those where dissidents win and dissidents succeed in winning the desired number of seats.

The post-announcement period represents the period between the proxy contest announcement and resolution. For both the full and restricted samples, no significant abnormal performance is found for the full sample and several subsamples. The only significant result is for the sample of firms that go through with a successful tender offer which shows a positive and significant postannouncement period of returns 3.42% (z-statistic of 2.86). However, the subsamples over the same period within the restricted sample show more interesting results. For the group of firms where the dissidents win seats the abnormal return of 6.30% is significantly different (a t-statistic of difference in means of 1.77) from the negative wealth effect experienced by the firms in which dissidents do not win seats. Likewise, when dissidents succeed in gaining the desired number of board seats the abnormal returns are significantly higher (a t-statistic of difference in means of 1.65) than when dissidents do not succeed. These results suggest that information released over the post-announcement period allows the market to differentiate between firms in which dissidents are likely to succeed from those in which they are not. In addition, the full contest period reports abnormal returns for the full and restricted samples of 6.68% (z-statistic of 4.68) and 7.65% (z-statistic of respectively. Results for the full sample show that returns when dissidents win seats and when dissidents succeed and those for successful takeover subsamples are higher than the corresponding unsuccessful subsamples.

The subsamples derived from the restricted sample show similar, albeit slightly stronger

¹⁸ All results reported in this table we computed using equally-weighted averages. These results were replicated using value-weighted averages with no material effect

¹⁹ This definition of the announcement period (20 days prior to the contest announcement until five days post announcement) is the same as that specified by Mulherin and Poulsen (1997). Results are also generated for a number of different periods as in prior research and the results are empirically the same

relationships. The 70 firms where dissidents win seats exhibit significantly positive abnormal returns of 11.31% (z-statistic of 2.54) while the dissidents 'do not win' subsample shows a slightly lower but still significantly positive abnormal return of 4.73% (z-statistic of 1.31). However, there are no significant differences between any of the subsamples within the restricted sample. This is surprising, as it is expected that a successful proxy contest (either where the dissidents 'win' seats or where dissidents are successful in gaining the stated number of board seats originally sought) should result in substantially higher abnormal returns due to the replacement of some (or all) of the underperforming board and the subsequent improvement in firm performance. However, this finding is similar to the results of prior research (see, for e.g., Dodd and Warner, 1983; Ikenberry and Lakonishok, 1993; Mulherin and Poulsen, 1997). Collectively these findings support our second hypothesis that firms subject to a proxy contest experience positive abnormal returns around the contest announcement and over the full contest period.

Over the three years following the contest, the Efficient Market hypothesis (EMH) states that, on average, firms should not earn any abnormal returns as all relevant contest-specific information should already be impounded into the price. Consistent with this, we find that the restricted sample exhibits a negative but insignificant return of -4.68%. Similar results are obtained when results are partitioned by outcome where the dissidents 'win seats' subsample exhibits a negative but insignificant CTAR of -20.16%, while the dissidents 'do not win seats' subsample experiences a positive but insignificant CTAR of 5.04%. In addition, similar pattern is observed when the dissidents 'succeed' and 'do not succeed' subsamples are examined. For the 35 firms where the dissidents succeed, a negative but insignificant CTAR of -5.76% is found, while the dissidents 'do not succeed' subsample exhibits a negative and insignificant CTAR of -2.52%. Overall, this analysis supports our third hypothesis that in the post-contest period firms, on average, experience zero abnormal returns in the three years following the proxy contest.

6.2 Agency Costs, Free Cash Flows, Capital Expenditure and R&D Expenditure

Descriptive analysis of the data suggests that firms that were targets of a proxy fight were prone to overinvestment prior to the initiation of the contest. Results presented in Table 4 show that both categories of discretionary expenditures were higher for the sample firms than their corresponding industry peers (average capital expenditures to book value of assets of 11.05%

versus 4.92% for the industry peers and R&D over book assets of 6.35% versus 4.0% for industry peers). Similar trend is observed when the sample is split into firms that win board seats versus those that do not. These results suggest that potential acquirers could unlock sufficient upside value through reduction in capital and R&D expenditures. Saffidiene and Titman (1999) show that targets of failed acquisitions not only make capital structure changes but those that earn significant long-term abnormal returns also reduce discretionary expenditure.

As hypothesized in H5, the potential to generate gains through reduction in expenditures will be greatest for those targets where dissidents not only win seats but also suffer from high degrees of agency costs of free cash flow. To examine this, we split the restricted sample into four subsamples based on free cashflow and Tobin's Q one year prior to the contest announcement. Classifying firms as per Jensen (1986), the subsample containing firms with free cash flows greater than the sample median and a Tobin's Q less than one would represent firms with the highest level of agency problems (the "high-agency" subsample) while the subsample with free cash flows less than the sample median and a Tobin's Q greater than one would represent firms with the lowest level of agency problems (the "low-agency" subsample).

Panel A of Table 5 contains abnormal returns for the high- and low-agency subsamples. Theory and intuition suggest that prior to contest initiation firms with higher degrees of agency problems should display poorer performance relative to those with the lower agency problems. Consistent with this, results in Table 5 show that firms in the high-agency subsample experience a stock price performance of -42.40% (t-statistic of -2.56) in the three years prior to the contest initiation while those in the low-agency subsample earn a positive but insignificant CTAR of 30.96%.

The announcement of a proxy contest should, however, result in higher abnormal return for the subsample with the highest agency problems due to the greater benefit such firms are likely to derive from the proxy contest through reduction in agency costs. Indeed, over the announcement period, the high-agency subsample exhibits a statistically significant and positive abnormal return of 8.13% (z-statistic of 3.81), while the low-agency subsample exhibits a positive but insignificant abnormal return of 7.39%. Over the post-announcement period, results in Table 5 report a negative and significant abnormal return of -5.12% for the high-agency subsample, while returns for the the low- agency subsample are insignificantly different from zero. This result is surprising as no negative abnormal performance is expected over the post-announcement period, especially for the high- agency subsample. This leaves positive but

insignificant abnormal returns over the full contest period of 1.46% and 1.06% for the high-agency and low-agency subsamples respectively. Over the post-contest period, the high-agency subsample exhibits a significantly negative CTAR of -21.24%, while the low-agency subsample exhibits a positive but insignificant CTAR of 4.32%. Overall, the high-agency subsample exhibits significantly negative abnormal return performance in the years surrounding the proxy contest, while the low-agency subsample exhibits positive but insignificant abnormal returns over the same period.

In the three years following contest resolution, the two subsamples that increase expenditure less than the median exhibit higher CTARs than that for the subsample of firms that increase expenditure greater than the median. Specifically, the subsample of firms that increase capital expenditure greater than the sample median experiences a highly negative and significant CTAR of -52.20% (t-statistic of -2.02), while the sample with capital expenditure increase less than the median exhibits a positive but insignificant CTAR of 14.40%. In addition, firms that increase research and development expenditure greater than the median exhibit a negative but insignificant CTAR of -24.12% while those that increase research and development expenditure less than the median exhibit a positive and significant CTAR of 95.76% (t-statistic of 2.67). Intuitively these findings make sense, as firms that have taken steps to reduce agency problems and potential over-investment by reducing capital expenditure, and research and development expenditures, exhibit substantially better performance than firms in which no action is taken to reduce the high level of agency problems arising out of overinvestment. A quick correlation check reveals that 76% of the firms that increase capital expenditures less than the median and 72% of the firms that increase research and development expenditures less than the median are firms in which dissidents win seats. This suggests that the majority of the positive effects of a reduction in agency problems come from firms in which the dissidents win seats on the board.

To examine this further, the high-agency subsample was further divided into firms in which dissidents win/do not win seats. These two subsamples show strong results that help support the above contention. Over the pre contest period, the dissidents 'win' and 'do not win' subsamples exhibit significantly negative CTARs of -40.32% (t-statistic of -2.04) and -26.64% (t-statistic of -) respectively. The greater negative CTAR for the subsample where dissidents win seats suggests that firms with the highest incidence of agency problems are firms in which dissidents tend to win seats. This agrees with intuition because it is expected that dissidents will be able to build a

much stronger case against the current board and management when severe agency problems are present; hence the dissidents should have a much higher chance of winning seats. The announcement period shows significantly positive abnormal returns for both subsamples, illustrating that the announcement of a proxy contest is taken as good news by the market. For the post-announcement period, the dissidents 'win seats' subsample experiences a positive but insignificant abnormal return of 1.99%, while the dissidents 'do not win seats' subsample experiences a negative and significant abnormal return of -9.87% (z-statistic of -1.78). This negative abnormal return in the post-announcement period suggests that, as more information about the contest is released, the market may realise that the dissidents may not gain any seats on the board and hence there is unlikely to be any reduction in agency problems. This results in a full contest abnormal return for the dissidents 'do not win' subsample of a negative, but insignificant 1.68% as the gains from the announcement period disappear in the post-announcement period when it becomes clear that the dissidents may not attain any seats. Surprisingly however, the dissidents 'win seats' subsample shows a positive but insignificant return over the same period of 5.81%.

However, substantial differences exist in the post resolution performance of both subsamples. For firms in which the dissidents win seats, the three year CTAR post contest resolution is a negative but insignificant -19.08%, while the dissidents 'do not win seats' subsample experiences a highly negative and significant CTAR of -37.44%. Therefore, reviewing the years surrounding the proxy contest, firms in which the dissidents gain seats experience zero abnormal returns, while the firms in which dissidents do not win seat' experience substantial negative abnormal returns. These results, along with the correlation check between dissidents 'win seats' and capital expenditure, and research and development expenditure reductions, show that the majority of the positive effects of a reduction in agency problems come from firms in which dissidents win seats on the board, forcing changes that help reduce potential over-investment by management.

Overall, our results show that firms involved in a proxy contest exhibit significantly negative performance in the three years prior to the contest announcement. When the dissidents announce that they are going to mount a proxy fight, there is a significantly positive stock price reaction, indicating that the market sees the launch of a proxy contest as a good chance to improve the poor performance. After the contest resolution, firms in which dissidents win seats as well as those in which dissidents do not win seats increase their leverage ratios to discourage potential acquirers from

mounting a takeover bid. As well as discouraging any takeover bids, this increase in leverage serves to discipline the board and management by forcing them to increase the efficiency of the firm or face the possibility of bankruptcy. Interesting differences exist between the cases in which dissidents win seats and those in which dissidents do not win seats particularly among firms in which agency problems are the highest. For firms in which dissidents win seats, long term price performance matches that of control firms. It bears to reflect on the past performance of these firms where abnormal performance was significantly lower than that of their peers over the three years preceding the contest initiation. On the contrary, when dissidents do not win seats, no attempt to reduce agency costs is apparent and, as a result, these firms experience sustained wealth depreciation over the years surrounding a proxy contest.

7. Robustness tests

In this section, we examine the robustness of our primary results to test for stability of the results under the following conditions. First, does the requirement that firms must have three years of data available on the CRSP and Compustat affect our results? Second, how sensitive are the results to different variable specifications?

7.1 Basic Event Study Results

Table 6 reports the basic event study results using one, three and five-year samples. The sample sizes vary due to the different conditions placed on each sample. The one-year sample (295 firms) requires firms to have data available on the CRSP and Compustat databases for a period starting one year prior to the contest announcement and ending one year after the contest resolution. The three-year sample (158 firms) is the same as the restricted sample used in the results section above which requires data to be available on CRSP and Compustat for the three years prior to the contest announcement until three years post-contest. Finally, the five-year sample (102 firms) requires firms to have data available on CRSP and Compustat for the period beginning five years prior to the contest announcement and ending five years after the contest resolution.

As reported earlier, all three samples show that a proxy contest is preceded by a period of poor prior performance. Five years before the proxy contest announcement, sample firms experience a negative and statistically significant CTAR of -19.80% (t-statistic of -1.78). This increases to a negative and statistically significant CTAR of -25.92% (t-statistic of -2.65) three years before the contest and then slightly decreases to a negative but statistically significant CTAR of -23.40% (t-

statistic of -2.99) in the year before the proxy contest announcement.

Over the announcement period, the one year sample reports a positive and statistically significant abnormal return of 8.27% (z-statistic of 7.37), while the five year sample reports a similar positive and statistically significant abnormal return of 7.15% (z-statistic of 3.54). Both samples display results similar to the three-year (restricted) sample which reports a positive and statistically significant abnormal return of 9.19% (z-statistic of 5.50).

Over the post-announcement period, the one-year sample reports a positive but statistically insignificant abnormal return of 0.69%, while the five-year sample reports a similarly positive but insignificant abnormal return of 2.25%. Both exhibit similar abnormal returns to the positive but statistically insignificant abnormal return of 1.78%, as reported for the restricted sample.

For the full contest period, the one-year sample reports a positive and statistically significant abnormal return of 6.29% (z-statistic of 3.66). The restricted sample exhibits a positive and statistically significant abnormal return of 7.65% (z-statistic of 2.67), while the five-year sample reports a positive and statistically significant abnormal return of 6.69% (z-statistic of 2.34). Both samples report similar findings in both magnitude and significance to those reported for the restricted sample earlier.

Collectively these results suggest that our analysis is robust to the use of different pre and post contest time periods. They also show that the poor performance of a firm prior to a proxy contest occurs over an extended period of time (at least five years). This result is similar to the five year pre-contest performance of -34.40% reported in Ikenberry and Lakonishok (1993).

7.2 Agency Cost and Event Study Results

The agency cost results presented in Section 6 above were obtained using the restricted (three-year) sample. In Tables 7 and 8 we replicate these results using one and five-year time periods respectively. Results in Panels A of these tables generally concur with results reported in Panel A of Table 5 suggesting that our primary results are not sensitive to the choice of the time period over which firm performance is measured. The only place where these results differ is over the post-contest period, where both the one-year and five-year samples report statistically insignificant results for the high- and low-agency subsamples. This differs from the three-year sample, which reports a negative and significant -21.24% (t-statistic of -1.68) for the high-agency subsample. One possible explanation for the difference between the three-year and one-year samples could be that a

one-year post-contest period is not long enough for changes made subsequent to the proxy contest to take full effect (see Ikenberry, Lakonishok and Vermaelen, 1995; Loughran and Ritter, 1995; Maksimovic and Titman 1991) while difference between the five-year and three-year samples may be due to the substantially reduced sample size in the five-year case, causing a loss of power in some of the statistical tests.

Panel B in Tables 7 and 8 report various subsamples created from the high-agency subsample. The one-year sample exhibits very similar results over the pre-contest and contest periods to those reported for the three-year sample. However, differences appear in the post-contest periods. For the subsample of firms which increase capital expenditure to book value more than the median, the three-year sample reports a negative and statistically significant CTAR of -52.20% (t-statistic of -2.02), while the one-year sample exhibits a negative but insignificant CTAR of -11.52%. Differences are also found between the research and development expenditure change less than the median subsamples where the one-year sample exhibits a negative but insignificant CTAR of -3.24%, while the restricted sample experiences a positive and statistically significant CTAR of 95.78% (z-statistic of 2.67). As previously discussed, the most probable reason for these differences is that the one-year subsample does not permit sufficient time for changes that have occurred subsequent to the proxy contest to take effect. The most interesting result to come from Table 7 is that the sample of firms where dissidents do not win seats shows a negative and significant CTAR of -31.68% (t-statistic of -1.66) over the post-contest period. This suggests that the market correctly anticipates those firms in which dissidents do not win seats and subsequently increase capital and research and development expenditure.

For the five-year sample, similar returns to those reported for the restricted sample reported earlier are obtained with some differences in the pre and post-contest periods. For example, within the high-agency subsample, the subsample in which dissidents win in Table 5 reports a negative and statistically significant CTAR of -40.32% (t-statistic of -2.04), while Table 8 reports a negative but statistically insignificant CTAR of -10.80%. However, as previously pointed out, the differences between the one and five-year samples are most probably due to the small sample sizes exhibited in Table 8.

Overall, our primary results with respect to the wealth effects of proxy contests in firms afflicted with varying degrees of agency conflicts seem robust to the choice of alternative time periods to measure firm performance. Results with alternative time periods confirm that the majority of the positive effects of a reduction in agency problems

come from firms in which dissidents win seats on the board who subsequently force changes that help reduce over-investment.

7.3 Free Cash Flow and the Market to Book Ratio

Finally we test for robustness of our primary results vis-à-vis agency conflicts and the disciplinary changes brought about by proxy contests by employing an alternative proxy for investment opportunities. Adam and Goyal (2004) study a broad range of growth proxies using a sample of gold mining companies and find that the market-to-book ratio has the highest information content with respect to future investment opportunities. Similar results are reported in Kallapur and Trombley (1999) who also study a wide variety of growth proxies and find that the market-to-book ratio is most highly correlated with future growth (see also for e.g., Smith and Watts, 1992).

Results reported in Table 9 replicate the high-agency subsample results for the dissidents 'win' and 'do not win' subsamples as reported in Table 5, using market-to-book ratio in place of Tobin's Q. As in results reported earlier in Table 5, in the pre-contest period sample firms exhibit negative and statistically significant CTARs of -46.44% (t-statistic of -2.44) and -27.00% (t-statistic of -1.99) for the dissidents 'win' and 'do not win' subsamples respectively. The greater negative CTAR in the dissidents 'win' subsample reinforces our earlier contention that firms with the highest incidence of agency problems are those in which the dissidents tend to win board seats.

Consistent with our primary results in Table 5, the announcement of a proxy contest in firms with elevated levels of agency conflicts results in significantly positive abnormal returns for both subsamples, suggesting that the announcement of a proxy contest is interpreted as good news by the market. The dissidents 'win' subsample exhibits a positive and statistically significant abnormal return of 6.73% (z-statistic of 2.40) while the dissidents 'do not win' subsample exhibits a similar positive and statistically significant abnormal return of 6.17% (z-statistic of 2.52). Similar results are obtained for the post-announcement period where the dissidents 'win seats' subsample exhibits a positive but statistically insignificant abnormal return of 2.37%, while the dissidents 'do not win seats' subsample experiences a negative but insignificant abnormal return of -5.22%. The full contest period results remain insignificant. Finally, consistent with findings reported in Table 5, over the post-contest period, the dissidents' 'win' subsample exhibits a negative but insignificant CTAR of -42.84% while the dissidents 'do not win' subsample exhibits a negative and significant CTAR of -23.04% (t-statistic of -1.73). Overall,

results reported in Table 9 are very similar to those reported in Table 5, and thus confirm that our results are robust to the use of alternative specifications of the sensitive and important growth proxy.

8. Conclusions

Proxy contests are an important corporate control mechanism at the disposal of designed to enable a dissident group to seek board seats in order to support their particular issue or concern - usually poor firm performance, resulting from poor direction or decision making from the board of governors. Existing literature however reports inconsistent findings as to the reasons for initiation and the outcome of such contests. Theory and accepted wisdom suggests that a proxy contest should be preceded by a period of poor performance. Inconsistent with this theory, Dodd and Warner (1983) and DeAngelo (1988) find that stock prices actually increase. However, a more recent study by Ikenberry and Lakonishok (1993) reports significantly negative stock price performance up to five years prior to the proxy contest. In the post-contest period, much of the existing literature finds that firms in which dissidents 'win' seats actually under-perform relative to firms in which dissidents 'do not win' seats. Borstadt and Zwirlein (1992) and Ikenberry and Lakonishok (1993) find that firms in which the dissidents 'win' seats experience highly negative and statistically significant abnormal returns after contest resolution, yet firms in which the dissidents fail to gain a seat experience insignificant returns over the same period. This is inconsistent with theory which suggests that proxy contests in which the dissidents 'win' seats on the board should experience significantly higher abnormal returns than those in which dissidents 'do not win' any seats. The exception in the literature is Mulherin and Poulsen (1997), who find that firms where dissidents 'win' seats tend to replace management and restructure the firm, resulting in a positive and significant abnormal return.

Using new and improved methodology for the measurement of long run abnormal stock returns that was not available in the earlier proxy contest studies we examine the effects of proxy contests on shareholder wealth. Our primary objective is to uncover the source of target wealth effects. Consistent with Ikenberry and Lakonishok (1993) and our stated hypotheses, we find that firms involved in proxy contests exhibit significantly negative performance in the three years prior to the contest announcement. The announcement of a proxy contest results in a significantly positive stock price reaction, indicating that the market sees the advent of a proxy contest as a good opportunity to improve firm performance. A positive reaction is

also observed over the full contest period, suggesting that regardless of whether dissidents win board seats or not, the mere appearance of a contest results in stock price improvement.

There are, however, differences in performance of firms in which dissidents win and do not win seats over the three years after the contest resolution. Similar to theoretical predictions in Novaes and Zingales (1995) and Zweibel (1996) and empirical findings in Safieddine and Titman (1999), we find that following a proxy contest firms increase leverage in order to shield against potential acquirers. This increase in leverage also serves to increase managerial discipline thus making the firm more efficient.

Contrary to predictions in the past literature, we find that proxy contests do indeed serve their intended purpose of disciplining managers and bringing about policy changes to improve firm performance. For example, in the sample of firms with elevated levels of agency conflicts, only those contests in which dissidents win seats increase their leverage ratios significantly above industry averages post resolution. In addition to the leverage change, firms that increase capital expenditure and research and development expenditure less than the median, exhibit positive and significant returns over the post-contest period while those that increase discretionary expenditures more than the median, exhibit significantly negative abnormal returns over the same post-contest period. When dissidents do not win seats, no attempt to reduce agency costs is apparent and as a result, these firms experience sustained wealth depreciation over the years surrounding a proxy contest. This suggests that only those firms in which dissidents win seats reduce capital and research and development expenditures sufficiently to reduce agency problems. Overall, we find that proxy contests do serve their intended purpose of disciplining the board and improving firm performance. This research shows that proxy contests are a very effective external disciplining mechanism, and should therefore become an increasingly important and central part of corporate governance over time.

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Table 1. Annual Distribution of Proxy Contests

The following table contains the frequency distribution of proxy contests for both the full and the restricted samples. Mean and median market equity values are also reported and are calculated as the number of shares outstanding (Compustat variable CSHO) multiplied by the share price (Compustat variable PRCCF) and are reported in millions of US Dollars.

Year	Full Sample		Restricted Sample	
	# Contests	Mean (Median) Equity Value	# Contests	Mean (Median) Equity Value
1988	26	623.3 (31.0)	10	679.9 (49.3)
1989	49	324.1 (57.1)	14	314.8 (69.7)
1990	48	381.1 (33.3)	26	450.7 (44.0)
1991	26	925.3 (30.8)	13	1327.7 (45.0)
1992	36	2168.9 (62.0)	20	2863.5 (50.6)
1993	20	58.4 (22.82)	12	56.7 (19.2)
1994	24	173.3 (56.3)	11	279.1 (124.2)
1995	31	261.8 (102.6)	13	268.5 (122.4)
1996	12	650.1 (109.3)	6	703.5 (106.9)
1997	19	519.5 (179.5)	9	400.4 (131.7)
1998	28	606.5 (161.5)	13	760.0 (28.8)
1999	21	79.0 (81.1)	9	71.9 (75.0)
2000	6	24.8 (25.23)	2	25.9 (25.9)
Total	346	608.3 (52.8)	158	781.2 (55.1)

Table 2. Descriptive Statistics for the Proxy Contest Samples

This table reports detailed descriptive statistics for both the full and restricted samples. The results are partitioned into two periods representing the period studied by previous research and that previously unstudied. Panel A reports general information about the firm, while panel B reports attributes associated with the proxy contest and panel C reports governance results from the proxy contests. A full control contest is such that the dissident's goal is to gain a majority of seats on the board, while a partial contest contains all contests not for control. The dissidents 'win seats' variable denotes contests where dissidents are successful in getting at least one of their candidates elected to the board of directors during the proxy contest. A contest is classified as being a success if, at a minimum, the dissidents attained the number of boards seats set

out in the original proxy statement. The takeover bid variable denotes a firm that is subject to a tender offer or merger by the dissident during the contest period. Finally, the takeover success variable denotes that the firm was subsequently acquired by the dissidents following the proxy contest. The market value of equity for each firm is calculated by multiplying the number of common shares outstanding (Compustat variable CSHO) by the share price at the end of the fiscal year (Compustat variable PRCCF) and along with the total asset value are reported in millions of US dollars. The contest length in panel B is reported as the number of days. The takeover bid and acquired percentages are only for those firms where the dissident and not a third party enacted a takeover bid or was successful in acquiring the firm.

	Full Sample			Restricted Sample		
	Total	Subsample by time		Total	Subsample by time	
		1988-1994	1995-2000		1988-1994	1995-2000
Panel A: The Sample # of Contests	346	229	117	158	106	52
Mean (Median) Equity Value	608 (53)	726 (43)	381 (88)	781 (55)	1000 (54)	421 (67)
Mean (Median) Total Assets	2165 (135)	2942 (131)	622 (135)	2877 (115)	3966 (120)	721 (111)
Panel B: Sample Attributes Mean (Median) Dissident Stake	11.4% (9.5%)	11.6% (9.5%)	11.0% (9.5%)	11.5% (9.4%)	11.5% (9.5%)	11.5% (9.3%)
Mean (Median) Contest Length	74 (51)	84 (53)	59 (50)	66 (43)	76 (45)	46 (37)
Contest Type: Full Control Partial Control	192 (55%) 154 (45%)	127 (54%) 102 (46%)	65 (55%) 52 (45%)	90 (57%) 68 (43%)	58 (55%) 48 (45%)	32 (62%) 20 (48%)
Takeover Bid:						
Yes	90 (26%)	70 (30%)	20 (17%)	22 (14%)	20 (19%)	2 (4%)
No	256 (74%)	159 (70%)	97 (83%)	136 (86%)	86 (81%)	50 (94%)
Staggered Board:						
Yes	147 (42%)	9 (43%)	50 (42%)	71 (45%)	50 (47%)	21 (40%)
No	199 (58%)	130 (57%)	67 (58%)	87 (55%)	56 (53%)	31 (60%)
Unequal Voting Rights:						
Yes	80 (23%)	55 (24%)	29 (25%)	40 (25%)	28 (26%)	12 (23%)
No	266 (77%)	174 (76%)	88 (75%)	118 (75%)	78 (74%)	40 (77%)
Panel C: Governance results Dissidents Attain Seats:						
Yes	137 (40%)	95 (41%)	42 (36%)	70 (44%)	49 (46%)	21 (40%)
No	209 (60%)	134 (59%)	75 (64%)	88 (56%)	57 (54%)	31 (60%)
Dissidents Succeed:*						
Yes	81 (23%)	55 (24%)	26 (22%)	35 (22%)	25 (24%)	10 (19%)
No	265 (77%)	174 (76%)	91 (78%)	123 (78%)	81 (76%)	42 (81%)
Acquired:						
Yes	39 (11%)	34 (15%)	5 (4%)	5 (3%)	5 (5%)	0 (0%)
No	307 (89%)	195 (85%)	112 (96%)	153 (97%)	101 (95%)	52 (100%)

* This means dissident succeeded in gaining the number of board seats as set out in the original proxy statement

Table 3. Event Study Results

This table reports event study results for both the full (panel A) and restricted (panel B) samples. For each sample, the results are partitioned into a number of subsamples. The dissidents 'win seats' subsample denotes contests where dissidents are successful in getting at least one of their candidates elected to the board of directors during the proxy contest. The dissident succeed subsample requires, at a minimum, that the dissidents attain the number of boards seats set out in the original proxy statement. The tender offer success subsample denotes those firms that were subsequently acquired

by the dissidents following the proxy contest. The results are broken down into the pre-contest, announcement, post-announcement, full contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z statistic in brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-3 years, -20]	Announcement Period [-20,+5]	Post-Announcement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +3 years]
Panel A: Full sample results						
Full Sample	346	n.a	8.90%	0.44%	6.68%	n.a
			(8.95)***	(0.86)	(4.68)***	
Dissidents Win Seats	137	n.a	6.71%	2.69%	7.67%	n.a
			(4.29)***	(0.86)	(2.95)***	
Dissidents Don't Win Seats	209	n.a	10.33%	-1.02%	6.03%	n.a
			(8.05)***	(0.42)	(3.64)***	
Test for difference in sub-samples			-1.37	1.20	0.5	
Dissidents Succeed	81	n.a	7.25%	2.10%	7.58%	n.a
			(3.26)***	(0.49)	(2.3)**	
Dissidents Don't Succeed	265	n.a	9.40%	-0.06%	6.40%	n.a
			(8.42)***	(0.71)	(4.07)***	
Test for difference in sub-samples			-1.11	1.30	0.94	
Successful Tender Offer	39	n.a	8.08%	3.42%	7.58%	n.a
			(4.62)***	(2.86)***	(2.31)**	
No Successful Tender Offer	307	n.a	9.00%	0.05%	6.40%	n.a
			(7.85)***	(-0.22)	(4.07)***	
Test for difference in sub-samples			-0.32	0.63	0.57	
Panel B: Restricted Sample Results						
Full Sample	158	-25.92%	9.19%	1.78%	7.65%	-4.68%
		(-2.65)***	(5.30)***	(0.48)	(2.67)***	(-0.63)
Dissidents Win Seats	70	-34.20%	8.58%	6.30%	11.31%	-20.16%
		(-2.08)**	(3.52)***	(1.31)*	(2.54)***	(-128)
Dissidents Don't Win Seats	88	-19.44%	9.67%	-1.79%	4.73%	5.04%
		(-1.62)*	(3.96)***	(-0.59)	(1.31)*	(0.67)
Test for difference in sub-samples			-0.28	1.77*	1.28	
Dissidents Succeed	35	-20.16%	7.66%	8.11%	12.08%	-5.76%
		(-0.85)	(1.86)**	(106)	(1.57)*	(-0.63)
Dissidents Don't Succeed	123	-27.00%	9.62%	-0.05%	6.38%	-2.52%
		(-2.70)***	(5.02)***	(-0.08)	(2.18)**	(-0.4)
Test for difference in sub-samples			-0.41	1.65*	1.11	
Successful Tender Offer	5	63% ^a	8.91%	7.32%	10.42%	24.48%
		(129)	(112)	(1.17)	(124)	(0.94)
No Successful Tender Offer	153	-29.52%	9.20%	1.59%	7.56%	-5.76%
		(-3.04)***	(5.18)***	(0.28)	(2.49)***	(-0.57)
Test for difference in sub-samples			-0.04	1.04	0.50	

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

a: This result is mainly driven by 2 firms with very large returns

Table 4. Descriptive Statistics for Leverage and Investment

Summary statistics are presented for the restricted sample (panel A), cases where dissidents win board seats (panel B) and cases where dissidents fail to gain board seats (panel C) for the year immediately preceding the proxy contest announcement. Reported are the mean, median, minimum and maximum of total debt scaled by book value, total debt scaled by market value, research and development expenditure scaled by book value and capital expenditure scaled by book value for sample firms and their industry comparisons. A simple t-test for difference in means and the Wilcoxon signed-rank test are performed to determine whether sample firms' ratios are significantly different from their industry counterparts. The dissidents 'win seats' variable denotes contests where dissidents are successful in getting at least

one of their candidates elected to the board of directors during the proxy contest. Debt to book value is created by dividing total debt (Compustat variable DT) by book value, as measured by total assets (Compustat variable AT). The debt to market value is constructed by dividing total debt by market value of assets, as measured by combining the market value of equity (calculated by multiplying the number of common shares outstanding (Compustat variable CSHO) by the share price at the end of the fiscal year (Compustat variable PRCCF)) with total assets and taking away the book value of equity (Compustat variable CEQ). Finally, capital expenditure to book value is created by dividing capital expenditure (Compustat variable CAPX) by book value.

Variable	Mean	Median	Min	Max	T-test of Wilcoxon Difference in Signed-Rank Means (p-value) Test (p-value)	
Panel A: Restricted Sample						
Debt to Book Value	18.93%	10.13%	0.02%	85.13%	-0.643	-1.461
Industry Debt to Book Value	19.96%	17.92%	0.00%	99.98%	(0.521)	(0.144)
Debt to Market Value	19.53%	13.97%	0.02%	72.48%	1.471	1.398
Industry Debt to Market Value	14.09%	12.83%	0.00%	98.56%	(0.149)	(0.162)
Capex to Book Value	11.05%	5.32%	0.20%	68.36%	5.266***	2.672***
Industry Capex to Book Value	4.92%	4.52%	0.00%	90.38%	(0.000)***	(0.008)***
R&D to Book Value	6.35%	1.80%	0.18%	34.52%	2.298**	-0.075
Industry R&D to Book Value	4.90%	5.56%	0.00%	99.83%	(0.024)**	(0.941)
Panel B: Dissidents Win Seats						
Debt to Book Value	19.72%	11.12%	0.02%	85.13%	0.242	-0.500
Industry Debt to Book Value	18.07%	17.38%	0.00%	99.98%	(0.809)	(0.617)
Debt to Market Value	20.77%	13.95%	0.02%	72.48%	1.569	1.485
Industry Debt to Market Value	14.00%	12.83%	0.00%	98.56%	(0.121)	(0.138)
Capex to Book Value	10.20%	4.72%	0.20%	59.12%	3.179***	1.443
Industry Capex to Book Value	4.83%	4.52%	0.00%	90.38%	(0.002)***	(0.149)
R&D to Book Value	6.88%	1.83%	0.37%	28.40%	2.506**	-0.280
Industry R&D to Book Value	4.80%	2.77%	1.98%	42.15%	(0.016)**	(0.779)
Panel C: Dissidents Do Not Win Seats						
Debt to Book Value	18.30%	10.12%	1.36%	61.28%	-1.202	-1.613
Industry Debt to Book Value	21.29%	17.97%	0.00%	99.98%	(0.232)	(0.107)
Debt to Market Value	18.53%	14.03%	0.56%	65.93%	0.335	0.516
Industry Debt to Market Value	18.08%	12.93%	0.00%	98.56%	(0.739)	(0.606)
Capex to Book Value	11.73%	5.67%	0.26%	70.86%	4.089***	2.247**
Industry Capex to Book Value	6.44%	4.86%	0.00%	90.38%	(0.000)***	(0.025)**
R&D to Book Value	5.84%	1.59%	0.18%	74.94%	1.659*	-0.156
Industry R&D to Book Value	4.80%	4.56%	0.00%	99.83%	(0.097)*	(0.876)

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

Table 5. Event Study for Free Cash Flow and Tobin's Q

This table reports event study results, for a three-year period following the contest resolution, based on free cash flow (FCF) and Tobin's Q in the year prior to the proxy contest announcement. Panel A reports results for the restricted sample, partitioned into four subsamples, however, only the two subsamples of interest are reported. The first subsample includes those firms that have free cash flow greater than the median and a Tobin's Q less than one (the 'high agency cost' subsample) in the year prior to the contest announcement. The second subsample reports those firms that have free cashflow less than the median and a Tobin's Q greater than one (the 'low agency cost' subsample) in the year prior to the contest announcement. Panel B reports results based on the high agency cost subsample, further partitioned into those firms that increase capital expenditure greater and less than the median., firms that increase research and

development expenditure greater and less than the median and firms in which dissidents win or 'do not win seats' on the board. The results are broken down into the pre-contest, announcement, post-announcement, full contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z-statistic in brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified. A t-test is also performed to determine whether there are any differences in mean between subsamples, however, this could not be performed for the pre-contest and post-contest periods.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-3 years, -20]	Annoucement Period [-20,+5]	Post-Annoucement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +3 years]
Panel A: Restricted Sample						
FCF > median and Tobin's Q < 1	55	-42.40%	8.13%	-5.12%	1.46%	-21.24%
		(-2.56)**	(3.81)***	(-1.35)*	(0.51)	(-1.68)**
FCF < median and Tobin's Q > 1	13	30.96	7.39%	-0.04%	1.06%	4.32%
		(0.58)	(0.92)	(-0.48)	(-0.06)	(0.09)
Test for difference in sub-samples			0.11	-0.5	0.045	
Panel B: FCF > median and Tobin's Q < 1						
Capital Expenditure to book value > median	21	-40.68%	10.90%	-6.83%	2.74%	-52.20%
		(-1.71)*	(3.16)***	(-1.17)	(0.49)	(-2.02)**
Capital Expenditure to book	34	-48.60%	6.42%	-4.16%	0.66%	14.40%
		(-2.80)***	(2.37)***	(-0.83)	(0.28)	(0.86)
Test for difference in sub-samples			1.46	-0.22	0.55	
Research and Development Expenditure to book value > median	12	-42.84%	9.12%	-7.92%	-0.98%	-24.12%
		(-2.39)**	(3.60)***	(-1.90)**	(-0.22)	(-1.33)
Research and Development Expenditure to book value < median	43	-24.84	4.60%	6.08%	10.19%	95.76%
		(-0.75)	(1.36)*	(0.80)	(1.58*)	(2.67)***
Test for difference in sub-samples						
Dissidents Win Seats	23	-40.32%	7.64%	1.99%	5.81%	-19.08%
		(-2.04)**	(2.31)**	(0.03)	(0.56)	(-0.97)
Dissidents do not Win Seats	32	-26.64%	8.49%	-9.87%	-1.68%	-37.44%
		(-1.68)*	(3.04)***	(-1.78)**	(0.20)	(-1.73)**
Test for difference in sub-samples			-0.45	1.73*	0.89	

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

Table 6. Event Study Results using Different Post-Contest Periods

This table reports event study results using varying post-contest period definitions. Results are reported using a one, three and five year post-contest periods. The results are broken down into the pre-contest, announcement, post-announcement, full contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z- statistic in

brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified, where n represents the length of the sample period; for example, for the five-year study, n=5.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-n years, -20]	Announcement Period [-20,+5]	Post-Announcement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +n years]
One Year Sample	295	-23.40%	8.27%	0.69%	6.29%	-5.40%
		(-2.99)***	(7.37)***	(0.41)	(3.66)***	(-0.40)
Three Year Sample (Restricted Sample)	158	-25.92%	9.19%	1.78%	7.65%	-4.68%
		(-2.65)***	(5.30)***	(0.48)	(2.67)***	(-0.63)
Five Year Sample	102	-19.80%	7.15%	2.25%	6.69%	14.40%
		(1.78)*	(3.54)***	(1.25)	(2.34)***	(0.7)

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

Table 7. Event Study using Free Cash Flow and Tobin's Q for a One-Year Post-Contest Period

This table reports event study results, for a one-year period following the contest resolution, based on free cash flow and Tobin's Q in the year prior to the proxy contest announcement. Panel A reports results for the restricted sample, partitioned into four subsamples, however, only the two subsamples of interest are reported. The first subsample includes those firms that have free cash flow greater than the median and a Tobin's Q less than one (the 'high agency cost' subsample) in the year prior to the contest announcement. The second subsample reports those firms that have free cash flow less than the median and a Tobin's Q greater than one (the 'low agency cost' subsample) in the year prior to the contest announcement. Panel B reports results based on the high agency cost subsample, further partitioned into those firms that increase capital expenditure greater and less than the median., firms that increase research and

development expenditure greater and less than the median and firms in which dissidents win or do not 'win seats' on the board. The results are broken down into the pre-contest, announcement, post-announcement, full contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z-statistic in brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified. A t-test is also performed to determine whether there are any differences in mean between subsamples, however, this could not be performed for the pre-contest and post-contest periods.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-1 years, -20]	Annoucement Period [-20,+5]	Post-Annoucement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +1 years]
Panel A: One-Year Sample						
FCF > median and Tobin's Q < 1	61	-32.76%	10.16%	-5.59%	2.17%	-13.68%
		(-2.78)***	(4.92)***	(-1.77)**	(0.55)	(-0.85)
FCF < median and Tobin's Q > 1	14	60.48%	5.92%	-11.04%	-16.99%	-43.56%
		(0.88)	(1.03)	(-1.16)	(-1.16)	(-0.89)
Panel B: FCF > median and Tobin's Q < 1						
Capital Expenditure to book value > median	35	-34.92%	11.16%	-2.51%	6.43%	-11.52%
		(-2.14)**	(3.49)***	(-0.66)	(1.04)	(-0.54)
Capital Expenditure to book value < median	34	-29.52%	8.81%	-9.87%	-3.57%	-10.80%
		(-1.70)*	(3.50)***	(-2.05)**	(-0.44)	(-0.39)
Research and Development Expenditure to book value > median	46	-33.48%	11.80%	-7.21%	1.64%	-16.56%
		(-2.58)***	(5.34)***	(-1.67)**	(0.83)	(-0.87)
Research and Development Expenditure to book value < median	15	-30.24%	5.14%	0.22%	3.78%	-12.24%
		(-1.10)	(0.58)	(-0.63)	(-0.40)	(-0.31)
Dissidents Win Seats	27	-38.88%	8.22%	-0.38%	4.44%	-20.52%
		(-2.13)**	(3.08)***	(-0.51)	(0.54)	(-0.67)
Dissidents do not Win Seats	34	-28.44%	11.70%	-9.33%	0.36%	-31.68%
		(-1.74)*	(3.85)***	(-1.90)**	(0.26)	(-1.66)*

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

Table 8. Event Study using Free Cash Flow and Tobin's Q for a Five-Year Post-Contest Period

This table reports event study results, for a five-year period following the contest resolution, based on free cash flow and Tobin's Q in the year prior to the proxy contest announcement. Panel A reports results for the restricted sample, partitioned into four subsamples, however, only the two subsamples of interest are reported. The first subsample includes those firms that have free cash flow greater than the median and a Tobin's Q less than one (the 'high agency cost' subsample) in the year prior to the contest announcement. The second subsample reports those firms that have free cash flow less than the median and a Tobin's Q greater than one (the 'low agency cost' subsample) in the year prior to the contest announcement. Panel B reports results based on the high agency cost subsample, further partitioned into those firms that increase capital expenditure greater and less than the median., firms that increase research and

development expenditure greater and less than the median and firms in which dissidents 'win' or 'do not win seats' on the board. The results are broken down into the pre-contest, announcement, postannouncement, full contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z-statistic in brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified. A t-test is also performed to determine whether there are any differences in mean between subsamples, however, this could not be performed for the pre-contest and post-contest periods.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-5 years, -20]	Annoucement Period [-20,+5]	Post-Annoucement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +5 years]
Panel A: Five-Year Sample						
FCF > median and Tobin's Q < 1	35	-24.12%	4.74%	-7.35%	-3.17%	2.52%
		(-1.67)*	(1.86)**	(-1.35)*	(-0.53)	(0.12)
FCF < median and Tobin's Q > 1	8	-2.52%	3.78%	11.74%	8.31%	13.68%
		(-0.05)	(0.35)	(1.21)	(0.87)	(0.27)
Panel B: FCF > median and Tobin's Q < 1						
Capital Expenditure to book value > median	10	15.48%	2.44%	-13.00%	-11.84%	-73.44%
		(0.52)	(0.88)	(-1.49)*	(-1.18)	(-1.91)*
Capital Expenditure to book value < median	25	-36.00%	5.65%	-4.89%	0.30%	17.28%
		(2.03)**	(1.65)**	(-0.66)	(0.12)	(0.67)
Research and Development Expenditure to book value > median	8	-46.32%	0.62%	2.23%	4.20%	38.52%
		(-1.21)	(0.14)	(0.17)	(0.30)	(0.94)
Research and Development Expenditure to book value < median	27	-16.20%	5.95%	-9.47%	-5.35%	-3.24%
		(-0.97)	(2.04)**	(-1.60)*	(-0.75)	(-0.16)
Dissidents Win Seats	19	-10.80%	4.40%	-13.48%	-8.01%	-19.08%
		(-0.47)	(1.31)*	(-1.60)*	(-0.44)	(-0.72)
Dissidents do not Win Seats	16	-36.72%	5.13%	0.98%	2.57%	8.64%
		(-1.72)*	(1.32)*	(-0.25)	(-0.31)	(0.18)

* Significant at the 10% level of significance ** Significant at the 5% level of significance *** Significant at the 1% level of significance

Table 9. Event Study using Free Cash Flow and Market to Book

This table reports event study results for a subsample based on firms with free cash flow greater than the median and market to book ratio less than one in the year prior to the proxy contest announcement. The dissidents ‘win seats’ subsample denotes contests where dissidents are successful in getting at least one of their candidates elected to the board of directors during the proxy contest. The results are broken down into the pre-contest, announcement, post-announcement, full

contest and post-contest periods. Daily CARs are reported for the announcement period, post-announcement period and full contest periods followed by the corresponding z-statistic in brackets. For the pre-contest and post-contest periods monthly CTARs are reported with the corresponding WLS t-statistic in brackets. The time periods covered by each of these variables are shown in square brackets and are denoted in days unless otherwise specified.

Study	Sample Size	Calendar Time Abnormal Returns	Cumulative Abnormal Returns			Calendar Time Abnormal Returns
		Pre-Contest [-3 years, -20]	Annoucement Period [-20,+5]	Post-Annoucement [+6, resolution]	Full Contest [-20, resolution]	Post-Contest [resolution, +3 years]
Dissidents Win Seats	29	-46.44%	6.73%	2.37%	5.83%	-42.84%
		(-2.44)**	(2.40)***	(0.18)	(0.78)	(-1.43)
Dissidents do not Win Seats	42	-27.00%	6.17%	-5.22%	0.15%	-23.04%
		(-1.99)**	(2.52)***	(-0.40)	(1.02)	(-1.73)**

* Significant at the 10% level of significance
 ** Significant at the 5% level of significance
 *** Significant at the 1% level of significance

REGIONAL TAX COMPLIANCE AND TAX MOTIVATED EARNINGS MANAGEMENT: EVIDENCE FROM THE 2008 ITALIAN TAX REFORM

Marco Maria Mattei*

Abstract

Using a large sample of public and private Italian companies, I investigate whether regional tax compliance affects earnings management activity in response to a decrease in the corporate tax rate. I find evidence that the higher the regional tax compliance where the company is based, the less managers engage in tax motivated earnings management. On the other hand, empirical results do not support the hypothesis that companies with an audit committee manage their earnings less in order to reduce their tax burden. Further analyses, however, show that the presence of an audit committee is relevant when interacted with the regional tax compliance. The impact of regional tax compliance on tax motivated earnings management declines when a company has an audit committee and this suggests a substitution effect between internal and external monitoring mechanisms. Finally, sensitivity tests show that both the intensity of earnings management for tax purposes and the effect of regional tax compliance are more material for small firms.

Keywords: Tax Avoidance, Tax Enforcement, Tax Compliance, Audit Committee, Tax Reform

JEL Classification: M40, H25

* Department of Management, University of Bologna, Via Capo di Lucca, 34, 40126 Bologna (Italy)

Phone: +39 051 2098438

Email: marcomaria.mattei@unibo.it

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1. Introduction

This paper investigates to what extent the geographical differences, measured by regional corporate tax compliance, and corporate governance mandatory requirements affect earnings management in response to a decrease in the corporate tax rate. Moreover, I study the interplay between corporate governance and tax compliance as alternative mechanisms for preventing tax avoidance.

Despite several studies investigating firm-specific determinants of tax avoidance (Hanlon and Heitzman 2010), the effect of geographical differences in corporate tax compliance on tax planning strategies within an homogenous legal setting, that is, within a country, has still been scantily analysed. This is probably due to a lack of reliable analytical data and/or the little or no variation of tax compliance and enforcement mechanisms within several countries. In this void, a relevant contribution is given by Hoopes et al.

(2012) who investigate how the probability of an Internal Revenue Service (IRS) audit affects the tax avoidance of U.S. listed companies. Hoopes et al. find a positive and highly significant relation between IRS audit probability and corporate tax avoidance. Their main estimate of IRS audit probability varies only for asset size group and time, but in further analyses Hoopes et al. use an estimate of the IRS audit probability that also varies across geographical areas (i.e. IRS district). My study differs from Hoopes et al.'s for two reasons. First, my sample comprises not only listed companies, but also private and micro companies which are subject to lower public scrutiny and represent by far the most common type of firm in many countries. In the Annual Report on Small and Medium-sized Enterprises (SMEs) commissioned by the European Commission, it is estimated that in 2012 SMEs accounted for 67% of total employment, 58% of gross value added and 98% of all enterprises (Ecorys 2012). Second, I do not use the probability of an audit by the national revenue

agency (e.g. IRS) to proxy for geographical differences, but the estimates of regional corporate tax evasion provided by a study of the Research Center of the Italian Revenue Agency (Pisani and Polito, 2006a). Pisani and Polito (2006a) argue that the intensity of regional corporate tax evasion is not fully explained by audit probabilities and that there must be several other determinants. The intuition I test, then, is that despite the probability of an internal revenue agency audit, companies within a homogenous geographical area tend to behave similarly.

I exploit the 2008 Italian Tax Reform to analyze how regional differences in the level of enforcement of identical tax laws and mandatory corporate governance requirements affect tax avoidance. In 2007 the Italian government released bill no. 1817 (2008 Tax Reform) according to which the rates of the corporate income tax, namely *Imposta sui Redditi delle Società (IRES)*, and of the Regional Tax on Productive Activities, namely *Imposta Regionale sulle Attività Produttive (IRAP)*, would decrease significantly, starting in the fiscal year following the one in progress on December 31, 2007. At the same time, the government proposed that some expenses would become nondeductible after the reduction in the corporate tax rate. The 2008 Tax Reform created a strong incentive to shift income from the last fiscal year subject to the old tax rates (hereinafter "2007 fiscal year") to the first fiscal year subject to the new tax rates (hereinafter "2008 fiscal year") and this gives me the opportunity to investigate determinants of cross-sectional variation in firms' behavior.

Using a large sample of public and private Italian firms, I test three research hypotheses. First, I hypothesize that the higher the regional corporate tax compliance, the less companies manage earnings in order to shift income from the 2007 to the 2008 fiscal year. Second, I hypothesize that companies that are not required to have an audit committee manage earnings in order to shift income from the 2007 to the 2008 fiscal year more than companies that are required to have an audit committee. Third, I hypothesize that the corporate governance requirements (i.e. the presence of an audit committee) and the regional tax enforcement substitute each other in reducing income shifting from the 2007 to the 2008 fiscal year.

Results of the multivariate analysis show that, in line with my expectation, tax motivated earnings management is more intense in Italian regions characterized by lower tax compliance (i.e. higher tax evasion). Moreover, the role of regional corporate tax compliance seems to be more relevant for the smaller firms in the sample. On the other hand, I do not find evidence that the corporate governance requirements reduce earnings management activity for tax purposes. Finally, regression results show a significant interaction

effect between corporate governance and regional corporate tax compliance in preventing tax motivated earnings management. Specifically, the impact of regional tax compliance on tax motivated earnings management declines when an audit committee is appointed, suggesting a substitution effect between internal and external monitoring mechanisms.

The paper contributes to the literature on tax accounting showing that cultural and social differences play an important role in tax planning decisions, especially for small private companies, despite a homogeneous legal system. Moreover, this study suggests that corporate governance and tax enforcement mechanisms do not reinforce each other, but the latter seems to play the most relevant role in reducing tax avoidance.

The remainder of the paper is structured as follows. Section 2 presents the related literature, describes the Italian setting and the research hypotheses. Section 3 illustrates the regression equations and the variable definitions. Sample selection, descriptive statistics and multivariate analysis results are presented in Section 4. Section 5 concludes the paper.

2. Related Literature, Italian Setting And Development of Hypotheses

Related Literature

Shackelford and Shevlin (2001) and Hanlon and Heitzman (2010) provide a comprehensive literature review on tax accounting and corporate tax avoidance. Prior studies identify several firm-specific determinants of corporate tax avoidance, such as the scale of international operations (Rego 2003; Dyreng and Lindsey 2009), leverage (Graham and Tucker 2006; Lisowsky 2010), ownership structure (Desai and Dharmapala, 2009; Chen et al., 2010) and contractual incentives for managers (Phillips 2003; Desai and Dharmapala, 2006; Hanlon et al. 2007; Robinson et al. 2010; Armstrong et al. 2012). However, how geographical differences affect corporate tax avoidance within a formally homogenous legal and tax system, that is, within a country, has still been scantily investigated. This is probably due to a lack of reliable analytical data and/or the little or no variation in tax compliance and enforcement within several countries. For instance, Desai et al. (2007) study the relationship between corporate governance, tax enforcement and tax avoidance using a cross-country sample where the measure of tax enforcement employed is at a country level. In doing this however, the measure of tax enforcement is a joint measure of any difference in the tax system and compliance among countries. Also Atwood et al. (2012), who examine the relation between corporate tax avoidance and tax system

characteristics using an international sample, employ a country-specific measure of tax enforcement, that is, a tax evasion index from the World Competitiveness Report. A possible caveat of a country-specific measure of tax enforcement and/or compliance is that any significant difference among geographical areas of a country (e.g. regions) is averaged out. A relevant contribution is given by Hoopes et al. (2012) who provide evidence that the probability of an IRS audit negatively affects the tax avoidance of U.S. listed companies. Hoopes et al.'s main estimate of IRS audit probability, however, varies only for asset size group and time. Finally, it is worth noting that all the above mentioned studies are generally based on samples of listed firms and do not investigate the tax avoidance of small and private firms, notwithstanding their importance in the economy of all countries. In a recent report on Small and Medium-sized Enterprises (SMEs) commissioned by the European Commission, Ecorys (2012, 9) states that, despite the challenging economic conditions of the EU and the spectre of a double-dip recession for several countries, "SMEs have retained their position as the backbone of the European economy, with some 20.7 million firms accounting for more than 98 per cent of all enterprises, of which the lion's share (92.2 per cent) are firms with fewer than ten employees. For 2012 it is estimated that SMEs accounted for 67 per cent of total employment and 58 per cent of gross value added".

I contribute to the extant literature investigating whether geographical differences in tax compliance and stricter statutory corporate governance requirements (i.e. the appointment of an audit committee) affect tax motivated earnings management of a large sample of public and private companies, which are theoretically subject to the same legal setting and tax enforcement mechanisms.

Italian Setting and 2008 Tax Reform

Italy is administratively divided in 20 regions, which have legislative power over several issues, such as the organization of the healthcare system. However, regions cannot impose any new corporate tax, they can only choose the rate of some specific taxes within a range that is decided at national level. Moreover, the Italian Revenue Agency (IRA), namely Agenzia delle Entrate, is a government agency with standardized procedure which has to pursue the objectives identified by the Minister of Economy and Finance in a three-year agreement. Thus, even if the IRA has regional units, the tax enforcement mechanisms and legal setting are theoretically identical across regions. Despite the fact that Italian regions were only enacted as administrative and legislative entities

with great delay in 1970, the majority of them cover geographical areas which have been characterized for centuries by socio-cultural specificities. Indeed, there have always been several differences between regions in terms of economic development and social capital (Felice, 2010, 2011, and 2012).

Pisani and Polito (2006a), using data from the national account systems provided by the National Institute of Statistics (ISTAT) and from tax returns provided by IRA, estimate Italian tax evasion by region. Table 1 presents the average annual Gross Domestic Product for the period 2000-2002 provided by ISTAT (column 1) and the estimates of the average annual evasion of IRAP by region (column 2). IRAP is a regional tax due by companies and other taxpayers, such as partnerships or individuals, which have employees or a business in which more than one person is involved. On the other hand, individuals seldom meet the requirements for being liable for IRAP. According to Pisani and Polito (2006a), the annual IRAP taxable base in Italy that taxpayers did not declare on average from 2000 to 2002 was € 202.7 billion, which represents about 16.6 per cent of the national GDP for 2002. This implies that in the same period Italian regions had € 9.8 billion less in annual tax revenues (given that at that time the IRAP rate was 4.82 per cent). The estimated IRAP evasion varies remarkably across regions, ranging from € 21.5 billion in Lombardia to € 484 million in Valle d'Aosta. The absolute amount of regional evasion, however, does not demonstrate the intensity of the phenomenon in the geographical area, because Italian regions also differ significantly in size, population and GDP. To account for such differences, Pisani and Polito (2006a) propose the use of a ratio, called "intensity of regional tax evasion", that compares the estimated annual IRAP evasion to the annual IRAP taxable base declared by taxpayers in any region. For instance, if the intensity of regional tax evasion equals 50%, it means that in the analysed region the amount of estimated IRAP evasion is half of the IRAP taxable base declared. The intensity of regional tax evasion ranges from 93.9% in Calabria, which is the region with the lowest corporate tax compliance, to 13% in Lombardia, which turns out to be the region with the highest tax compliance despite the amount of its estimated IRAP evasion.

Pisani and Polito's study is particularly useful for my purposes for several reasons. First, they are both researchers at the IRA Research Centre, so they can assess all analytical information from tax returns and use it to increase the accuracy of their estimates. Second, Pisani and Polito (2006a) focus their attention on IRAP and not on tax evasion in general. Tax evasion is a widespread phenomenon in several Italian regions, but I need to distinguish corporate tax evasion from individual tax evasion to better investigate corporate tax avoidance. Finally,

since the IRAP taxable base is very broad and its calculation for companies strictly derives from statutory individual or separate financial statements, Pisani and Polito (2006a) argue that their estimate of tax evasion almost entirely consists of transactions that have not been accounted for in company's books (the so-called underground or shadow economy). In other words, they do not really investigate tax motivated earnings manipulation, but mainly unreported income. "Extreme" tax avoidance (i.e. tax evasion) is definitely more common for SMEs than for big or listed companies, but it gives a good idea of how the social and economic environment of one Italian region differs from that of another one. For all these reasons, I think that Italy represents a unique setting in which to investigate the effect of differences in geographical tax compliance on corporate tax avoidance and the estimates of tax evasion provided by Pisani and Polito (2006a) are particularly suitable for this purpose. At the same time, it is not obvious that companies that evade taxes by hiding transactions from tax authorities are those that also engage in tax motivated earnings management,

which is a more sophisticated and less aggressive tax avoidance strategy.

In order to investigate the relation between regional tax compliance, corporate governance mandatory requirements (i.e. appointment of an audit committee) and earnings management for tax purposes, I exploit the 2008 Tax Reform which materially decreased corporate tax rates. More precisely, in September 2007, the Italian government issued bill no. 1817 (2008 Tax Reform) according to which the corporate income tax (IRES) and the Regional Tax on Productive Activities (IRAP) rates would decrease by 5.5 and 0.35 percent respectively, starting in the fiscal year following the one in progress on December 31, 2007. At the same time, the government proposed that some expenses would become nondeductible after the reduction in the corporate tax rate. These changes became certain on December 24th, 2007 when the bill was passed by the Italian Parliament and this created a strong incentive to shift income from the last fiscal year subject to the old tax rates to the first fiscal year subject to the new tax rates (Scholes et al., 1992; Guenther, 1994; Enis and Ke, 2003).

Table 1. Italian Regions and Tax Evasion

Region	Average Gross Domestic Product (2000-2002) - € million	Average Estimated Regional IRAP Evasion (1998-2002) - € million	Intensity of Average Regional Tax Evasion (1998-2002)	Corporate Tax Compliance (TAX COMPLIANCE)
Abruzzo	23,017	4,031	33.11%	0.67
Basilicata	8,817	2,117	49.75%	0.50
Calabria	26,737	8,701	93.89%	0.06
Campania	77,428	20,353	60.55%	0.39
Emilia-Romagna	107,076	14,001	22.05%	0.78
Friuli-Venezia Giulia	27,764	4,470	28.22%	0.72
Lazio	126,094	16,456	26.05%	0.74
Liguria	34,033	8,508	50.29%	0.50
Lombardia	251,179	21,489	13.04%	0.87
Marche	31,236	5,613	33.95%	0.66
Molise	4,980	1,287	54.61%	0.45
Piemonte	98,957	18,082	30.53%	0.69
Puglia	56,278	14,780	60.65%	0.39
Sardegna	26,270	6,335	54.71%	0.45
Sicilia	68,343	18,319	65.89%	0.34
Toscana	81,086	14,826	33.67%	0.66
Trentino-Alto Adige	12,262	4,323	30.17%	0.70
Umbria	16,845	3,720	44.51%	0.55
Valle d'Aosta/Vallée d'Aoste	3,262	484	28.97%	0.71
Veneto	111,935	14,763	22.26%	0.78
Italy	1,207,330	202,660	30.58%	0.69

Data on the average annual Gross Domestic Product (GDP) for the period 2000-2002 are available on the website of the National Institute of Statistics (ISTAT). IRAP (i.e. Regional Tax on Productive Activities) is a regional tax due by companies and other taxpayers, such as partnerships or individuals, which have employees or a business in which more than one person is involved. The estimates of the average annual evasion of IRAP by region are estimated by Pisani and Polito (2006a). Average estimated regional IRAP evasion is the annual IRAP taxable base that taxpayers did not declare. The intensity of regional tax evasion is calculated as the estimated IRAP evasion of a region divided by the IRAP taxable base declared by taxpayers in any given fiscal year. Corporate Tax Compliance (TAX COMPLIACE) is calculated as 1 minus the intensity of average regional tax evasion.

Development of Hypotheses

Hoopes et al. (2012) provide evidence that tax avoidance decreases with the probability of an IRS audit for U.S. listed firms. Hoopes et al. argue that this result is not obvious because there are several reasons for which companies may decide their tax planning strategies without considering the IRS audit risk. For instance, companies may forgo an aggressive tax avoidance strategy in order to avoid political costs (Hanlon and Slemrod 2009) or because the incentive to reduce costs is not particularly high (Slemrod 2004; Graham et al. 2005; Armstrong et al. 2012).

I investigate whether the corporate tax compliance of the region where the company is based affects the level of its tax motivated earnings management. My measure of regional corporate tax compliance seems not to be associated with the probability of being audited by the IRA. In fact, Pisani and Polito (2006a: 11) point out that the regions with the highest intensity of corporate tax evasion (i.e. Campania, Puglia, Calabria and Sicily) are also regions where the probability of a company being audited is significantly higher than the national average. Thus, Pisani and Polito (2006a: 11) conclude that tax evasion has multiple causes which cannot be attributed solely to the effectiveness of enforcement actions and consequently the number of audits carried out cannot be considered as a valid indicator for assessing the effectiveness of enforcement. On the other hand, the direction of the relation between regional tax compliance and tax motivated earnings management, although intuitive, is not obvious. Given that the regional tax evasion estimated by Pisani and Polito (2006a) mainly consists of unsophisticated tax evasion (i.e. transactions that are not accounted for in company's books), it might be the case that those companies that evade more are less prone to engage in book-conformity tax avoidance since this behaviour could attract the attention of the IRA and increase the probability of an audit. So, the intuition I test is that, despite the probability of an IRA audit, companies within a homogenous geographical area tend to behave similarly.

Consequently, I examine the first hypothesis stated in the alternative form as follows:

H1: The higher the regional tax compliance, the less companies manage earnings in order to shift taxable income from the last fiscal year with higher statutory corporate tax rates to the first fiscal year with lower statutory corporate tax rates.

Empirical research on tax avoidance determinants is still not conclusive and, more specifically, the analysis of the relation between corporate governance and tax avoidance is particularly problematic given that corporate governance tends to be endogenous (Hanlon and Heitzman 2010). Nevertheless, there is evidence that incentive compensation schemes affect tax avoidance (Phillips 2003; Desai and Dharmapala. 2006; Hanlon et al. 2007; Robinson et al. 2010; Armstrong et al. 2012), as does ownership structure (Desai and Dharmapala, 2009; Chen et al., 2010). Unfortunately, given that a large percentage of my sample consists of small or even micro firms, there are no reliable and available data on board composition and ownership structure. For this reason, I have decided to investigate the impact of corporate governance on tax motivated earnings management using a mandatory corporate governance requirement, triggered by the legal form or firm size, that is, the appointment of an audit committee.

Under Italian law there are two main legal forms which grant limited liability for equity participants, the first one is the Società per Azioni (SPA) and the second one is the Società a Responsabilità Limitata (SRL). SPAs have shares whose par value has to be equal or greater than € 120,000. SRLs do not have shares but quotas and the minimum par value of quotas is € 10,000. Only SPAs can be listed companies. There are several differences between SPA and SRL, since the former are the Italian version of public limited companies, whereas the latter are private limited companies. SRL is the most flexible legal form and the corporate governance requirements are always lower or equal to those of SPA. In particular, SPAs have to appoint an audit committee, namely Collegio Sindacale, whose members must be three or five independent professionals and, if the audit committee is in charge of financial auditing, all of them must be certified public accountants. The audit committee oversees that the board of directors and the company comply with the law and articles

of association and, when the company is not listed and does not prepare consolidated financial statements, can also audit the company's financial statements. According to Italian Civil Code (art. 2477) at that time, on the other hand, a SRL company had to appoint an audit committee only when:

Either the par value of equity quotas is equal to or greater than € 120,000; or

For two consecutive fiscal years the company passed two of the following limits:

Total assets of € 3,125,000;

Net revenues of € 6,250,000;

50 employees.

Finally, it is worth mentioning that the audit committee members, when performing a financial audit, have to sign the company's tax return after having audited it. Given the statutory objectives of the audit committee, audit committee members should prevent companies from engaging in risky tax avoidance, such as earnings management to shift income from one period with higher corporate tax rate to another period with lower corporate tax rate.

Consequently, I examine the second hypothesis stated in the alternative form as follows:

H2: Companies that are required to have an audit committee manage earnings in order to shift taxable income from the fiscal year with higher statutory corporate tax rates to the fiscal year with lower statutory corporate tax rates less than companies that are not required to have an audit committee.

Desai et al. (2007) argue that corporate governance and tax enforcement act as monitoring mechanisms that make it more difficult for managers and insider shareholders to divert income in order to both reduce the tax burden and maximize their utility at the expense of the country and minority shareholders. The authors, however,

do not study whether and to what extent these two mechanisms may either reinforce or substitute each other. Moreover, Desai et al.'s focus is more on managerial diversion than on tax avoidance, because the latter is considered mainly a way used by managers to divert resources from the company at the expense of minority shareholders and government. Consistently with the idea that the interaction between corporate governance and tax avoidance is relevant for firm value, several studies show that investor reaction to tax avoidance policies varies according to the quality of the firm's corporate governance (Desai and Dharmapala 2006, 2009; Guedhami and Pittman 2008; Wilson 2009). Finally, Hoopes et al. (2012) provide some evidence that the interaction between the probability of an IRS audit and corporate governance is relevant for the tax avoidance policies of U.S. listed firms. In particular, Hoopes et al. find that, when corporate governance is good, the IRS monitoring role in preventing firms from avoiding tax is relatively less important.

Consequently, I examine the third hypothesis stated in the alternative form as follows:

H3: Corporate governance requirements (i.e. the presence of an audit committee) and regional tax compliance substitute each other in reducing tax motivated earnings management.

3. Research Design

Regression Equations

I test my predictions (H1 through H3) on differences in companies' earnings management activity in response to a decrease in the statutory corporate tax rate by estimating the following models, using ordinary least squares (firm and year subscripts are suppressed):

$$\begin{aligned}
 AWCA = & \beta_0 + \beta_1 POST + \beta_2 TAX COMPLIANCE + \beta_3 POST \times \\
 & \times TAX COMPLIANCE + \sum_{k=4}^{10} \beta_k CONTROL_k \\
 & + \varepsilon
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
 AWCA = & \beta_0 + \beta_1 POST + \beta_2 AUDIT + \beta_3 POST \times AUDIT + \\
 & + \sum_{k=4}^{10} \beta_k CONTROL_k + \varepsilon
 \end{aligned}
 \tag{2}$$

$$\begin{aligned}
AWCA = & \beta_0 + \beta_1 POST + \beta_2 TAX COMPLIANCE + \beta_3 POST \times TAX COMPLIANCE + \beta_4 AUDIT + \beta_5 POST \\
& \times AUDIT + \beta_6 TAX COMPLIANCE \times AUDIT + \beta_7 POST \times TAX COMPLIANCE \times AUDIT \\
& + \sum_{k=8}^{14} \beta_k CONTROL_k + \varepsilon
\end{aligned} \tag{3}$$

where:

AWCA = abnormal working capital accruals estimated using the modified version of the Jones model (Dechow et al., 1995);

POST = 1 in the first fiscal year subject to the new and lower statutory corporate tax rate (i.e. 2008 fiscal year), and 0 in the fiscal year before (i.e. 2007 fiscal year);

TAX COMPLIANCE = 1 minus the intensity of regional tax evasion estimated by Pisani and Polito (2006a)

AUDIT = 1 if the firm has to appoint an audit committee, and 0 otherwise;

CONTROL = firm-specific control variables.

The dependent variable, AWCA, proxies for the direction and the intensity of earnings management by means of working capital accruals. The dummy variable POST measures whether, ceteris paribus, the average of the abnormal working capital accruals has changed significantly from the 2007 fiscal year to the 2008 fiscal year. If Italian companies engaged in earnings management to shift taxable income from the last fiscal year with higher corporate tax rate (i.e. 2007) to the first fiscal year with lower corporate tax rate (i.e. 2008), I expect the level of AWAC to be greater in 2008, thus the POST coefficient should be positive and statistically significant. TAX COMPLIANCE is a time-invariant firm-specific continuous variable whose maximum theoretical value is 1, this being the ideal situation when all companies in a given region fully comply with tax laws and pay due taxes on the whole income earned. Table 1 shows the TAX COMPLIANCE values, which range from 0.06 for Calabria (a region where companies are estimated to evade an amount which is almost as big as the declared taxable base) to 0.87 for Lombardia (a region where companies are estimated to evade on average only 13 per cent of the declared tax base). AUDIT is a time-invariant firm-specific dummy variable which equals 1, if the company is required to appoint an audit committee because either it is an SPA or it is an SRL that in 2006 passed the size limits under which SRLs are allowed to not have an audit committee, zero otherwise.

Model (1) is used to test H1. If the average tax compliance of the region where the company is legally based affects the earnings management activity, the coefficients of TAX COMPLIANCE and POST×TAX COMPLIANCE will be

statistically significant. In particular, according to H1, the POST×TAX COMPLIANCE coefficient should be negative. In fact, a negative and statistically significant coefficient of POST×TAX COMPLIANCE means that the relation between abnormal working capital accruals and regional tax compliance changed in the first fiscal year of reduced corporate tax rate and that in the 2008, compared to that of the 2007, the higher the tax compliance the lower the abnormal working capital accruals. I do not have any expectation about the sign of the TAX COMPLIANCE coefficient.

Model (2) is used to test H2. If companies that have an audit committee engage in tax motivated earnings management less than companies that do not have an audit committee, the POST×AUDIT coefficient will be negative and statistically significant. I do not have any expectation about the sign of AUDIT variable.

Model (3) is used to test H3. If the monitoring role of the audit committee and the regional tax compliance reinforce each other in constraining tax motivated earnings management, the POST×TAX COMPLIANCE×AUDIT coefficient will be negative and statistically significant. On the contrary, a positive coefficient will support the idea that corporate governance mechanisms and tax enforcement tend to substitute each other.

Statistical significance is always assessed using standard errors clustered at firm level and all the variables are winsorized at the first and ninety-ninth percentile.

Abnormal Working Capital Accruals

Guenther (1994) argues that earnings management for tax savings may be achieved more affectively throughout manipulations of current accruals rather than of non-current accruals (e.g. depreciation expense). This is also true in the Italian setting, because according to tax law the most material long-term accruals such as depreciation and amortization expense follow specific valuation rules that cannot be changed from one fiscal year to another. Thus, I use the following model for each of the two-digit NACE code industry groups to estimate cross-sectional abnormal working capital accruals (AWCA), which are given by the residual term. Firm subscripts are suppressed.

$$\frac{WCA_t}{Assets_{t-1}} = \beta_0 + \beta_1 \frac{1}{Assets_{t-1}} + \beta_2 \frac{\Delta REV_t - \Delta AR_t}{Assets_{t-1}} + AWCA_t \quad (4)$$

where:

WCA_t = working capital accruals in period *t* calculated indirectly as the change in non-cash current assets less the change in current liabilities, excluding the short term debts and the current portion of long-term debt;

Assets_{t-1} = lagged total assets;

ΔREV_t = change in revenues;

ΔAR_t = change in accounts receivable.

I require each estimation sample to have at least 10 firm-year observations. All the variables are winsorized at the first and ninety-ninth percentile.

Control Variables

The models (1) to (3) include several control variables that according to the literature can influence abnormal accruals. The first control variable is firm size (SIZE), calculated as the natural logarithm of total assets at the beginning of each fiscal year. Previous studies, in fact, show that larger companies are subject to a greater degree of monitoring and public scrutiny and this has an influence on earnings management activity (Watts and Zimmerman, 1978). The change in revenues (GROWTH) is used as a proxy for the growth rate, as growth prospects may affect earnings management decisions (Barth et al., 2008). To control for firm performance, I use the return on assets (ROA), calculated as the ratio between net income before extraordinary items and average total assets (Kothari et al., 2005). Loss-making firms may have lower incentives to engage in tax motivated earnings management and I identify these firms with a dummy variable (LOSS), which equals one if the operating profit is negative, zero otherwise. Given that differences in operating cycles between companies can affect the measures of abnormal accruals (Francis et al. 2005), I control for both asset turnover (TURNOVER), calculated as revenues divided by total assets, and the working capital cycle (OP_CYCLE), calculated as the average working capital divided by revenues. Finally, I include the financial leverage (LEVERAGE), measured as the ratio between total liabilities and total assets, since the capital structure affects earnings management decisions (Defond and Jiambalvo, 1994; Elfakhani, and Kurdi, 2009.).

All the variables are described in Appendix A. The models also include industry fixed effects, where industries are identified by a two-digit NACE code. Lastly, all the control variables have been winsorized at the first and ninety-ninth percentile.

4. Sample Selection and Empirical Results

Sample Selection and Description

This study is based on a sample of private and public companies with limited responsibility for equity participants from 2006 to 2008. Data are collected using the November 2011 AIDA CD Rom. It is worth saying that I extract accounting data from individual or separate financial statements, because earnings before taxes from these statements are the starting point for the taxable income calculation. In other words, even if a company prepares consolidated financial statements, I use accounting information from its separate financial statements since, under Italian law, consolidated financial statements do not have any relevance for tax purposes. AIDA is the Italian database provided by Bureau van Dijk, which does not include financial companies (i.e. banks and insurance companies). Moreover, I exclude all cooperative companies because they benefit from several tax advantages, as long as they follow the cooperative principles, and are subject to quite different governance rules. I also require all companies to have non-missing and non-negative revenues from 2006 to 2008. Initially, 183,731 companies met these requirements. Then, I eliminated firm-year observations without the data necessary to calculate the regression models variables, resulting in an unbalanced panel sample of 293,083 observations for 156,412 unique companies. Finally, in the analyses I also consider the balanced sample that consists of 273,306 firm-year observation for 136,653 unique companies.

Table 2 describes the samples' composition by legal form and region. The unbalanced sample does not differ remarkably from the balanced sample either in terms of legal form or region. The SRL legal form is by far the most common in both samples and the distribution of companies by region is consistent with the size and economic relevance of each region (Table 1). On the other hand, when splitting the balanced sample in two sub-samples using the median value of 2006 total assets, the small firms sample differs materially from the big firms sample in several ways. Not surprisingly, in the small firms sample the percentage of SRLs is 98, which is significantly greater than the 67 per cent of the big firms sample. Also the distribution of companies by region varies significantly. For instance, the percentage of companies based in Lombardia, the region with the highest tax compliance, is 26 in the small firms sample and 29.5 in the big firms sample.

Table 2. Sample Composition by Legal Form and Region

	Unbalanced Panel Sample		Balanced Panel Sample		Small Firms (2006 total assets < 2,134)		Big Firms (2006 total assets ≥ 2,134)	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Panel A: Sample by Legal Form								
S.A.P.A.	21	0.01	21	0.02	2	0.00	19	0.03
S.P.A.	24,636	15.75	23,548	17.23	1,244	1.82	22,304	32.64
S.R.L.	131,755	84.24	113,084	82.75	67,080	98.18	46,004	67.33
<i>Total</i>	<i>156,412</i>	<i>100</i>	<i>136,653</i>	<i>100</i>	<i>68,326</i>	<i>100</i>	<i>68,327</i>	<i>100</i>
Panel B: Sample by Region								
Abruzzo	2,346	1.5	1,982	1.45	977	1.43	1,005	1.47
Basilicata	518	0.33	443	0.32	207	0.3	236	0.35
Calabria	1,754	1.12	1,477	1.08	749	1.1	728	1.07
Campania	9,551	6.11	8,364	6.12	4,733	6.93	3,631	5.31
Emilia-Romagna	15,539	9.93	13,627	9.97	6,459	9.45	7,168	10.49
Friuli-Venezia Giulia	3,452	2.21	3,113	2.28	1,493	2.19	1,620	2.37
Lazio	14,956	9.56	12,514	9.16	7,039	10.3	5,475	8.01
Liguria	3,266	2.09	2,825	2.07	1,582	2.32	1,243	1.82
Lombardia	42,847	27.39	37,959	27.78	17,809	26.06	20,150	29.49
Marche	4,382	2.8	3,838	2.81	2,003	2.93	1,835	2.69
Molise	373	0.24	309	0.23	150	0.22	159	0.23
Piemonte	10,922	6.98	9,879	7.23	4,679	6.85	5,200	7.61
Puglia	5,440	3.48	4,566	3.34	2,625	3.84	1,941	2.84
Sardegna	2,344	1.5	2,015	1.47	1,072	1.57	943	1.38
Sicilia	5,140	3.29	4,448	3.25	2,420	3.54	2,028	2.97
Toscana	10,805	6.91	9,179	6.72	4,736	6.93	4,443	6.5
Trentino-Alto Adige	2,920	1.87	2,518	1.84	1,090	1.6	1,428	2.09
Umbria	1,857	1.19	1,601	1.17	746	1.09	855	1.25
Valle d'Aosta/Vallée d'Aoste	252	0.16	230	0.17	90	0.13	140	0.2
Veneto	17,748	11.35	15,766	11.54	7,667	11.22	8,099	11.85
<i>Total</i>	<i>156,412</i>	<i>100</i>	<i>136,653</i>	<i>100</i>	<i>68,326</i>	<i>100</i>	<i>68,327</i>	<i>100</i>

Descriptive Statistics

Table 3 shows the descriptive statistics of the regression model variables and total assets for the unbalanced and balanced panel samples. The unbalanced panel sample does not differ significantly from the balanced panel sample for any variable. The mean (median) firm size is € 16.4 (2.3) million and three-quarters of the sample have total assets of less than € 6.5 million.

Table 4 presents the Pearson correlations of regression model variables for the unbalanced panel sample. For the sake of parsimony, I do not report

the variable correlations for the balanced panel sample, since they are almost identical to those presented. Obviously, there is a highly positive correlation between AUDIT and size variables, because by law bigger companies are required to appoint an audit committee regardless of their legal form. Moreover, companies with an audit committee (AUDIT=1) tend to have lower leverage and asset turnover. The TAX COMPLIANCE variable, on the other hand, is not materially correlated with any other variable.

Table 3. Descriptive Statistics

Variable	N	Mean	Std.Dev.	P25	P50	P75
Panel A: Unbalanced Panel Sample						
DWCA	293,083	-0.001	0.174	-0.082	-0.007	0.074
POST	293,083	0.478	0.500	0.000	0.000	1.000
TAX COMPLIANCE	293,083	0.704	0.172	0.663	0.740	0.870
POST×TAX COMPLIANCE	293,083	0.337	0.372	0.000	0.000	0.740
AUDIT	293,083	0.304	0.460	0.000	0.000	1.000
POST×AUDIT	293,083	0.150	0.357	0.000	0.000	0.000
SIZE	293,083	7.844	1.374	6.858	7.671	8.687
ROA	293,083	0.022	0.068	0.000	0.010	0.040
GROWHT	293,083	0.213	0.815	-0.058	0.052	0.207
LEVERAGE	293,083	0.771	0.203	0.661	0.829	0.928
TURNOVER	293,083	1.465	1.056	0.815	1.276	1.826
LOSS	293,083	0.124	0.330	0.000	0.000	0.000
OP_CYCLE (in days)	293,083	306.1	602.7	123.8	181.0	263.3
Assets (in € thousand)	293,083	16,378	427,850	1,054	2,348	6,511
Panel B: Balanced Panel Sample						
DWCA	273,306	-0.001	0.172	-0.080	-0.007	0.073
POST	273,306	0.500	0.500	0.000	0.500	1.000
TAX COMPLIANCE	273,306	0.705	0.171	0.663	0.740	0.870
POST×TAX COMPLIANCE	273,306	0.353	0.373	0.000	0.031	0.740
AUDIT	273,306	0.317	0.465	0.000	0.000	1.000
POST×AUDIT	273,306	0.158	0.365	0.000	0.000	0.000
SIZE	273,306	7.883	1.384	6.883	7.712	8.743
ROA	273,306	0.022	0.068	0.000	0.010	0.041
GROWHT	273,306	0.201	0.785	-0.058	0.050	0.202
LEVERAGE	273,306	0.769	0.204	0.656	0.826	0.926
TURNOVER	273,306	1.463	1.050	0.817	1.276	1.823
LOSS	273,306	0.125	0.331	0.000	0.000	0.000
OP_CYCLE (in days)	273,306	300.0	582.3	124.2	181.2	262.4
Assets (in € thousand)	273,306	17,091	441,894	1,079	2,441	6,884

All variables are defined in Appendix A.

Table 4. Pair-Wise Pearson Variable Correlations (Unbalanced Sample)

Variable	1	2	3	4	5	6	7
1 DWCA	1.00						
2 POST	0.00	1.00					
3 TAX COMPLIANCE	0.00	0.00	1.00				
4 POST×TAX COMPLIANCE	0.00	0.95	0.22	1.00			
5 AUDIT	-0.02	0.02	0.05	0.03	1.00		
6 POST×AUDIT	-0.01	0.44	0.04	0.43	0.64	1.00	
7 SIZE	-0.02	0.06	0.08	0.07	0.69	0.45	1.00
8 ROA	0.13	-0.04	0.04	-0.03	-0.06	-0.06	-0.08
9 GROWHT	0.09	-0.09	-0.03	-0.09	-0.07	-0.07	-0.09
10 LEVERAGE	-0.02	-0.08	-0.05	-0.09	-0.22	-0.18	-0.19
11 TURNOVER	0.03	-0.02	0.01	-0.02	-0.16	-0.11	-0.36
12 LOSS	-0.09	0.06	0.00	0.06	0.08	0.08	0.06
13 OP_CYCLE (in days)	0.03	0.02	-0.02	0.01	0.05	0.03	0.20
	8	9	10	11	12	13	
8 ROA	1.00						
9 GROWHT	0.07	1.00					
10 LEVERAGE	-0.40	0.09	1.00				
11 TURNOVER	0.11	0.04	0.14	1.00			
12 LOSS	-0.46	-0.05	0.06	-0.07	1.00		
13 OP_CYCLE (in days)	-0.10	-0.04	0.03	-0.34	0.09	1.00	

This table presents the Pearson correlations between the regression variables for the 293,083 firm-year observations of the unbalanced panel sample. Correlations in bold are statistically significant at the 1 percent level.

All variables are defined in Appendix A.

Tax Avoidance and Regional Tax Compliance

Table 5 reports the regression results from Model (1), which provide evidence that regional tax compliance has a significant role in reducing tax motivated earnings management. The coefficient estimates of the unbalanced panel sample and the balanced one are very similar. The POST coefficient is positive and significant at the 1 percent level for both the samples (column 1 and 2). This suggests that the Italian firms engaged in earnings management to shift taxable income from the last fiscal year with a higher corporate tax rate to the first fiscal year with a lower corporate tax rate. In untabulated results, I find that the POST coefficient remains positive and highly significant even estimating Model (1) without the variables TAX COMPLIANCE and POST×TAX COMPLIANCE. More importantly and consistently with H1, the POST×TAX COMPLIANCE coefficient is negative and significant at the 5 percent level. In both samples, the higher the regional tax compliance, the lower the level of abnormal working capital accruals in the first fiscal year with reduced corporate tax rates. Economically, the coefficient estimate of -0.008 is not high, but still material, since the mean (median) of the ratio earnings before tax to lagged total assets is 0.039 (0.033) in the unbalanced panel sample.

In the next two regressions (column 3 and 4), I examine whether the firm's size plays a significant role. In the small firms sample, the coefficients of interest present the same sign and statistical significance as the whole samples, but the magnitude of estimates increases remarkably. In particular, the estimate of the POST×TAX COMPLIANCE coefficient is -0.014 and also the POST coefficient rises from 0.011 to 0.016 for the balanced panel sample. On the other hand, in the big firms sample (column 4), all the coefficients of interest are not statistically different from zero. These results suggest that the earnings management activity in response to a decrease in corporate tax rate changes significantly in different size clusters. In untabulated results, I further split the small firms sample in two sub-samples by firm size, in order to estimate Model (1) only for firms in the first size quartile. The POST×TAX COMPLIANCE coefficient estimate is -0.028 and it is significant at the 1 percent level. Also, the POST coefficient estimate increases materially to 0.025. These results suggest that the role of regional tax compliance in

preventing tax motivated earnings management is relevant for small and very small firms, whereas big firms tend to engage less in tax motivated earnings management and the regional corporate tax compliance is not influential for them.

Control variables present coefficient signs in line with the literature and are consistent across samples (column 1 to 4), with the only exception of SIZE. It is worth noting that abnormal working capital accruals are positively and significantly associated with firm performance, measured by ROA and GROWTH, and LEVERAGE. On the other hand, companies with operating losses tend to have lower abnormal working capital accruals. SIZE is not statistically significant for both the unbalanced and balanced sample, whereas it is significant at the 1 percent level for the small firms and big firms samples, but with an opposite sign. In the small firms sample, SIZE positively affects the dependent variable, while in the big firms sample, it does so negatively. So, it seems that the size effect is not linear in the full samples and this explains why SIZE is not significant in regressions 1 and 2.

Tax Avoidance and Internal Audit Committee

Table 6 reports the regression results from Model (2), which investigates the monitoring role of the audit committee in preventing companies from managing their earnings for tax purposes. The coefficient estimates suggest that the presence of an audit committee does not significantly affect the tax motivated earnings management activity. In three regressions out of four (column 1 to 4), the POST×AUDIT coefficient is negative, as predicted in H2, but it is never statistically significant at conventional levels. For small firms (column 3), the POST×AUDIT coefficient is not far from being significant at the 5 per cent level and its estimate is economically material, but this result must be interpreted with caution. Only 4 per cent of the small firms sample have, in fact, an audit committee and, by construction, this 4 per cent consists of the biggest companies within the small firms sample. For this reason, it is not possible to disentangle the size effect from the monitoring role played by the audit committee. All in all, the multivariate analyses do not support the H2 prediction. Finally, control variables present coefficient estimates in line with those seen for the Model (1).

Table 5. Regional Tax Compliance Regressions

	Unbalanced panel sample	Balanced panel sample	Small firms (2006 total assets<2,134)	Big firms (2006 total assets≥2,134)
	(1)	(2)	(3)	(4)
VARIABLES	DWCA	DWCA	DWCA	DWCA
POST	0.0117 ^{^^^}	0.0112 ^{^^^}	0.0155 ^{^^^}	0.0048
	0.000	0.000	0.001	0.170
TAX COMPLIANCE	0.0091 ^{^^^}	0.0092 ^{^^^}	0.0155 ^{^^^}	0.0049
	0.001	0.002	0.001	0.153
POST×TAX COMPLIANCE	-0.0083 ^{^^}	-0.0081 ^{^^}	-0.0142 ^{^^}	-0.0008
	0.036	0.045	0.027	0.861
SIZE	-0.0003	-0.0003	0.0102 ^{^^^}	-0.0039 ^{^^^}
	0.281	0.258	0.000	0.000
ROA	0.3384 ^{^^^}	0.3366 ^{^^^}	0.3275 ^{^^^}	0.3508 ^{^^^}
	0.000	0.000	0.000	0.000
GROWHT	0.0178 ^{^^^}	0.0192 ^{^^^}	0.0245 ^{^^^}	0.0150 ^{^^^}
	0.000	0.000	0.000	0.000
LEVERAGE	0.0276 ^{^^^}	0.0271 ^{^^^}	0.0149 ^{^^^}	0.0358 ^{^^^}
	0.000	0.000	0.000	0.000
TURNOVER	0.0019 ^{^^^}	0.0018 ^{^^^}	0.0056 ^{^^^}	-0.0003
	0.000	0.000	0.000	0.683
LOSS	-0.0200 ^{^^^}	-0.0196 ^{^^^}	-0.0221 ^{^^^}	-0.0164 ^{^^^}
	0.000	0.000	0.000	0.000
OP_CYCLE	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}
	0.000	0.000	0.000	0.000
Constant	-0.0404 ^{^^^}	-0.0398 ^{^^^}	-0.1277 ^{^^^}	-0.0018
	0.000	0.000	0.000	0.760
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	293,083	273,306	136,652	136,654
R-squared	0.032	0.033	0.035	0.037

[^],^{^^},^{^^^} Indicate two-tailed statistical significance at 10, 5, and 1 percent, respectively.
Beneath each coefficient estimate the p-value is reported based on robust standard errors adjusted for clustering by firm. Unreported industry controls are based on the two-digit NACE code.
All variables are defined in Appendix A.

Table 6. Audit Committee Regressions

	Unbalanced panel sample	Balanced panel sample	Small firms (2006 total assets<2,134)	Big firms (2006 total assets≥2,134)
	(1)	(2)	(3)	(4)
VARIABLES	DWCA	DWCA	DWCA	DWCA
POST	0.0066 ^{^^^}	0.0061 ^{^^^}	0.0061 ^{^^^}	0.0036 ^{^^^}
	0.000	0.000	0.000	0.009
AUDIT	0.0018	0.0019	0.0094 ^{^^}	0.0022 [^]
	0.104	0.100	0.021	0.091
POST×AUDIT	-0.0023 [^]	-0.0020	-0.0108 [^]	0.0011
	0.072	0.140	0.057	0.497
SIZE	-0.0004	-0.0005	0.0102 ^{^^^}	-0.0046 ^{^^^}
	0.297	0.225	0.000	0.000
ROA	0.3390 ^{^^^}	0.3373 ^{^^^}	0.3296 ^{^^^}	0.3528 ^{^^^}
	0.000	0.000	0.000	0.000
GROWHT	0.0178 ^{^^^}	0.0192 ^{^^^}	0.0244 ^{^^^}	0.0151 ^{^^^}
	0.000	0.000	0.000	0.000
LEVERAGE	0.0278 ^{^^^}	0.0274 ^{^^^}	0.0160 ^{^^^}	0.0366 ^{^^^}
	0.000	0.000	0.000	0.000
TURNOVER	0.0019 ^{^^^}	0.0019 ^{^^^}	0.0057 ^{^^^}	-0.0003
	0.000	0.000	0.000	0.586
LOSS	-0.0200 ^{^^^}	-0.0195 ^{^^^}	-0.0221 ^{^^^}	-0.0165 ^{^^^}
	0.000	0.000	0.000	0.000
OP_CYCLE	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}
	0.000	0.000	0.000	0.000
Constant	-0.0341 ^{^^^}	-0.0331 ^{^^^}	-0.1186 ^{^^^}	0.0057
	0.000	0.000	0.000	0.329
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	293,083	273,306	136,652	136,654
R-squared	0.032	0.033	0.035	0.037

^,^^,^^^ Indicate two-tailed statistical significance at 10, 5, and 1 percent, respectively.
Beneath each coefficient estimate the p-value is reported based on robust standard errors adjusted for clustering by firm. Unreported industry controls are based on the two-digit NACE code.
All variables are defined in Appendix A.

Table 7. Interaction between Tax Compliance and Audit Committee

	Unbalanced panel sample	Balanced panel sample	Small firms (2006 total assets < 2,134)	Big firms (2006 total assets ≥ 2,134)
	(1)	(2)	(3)	(4)
VARIABLES	DWCA	DWCA	DWCA	DWCA
POST	0.0155 ^{^^^}	0.0148 ^{^^^}	0.0165 ^{^^^}	0.0079
	0.000	0.000	0.001	0.160
TAX COMPLIANCE	0.0109 ^{^^^}	0.0109 ^{^^^}	0.0147 ^{^^^}	0.0064
	0.002	0.003	0.002	0.247
POST×TAX COMPLIANCE	-0.0127 ^{^^}	-0.0125 ^{^^}	-0.0149 ^{^^}	-0.0061
	0.010	0.016	0.023	0.435
AUDIT	0.0069 [^]	0.0063	-0.0063	0.0041
	0.080	0.124	0.665	0.421
POST×AUDIT	-0.0144 ^{^^}	-0.0131 ^{^^}	-0.0196	-0.0053
	0.011	0.024	0.340	0.458
AUDIT×TAX COMPLIANCE	-0.0072	-0.0062	0.0234	-0.0026
	0.180	0.266	0.265	0.709
POST×AUDIT×TAX COMPLIANCE	0.0171 ^{^^}	0.0158 ^{^^}	0.0126	0.0091
	0.026	0.046	0.672	0.355
SIZE	-0.0005	-0.0006	0.0101 ^{^^^}	-0.0046 ^{^^^}
	0.226	0.165	0.000	0.000
ROA	0.3385 ^{^^^}	0.3368 ^{^^^}	0.3289 ^{^^^}	0.3524 ^{^^^}
	0.000	0.000	0.000	0.000
GROWHT	0.0178 ^{^^^}	0.0192 ^{^^^}	0.0245 ^{^^^}	0.0151 ^{^^^}
	0.000	0.000	0.000	0.000
LEVERAGE	0.0277 ^{^^^}	0.0274 ^{^^^}	0.0159 ^{^^^}	0.0367 ^{^^^}
	0.000	0.000	0.000	0.000
TURNOVER	0.0018 ^{^^^}	0.0018 ^{^^^}	0.0056 ^{^^^}	-0.0005
	0.000	0.000	0.000	0.476
LOSS	-0.0200 ^{^^^}	-0.0196 ^{^^^}	-0.0222 ^{^^^}	-0.0165 ^{^^^}
	0.000	0.000	0.000	0.000
OP_CYCLE	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}	0.0000 ^{^^^}
	0.000	0.000	0.000	0.000
Constant	-0.0408 ^{^^^}	-0.0398 ^{^^^}	-0.1273 ^{^^^}	0.0021
	0.000	0.000	0.000	0.768
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	293,083	273,306	136,652	136,654
R-squared	0.032	0.033	0.035	0.037

^,^^,^^^ Indicate two-tailed statistical significance at 10, 5, and 1 percent, respectively.
Beneath each coefficient estimate the p-value is reported based on robust standard errors adjusted for clustering by firm. Unreported industry controls are based on the two-digit NACE code.
All variables are defined in Appendix A.

Interaction between Tax Compliance and Audit Committee

Table 7 reports the regression results from Model (3), which investigates the interaction between regional tax compliance and the presence of an audit committee in restraining tax motivated earnings management. The POST×AUDIT×TAX COMPLIANCE variable loads positive coefficients in all regressions, but is statistically significant at the 5 percent level only for the whole samples (column 1 and 2). The lack of statistical significance for the small and big firms sub-samples is not surprising. Within the small firms, the variable POST×AUDIT×TAX COMPLIANCE assumes values different from (and greater than)

zero only for 2 per cent of the sample, since only 4 per cent of the sub-sample have an audit committee. On the other hand, we have already seen that neither AUDIT nor TAX COMPLIANCE are relevant variables in explaining the dependent variable's variance for the big firms sample. On the whole, these findings tend to be consistent with H3 prediction, since the positive and statistically significant estimate of the POST×AUDIT×TAX COMPLIANCE coefficients in the whole samples suggests that the regional tax compliance is less relevant in moderating income shifting when an audit committee has been appointed. In other words, the regional tax compliance and the presence of an audit committee do not reinforce

each other as monitoring mechanisms, rather there is a substitution effect.

Interestingly, the POST×AUDIT coefficients are negative in all regressions and statistically significant at the 5 percent level for both the whole samples (column 1 and 2), whereas in the Model's (2) estimations POST×AUDIT coefficients were at best statistically significant at the 10 percent level. This result seems in line with the H2 prediction according to which the presence of an audit committee reduces earnings management for tax purposes. However, untabulated analyses show that the statistical significance of POST×AUDIT in the Model's (3) estimations is conditional on the presence of the interaction variables with regional tax compliance (i.e. AUDIT×TAX COMPLIANCE and POST×AUDIT×TAX COMPLIANCE). When estimating Model (3) without AUDIT×TAX COMPLIANCE and POST×AUDIT×TAX COMPLIANCE variables, the POST×AUDIT coefficient significance drops again at the 10 percent level.

Conclusions

I investigate whether the regional tax compliance affects earnings management activity in response to a decrease in the corporate tax rate using a large sample of public and private Italian companies. Multivariate analyses provide evidence that regional tax compliance has a significant role in reducing tax motivated earnings management. However, this role is much more relevant for small firms. Firms above the asset-size median of the whole sample seem to engage less in earnings management for tax purposes and for those firms the corporate tax compliance of the region is not influential. On the other hand, in contrast to my expectation, empirical results do not support any monitoring role of the audit committee in preventing companies from managing their earnings to minimize their tax burden.

Finally, the analysis of the interaction between the regional corporate tax compliance and the presence of an audit committee suggests the existence of a substitution effect. The regional tax compliance is less relevant in moderating tax motivated earnings management when an audit committee has been appointed.

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Appendix A

Variable	Description
Δ AR	Change in accounts receivable, calculated as the difference between accounts receivable at the end of the period t and accounts receivable at the end of the period t-1
Δ REV	Change in revenues, calculated as the difference between revenue for the period t and revenues for the period t-1
Assets (in € thousand)	Total assets
AUDIT	Dummy variable that equals 1 for firms that have to appoint an audit committee, and 0 for firms that do not have to
DWCA	Abnormal working capital accruals estimated using the modified version of the Jones model
GROWHT	Change in revenues (calculated as the difference between revenue for the period t and revenues for the period t-1) divided by revenues for the period t-1
LEVERAGE	Total liabilities divided by total assets
LOSS	Dummy variable that equals 1 if the operating profit is negative, 0 otherwise
OP_CYCLE (in days)	Operating cycle (in days) calculated as average non-cash current assets divided by revenues
POST	Dummy variable that equals 1 in the first fiscal year subject to the new and lower statutory corporate tax rate (i.e. 2008 fiscal year), and 0 in the fiscal year before (i.e. 2008 fiscal year)
ROA	Net income before extraordinary items divided by average total assets
SIZE	Natural logarithm of total assets at the beginning of each fiscal year
TAX COMPLIANCE	Regional corporate tax compliance, calculated as 1 minus the intensity of regional tax evasion estimated by Pisani and Polito (2006a)
TURNOVER	Revenues divided by total assets
WCA	Working capital accruals calculated indirectly as the change in non-cash current assets less the change in current liabilities, excluding the short term debts and the current portion of long-term debt

PRACTICAL GUIDELINES TO FORMULATE AN OPERATIONAL RISK APPETITE STATEMENT FOR CORPORATE ORGANISATIONS: A SOUTH AFRICAN PERSPECTIVE

J. Young*

Abstract

Risk appetite is currently a much debated topic and a new concept being researched and implemented by various large organisations. However, currently there seems to be much confusion on this topic in terms of an overall risk appetite statement. Uncertainty exists, for example, if there must be a statement for each primary risk type the organisation faces, or should there be an overall risk appetite statement for the organisation? This article approaches a risk appetite statement from an operational risk perspective, which could serve as a platform for other risk types. Therefore, the significance of this research aims to provide guidelines to corporate organisations during the setting of a realistic operational risk appetite statement that could add value during the pursuance of business objectives within the approved tolerance levels.

Keywords: Risk Appetite, Risk Tolerance, Operational Risk, Key Risk Indicators, Risk And Control Self-Assessments, Scenarios, Loss History, Risk Control, Risk Appetite Statement, Business Strategy, Risk Exposures, Qualitative Statement, Quantitative Statements, Zero Tolerance, Risk Thresholds, Economic Capital

* University of South Africa, PO Box 52185, Wierda Park, Centurion, Pretoria, South Africa, 0149

Telephone: +27 12 429 3010

Mobile: +27 8307 6265

Email: youngj@unisa.ac.za

1. Introduction

The focus on operational risk increased since the publication of the regulatory framework by the Basel Committee on Banking Supervision in June 2006 (Basel 2006). This framework deals with guidelines to link a minimum capital requirement to the risks to enhance greater consistency of capital adequacy. This focus is especially applicable to the banking industry, mainly due to the regulatory requirements placed on the industry by the central banks. According to Jobst (2007), the New Basel Capital Accord underscores the need to heed new threats to financial stability from operational risk. As such, it became crucial to understand the concept of operational risk management, because the new capital rules require from banks to allocate a capital charge to operational risk and not only credit and market risk. Therefore, operational risk was accepted as one of the major risk types that must be managed by banks alongside credit and market risks. According to Wikipedia (June 2014), the topic of market and credit risk has been the subject of much debate since mid-1990. However, the financial crisis in 2008 indicated that there are still challenges in managing credit and market risk

which lead to Basel III regulations for banks. Although the New Capital Accord focused more on capital charges for credit and market risk, various events such as the September 2001 terrorist attacks, losses due to rogue trading (Barings Bank amongst others) indicate the importance of operational risk management. Furthermore, operational concerns such as unauthorised processes, inadequate systems, human resource problems and certain external events, elevated the management of operational risk as a primary risk type even more.

During the establishment of an operational risk management framework, various practical problems were encountered. Of these problems were, for example, defining operational risk, the measurement thereof, and identifying suitable methods to manage it and how it could add value by being managed.

A concept that currently seems to be under scrutiny and imposing practical challenges for a number of corporate organisations, that implemented an operational risk management framework, is that of a risk appetite statement. It seems that there is currently not a generally accepted definition for risk appetite and there are various views on what it should be. For example the

Institute of Operational Risk (2009), state that operational risk appetite might be accurately described as the operational risk it is prepared to tolerate. Notwithstanding this wide description, various definitions and views on operational risk appetite and the practicalities thereof still seem to be vague and unsure. According to Carey (2005), risk appetite is a term that is frequently used throughout the risk management community, but seems that there is a lack of useful information on its application. In order to address this vagueness on the term of operational risk appetite and its practical application, the research question that is applicable to this research is if there are clear guidelines for understanding the concept and the implementation thereof?

Therefore, this article aims to provide guidelines to formulate a realistic operational risk appetite statement that would add value to the management of the related risk exposures. A summary of the results of a survey to determine the status of the implementation of an operational risk appetite statement will conclude and serve as the basis for the findings of this article. These guidelines could also assist organisations during the developing process or as a benchmark to compare their current approach towards formulating a practical operational risk appetite statement.

In order to achieve this goal, it is necessary to start with a background of the development of operational risk, how it progressed to being a critical risk type to be managed and its current status to ensure a value-adding management process.

2. Operational risk management

The establishment of operational risk management as a separate management discipline started with accepting a suitable definition thereof. As such, the current definition proposed by the Basel Committee on Banking Supervision (2003), is widely accepted as the definition of operational risk, namely: the risk of losses due to inadequate or failed internal processes, systems or people, or because of external events. This definition excludes strategic and reputational risk, but includes legal risk. Although this definition provides a clear demarcation of the sub-risks (people, processes, systems and external events), the next challenge was to quantify and qualify the risk exposures in such a manner that it can be managed. Therefore, a next step was to identify methods to quantify and qualify the operational risk exposures, of which the most popular methods (also mentioned in the New Basel Accord (Basel II) in 2003) are the following:

- Loss history. This methodology involves the use of loss data (external and internal) to

identify the risks based on incidents that happened in the past which can be used to avoid or manage similar risk incidents. Young (2014) states that a loss event database is the only method that provides both financial and quantitative measures of operational risk.

- Risk and control self-assessments (RCSA). According to Young (2014), this method is a bottom-up approach to evaluate operational risk. The self-assessment process involves the identifying and rating of the inherent risks and existing control measures in order to determine the residual risks that are critical to be managed. This method focuses on potential future risk exposures that should be managed.

- Key Risk Indicators (KRIs). The identification of KRIs can result from the RCSA process and should be managed on a regular basis in order to focus on the current risk exposures and to serve as an early warning of a potential risk incident to management.

- Scenarios. The use of scenarios involves the expert opinions, concerns and experience of key role-players in the organisation to identify potential threats and risk exposures for the organisation (Young 2014).

Based on the globally accepted definition and abovementioned methodologies, organisations can manage their operational risks in a more structured way. It also benefits various organisations in the same industry, such as the banking industry, in the sense that the risks aimed at the industry as a whole can be managed by means of a combined effort instead of on an individual basis.

A question that currently exists is how organisations are approaching the challenges relating to operational risk appetite?

3. Operational risk appetite

A good starting point to establish an operational risk appetite process is to define it in such a way that it is clear and acceptable to all role-players. However, currently there are a number of definitions, which could cause some confusion, especially where a unified risk appetite is defined for various risk types such as market risk, credit risk and operational risk. If one should consider some of these definitions, it becomes clear that there are different definitions aimed at different risk types. For example, a report by the Deutsche Bundesbank (2005) defines risk appetite as the willingness of investors to bear risks. This definition is clearly related to a bank and its market risk. Additional views and definitions for risk appetite and the possible link to a primary risk type are reflected in Table 1:

Table 1. Definitions of risk appetite

	Definition	Comment
1	Duckert (2010) refers to risk appetite as an amount of risk that the management of an organisation is comfortable with.	This is an encompassing approach focusing on the amount or risk. As such it needs to be quantified in one way or another. This definition could apply for any risk type.
2	According to Hiles (2011), an organisation's risk appetite is an indication of the level of risk which it is prepared or able to accept.	This definition reflects a general statement, not indicating what the level must consist of and could apply for any risk type.
3	Blunden & Thirlwell (2010) state that the risk appetite is the loss that a firm is willing to accept for a given risk-reward ratio over a specified time horizon at a given level of confidence.	This definition is based on a risk-reward ratio, which can be regarded as an important aspect, because it is important that the cost of risk controls must not be more than the reward. This definition could relate to operational risk.
4	According to Rittenberg & Martens (2012), risk appetite is the amount of risk an organisation is willing to accept in pursuit of value.	This description also refers to an amount and therefore the appetite must be quantifiable. However, it refers to the pursuit in value which can be linked to market risk rather than operational risk, because operational risk mostly relates to possible losses an organisation can experience.
5	According to the Basel Committee on Banking Supervision (2006), risk appetite is a broad-based amount of risk an organisation is willing to accept in pursuit of its mission or vision.	This definition also indicates an amount, meaning that it must be quantified in terms of the organisation's strategy (Vision and mission) and could be suitable for any risk type.
6	Nocco & Stultz (2006) define risk appetite as the probability of financial distress that maximises shareholder wealth.	This definition refers to financial distress which could be interpreted as a loss to the organisation, which relates to operational risk. However, to maximise shareholder value could also relate to market and credit risk.
7	According to HM Treasury (2006), risk appetite can be regarded as the amount of risk that an organisation is prepared to accept, tolerate, or be exposed to at any point in time.	This description also refers to an amount and can be related to any risk type.
9	Barfield (2007) views an organisation's risk appetite as the maximum amount of risk that it can assume.	This view relates to an amount which an organisation can assume and must therefore be quantifiable. It can refer to a loss that it is prepared to assume, referring to a potential loss due to operational risk.
10	Gai & Vause (2004) simply state that risk appetite is the willingness of investors to bear risk.	This view can be directly related to market risk in terms of the appropriateness of the business decisions.
11	Chapman (2008) states that risk appetite can be defined as the amount of risk a business is prepared to tolerate at any point in time. A business's tolerance will be a reflection of its capacity to absorb risk.	This is also a broad definition of risk appetite and can be applicable to any risk type.
12	The Good Governance Institute (2012) states that the amount of risk that is judged to be tolerable and justifiable is the risk appetite.	This description can also be relevant to any risk type, because "tolerable" can refer to a potential loss, while "justifiable" can refer to market or credit risk.

From the above definitions and views, it can be deduced that a definition for risk appetite can be generalised to suit all risk types or it can be applicable to a specific risk type. However, Carey (2005) states that risk appetite is a term that is frequently used throughout the risk management

community, but it seems that there is a lack of useful information on its application outside of financial risk areas or other risks that can easily be translated into financial terms. In order to address the lack of information, it might be useful to have a definition and understanding of risk appetite for

each major risk type faced by an organisation. According to the Institute of Operational Risk (2012), expressing operational risk appetite is a question of defining what is acceptable and unacceptable to an organisation for each risk type. By determining the parameters for each risk type, it can be decided what is a tolerable threshold.

Based on the abovementioned definitions it is clear that a definition for risk appetite should include a quantification factor in order to determine the "amount" of risk. From an operational risk perspective, the risk exposures can, for example, be quantified by means of the value of losses that occurred in the past. Therefore, when considering a definition for operational risk appetite, the "amount" can be related to the losses experienced by the organisation. However, there are also other methods to quantify the operational risks, for example by using rating scales and Key Risk Indicators, which will be addressed later in this article.

A further conclusion based on the above descriptions, relates to the strategic business objectives at a specific "point in time". It seems imperative that an operational risk appetite definition should incorporate a reference to the business strategy (vision, mission and objectives) in order to prevent it from becoming an independent concept removed from the actual business. Chapman (2008), for example, confirms the previous conclusion by stating that a risk appetite is the degree of risk that a business is prepared to accept in pursuit of its objectives. An organisation's business strategy and strategic objectives can change and it is therefore important that the risk appetite must be adapted accordingly. Therefore, it seems necessary to include a time factor in a definition in order to ensure that the risk appetite is adapted according to the business strategy and or a changing business environment.

Another concept seems to be what is tolerable for the organisation. This can be interpreted as tolerable in terms of risk-reward or financial losses. In terms of operational risk management, the risk appetite should ensure that the costs of controls to mitigate the risks should not exceed the benefits it can generate. In agreement with this statement, the Institute of Operational Risk (2012) states that "...operational risk is more likely to be mitigated downwards as long as the cost of mitigation does not exceed the expected loss". Furthermore, it must indicate the potential financial losses that an organisation must be able to tolerate after mitigating control measures. Therefore, it seems there are, at a minimum, four concepts that should be included in a definition for operational risk appetite, namely, amount, tolerance, time-factor and business objectives. Therefore a definition for operational risk appetite could be:

The amount of risk an organisation is prepared to tolerate at a given point in time in terms of losses in pursuit of business objectives.

Although this definition can be regarded as yet another view, what is imperative is that every organisation must define its own definition of operational risk appetite and ensure that it is known throughout the organisation.

Similar to the approach to embed operational risk, after defining it, the next step to establish an operational risk appetite process, can be to determine the various methodologies to assist with the management thereof. Because operational risk appetite is an integral part of an operational risk management process, the methodologies should be the same. Adding to this view the Institution of Operational Risk (2012) states that the risk and control self-assessments; internal loss event reporting; and scenario analysis provides a clear indication of proportional response to the perceived materiality of the associated risks. Therefore, the methodologies mentioned earlier should be applied for setting the operational risk appetite. The contribution of each methodology can be described as follows:

- Loss history. According to Young (2014), the analysis of losses can provide information from trend analysis, which can serve as a basis for the implementation or upgrading of risk control measures. According to the Committee of Sponsoring Organisations (COSO) (2004), quantitative techniques are dependent on the quality of the supporting data and assumptions. These are most relevant for exposures that have a known history and frequency of variability, and which allow reliable forecasting. In addition, the loss data indicates the value of loss incidents which happened in the past during the implementation of business strategies and can be used to quantify the risk exposure and therefore determine the "amount" of risk for the organisation when determining the operational risk appetite.

- Key Risk Indicators (KRIs). According to Hoffman (2002), operational risks will not be effectively identified without first identifying the key risk indicators of operational risk. By managing specific KRIs during the efforts to achieve the business objectives, it identifies the primary residual risks which could influence the achievement of business objectives. One of the criteria of managing a KRI is to determine a threshold. According to Young (2010), a tolerance threshold must be determined by management and must only change according to changing circumstances. Carey (2005) states that a threshold becomes an actual manifestation of the risk appetite as risk management becomes more strictly aligned with management and the organisation's desire to accept certain levels of risk. It is clear that the KRIs can be used in determining an acceptable risk

appetite especially as far as the setting of the “tolerable” thresholds for the risks is concerned.

- Risk and control self-assessments (RCSAs). According to Young (2014), risk and control self-assessments are internally driven analysis of risks, controls and their implementation, with the objective of determining a common understanding of the strengths and weaknesses of the operational risk environment. A typical process involved during RCSAs is to identify the inherent operational risks, rating these risks and assessing it against control measures. The final result is the rated residual risks that must be managed. The methodology includes the use of rating scales to determine the likelihood and impact of the risks. For example the likelihood scale could be as follows:

- o Level 1: Low probability of occurring
- o Level 2: Medium
- o Level 3: High probability of occurring

The impact rating scale can be linked to a value, for example:

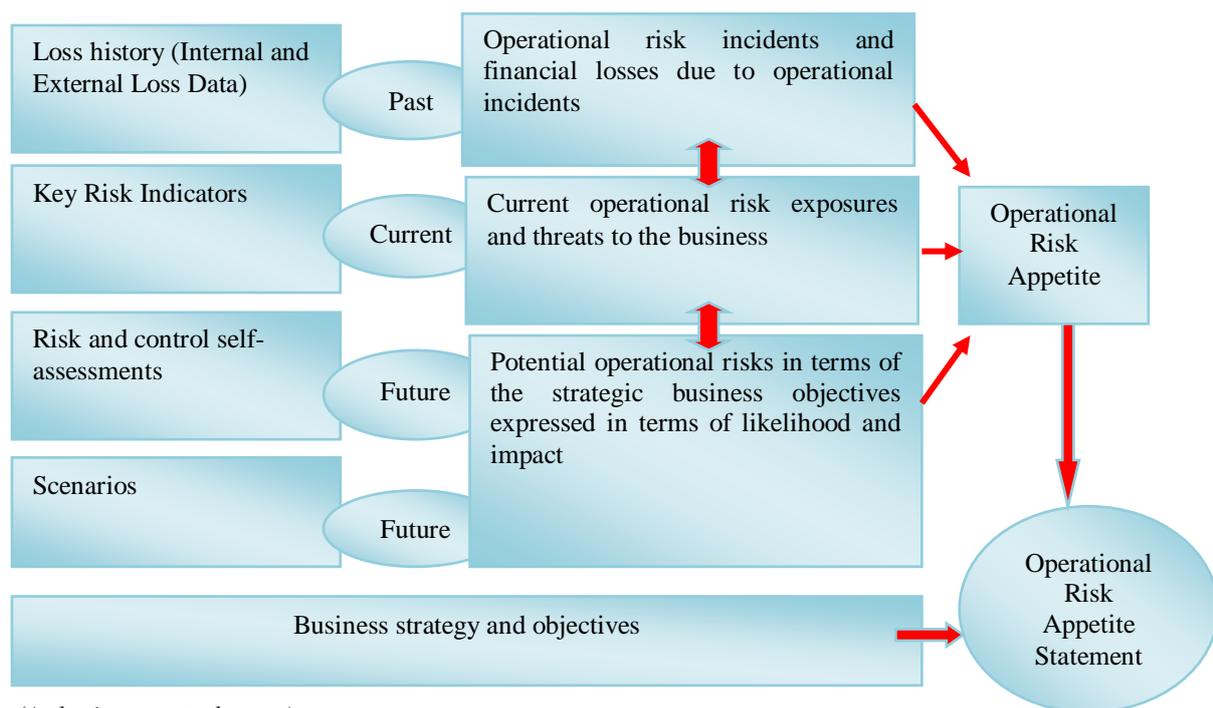
- o Level 1: Low impact (< x Financial value)
- o Level 2: Medium impact (Between x and y Financial values)
- o Level 3: High impact (> z Financial value)

These scales can also be used to determine the operational risk appetite especially concerning potential future risks.

- Scenarios. Scenarios can also be used in addition to RCSAs to identify potential risks to be considered during the formulating of the business strategies and objectives.

The selection of the appropriate risk measurement methodology should be made based on the nature of the business and the seriousness of the potential influence of operational risks. This would indicate the depth of the data required to consider in determining the risk appetite. Figure 1 illustrates how these methodologies can be integrated to provide input to set an operational risk appetite statement.

Figure 1. Integrated methodologies to determine operational risk appetite



(Author’s conceptualisation)

According to a study undertaken by Marsh and the University of Nottingham (2009), risk appetite plays a key role in supporting an organisation’s strategy and achieving of business objectives. As such, it is clear that once the business strategy and objectives are set that the risk appetite can be determined by using the said methodologies. A question that arises is at what stage must the risk appetite be determined, before

the finalisation of the business strategy or afterwards? Seeing that that the operational risk appetite often relates to the downside of business (losses and or what can go wrong), it should be set at the same time and therefore part of the strategic planning process. The primary reason could be seen that the risk appetite will add value during the implementation of the strategy by providing continued risk guidelines for decision-making and

ensuring that threats and potential threats are proactively dealt with by means of control measures. A risk appetite can, therefore, provide guidance on the limits of the risks threatening the successful achievement of strategic objectives. According to Wikipedia (2013a), by defining its risk appetite, an organisation can arrive at an appropriate balance between uncontrolled innovation and excessive caution. It can provide guidance on the level of risk permitted and encourage consistency of the approach across an organisation. Defined acceptable levels of risk also means that resources are not spent on further reducing risks that are already at an acceptable level.

An organisation's risk appetite is directly related to its strategy and it is thus imperative that the risks are considered during the strategy planning process. Typical steps of a strategy planning process can be conceptualised as illustrated in figure 2.

- Step 1. The overall business strategy is analysed at an organisational level to formulate the business goals. During this process an overall risk assessment is done to identify the overall risk types and risk exposures. An initial risk appetite is determined to establish if the business goals falls within the organisation's risk tolerance levels or what it can afford to lose without negatively

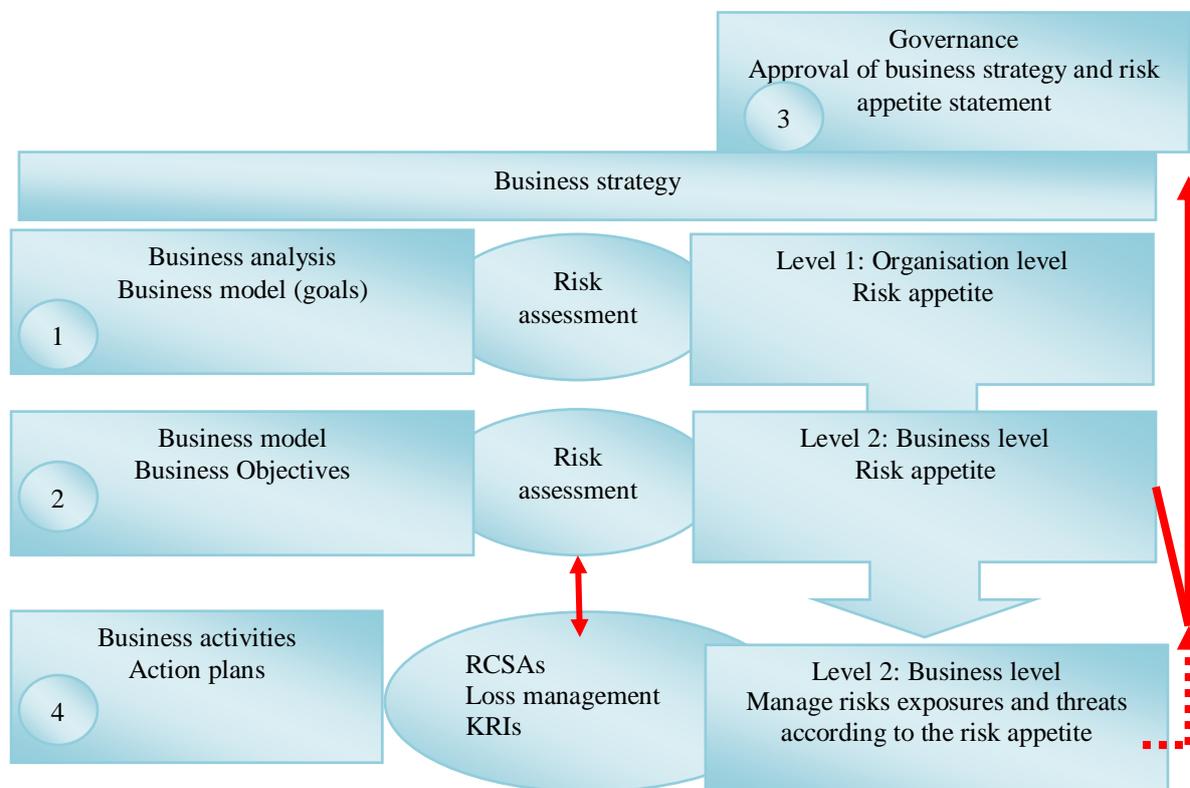
influencing the continuation of the business as a going concern.

- Step 2. During this step the business model (determined in step 1) is analysed in detail to determine the business objectives. Each business objective is subject to a risk assessment to identify the risks and potential threats. This is done at a business unit level and a risk appetite is determined for each objective.

- Step 3. The identified risk appetite is approved by top management (board of directors) as part of the overall business strategy and can be expressed in terms of the risk appetite statement. According to Barfield (2007), to embed a risk appetite effectively in the business requires management to establish limits for each risk type and cascade them to the lower levels in the organisation.

- Step 4. This step involves the execution of the activities to achieve the business objectives. During this process the risks are managed on a continuous basis by means of the implementation of the risk management process and methodologies. During this process, feedback can be provided in order to review the business strategy as a result of a changing business environment, which could also mean an update of the risk appetite. The risk management methodologies also provide a continuous input to the business model.

Figure 2. Strategy planning process



(Author's conceptualisation)

It is clear that determining a risk appetite is an integral part of a strategy planning process. This view is supported by COSO (2004) whereby it is stated that risk appetite is directly related to an organisation's strategy. However, it is also clear that the risk appetite is a dynamic process that must also be updated in accordance with any changes in the business strategy. The next section deals with the way the risk appetite can be expressed in terms of a risk appetite statement.

4. Risk appetite statement

An organisation can express its risk appetite in the form of a risk appetite statement. According to Wikipedia (September 2013b), the results of the risk appetite process should be documented in a risk appetite statement, covering each risk category. Such a statement will ensure that managers can perform their business responsibilities with sufficient guidance within the allowed levels/boundaries of risk. According to Protiviti (2011), a risk appetite statement establishes a common understanding between executive management and the board of directors regarding desirable risks underlying the execution of the organisation's strategy. The Good Governance Institute (2012) states that if an organisation does not have a risk appetite statement, it will face control problems and managers will be running their business with insufficient guidance on the levels of risk that they are permitted to take. The Institute of Operational Risk (2012) also cited the British Standard by stating: "The organisation should prepare a risk appetite statement, which may provide direction and boundaries on the risk that can be accepted at various levels of the organisation, how the risk and any associated reward are to be balanced and the likely response". It was mentioned earlier that it is important to set a risk appetite for each risk type. For operational risk, the appetite statement would concentrate on the downside of risks rather than business opportunities.

Barfield (2007) states that establishing a clear risk appetite statement has important consequences in terms of management information and performance management requirements. As such, it is important that the risk information generated by loss incidents, risk and control self-assessments and key risk indicators are accurately reported and escalated to the right levels of management to use as input to monitor the risks. The business risks must be monitored in order to ensure that the business actions remain within the boundaries of the approved risk appetite.

The manner that the risk appetite is expressed is therefore imperative and the limits of the risk that

can be taken must be clear. As such, the risk appetite must be expressed in the same terms as those used in assessing the risk (HM Treasury 2006). Therefore, the operational risk appetite statement should be expressed in terms of the methodologies (Losses, KRIs and RCSAs). Because operational risk mostly relates to the downside of risk, the risk appetite statement should indicate the amount of the potential losses that the organisation is prepared to tolerate while pursuing the business objectives. Although the aim is not to incur any losses and therefore any organisation should have a zero-tolerance for operational risk, the reality proved that risk events and losses do occur in the pursuing of business objectives. Therefore, an organisation must be realistic when expressing its operational risk appetite and be prepared for these losses. As such, the operational risk appetite statement can be expressed in terms of the following:

- Qualitative statements. Due to the challenge in quantifying operational risks this is a popular way of expressing an organisation's operational risk appetite. According to Marsh (2009), qualitative statements can be useful and assist to fill the gaps of an organisation's appetite for risk by expressing certain attitudes, for example to avoid regulatory sanctions or reputational damage. Another advantage of these statements is that it can be easily communicated across the organisation and can be integrated, for example, into an organisation's policies and ethical value statements. A typical example of such a statement is:

Company X has zero-tolerance for:

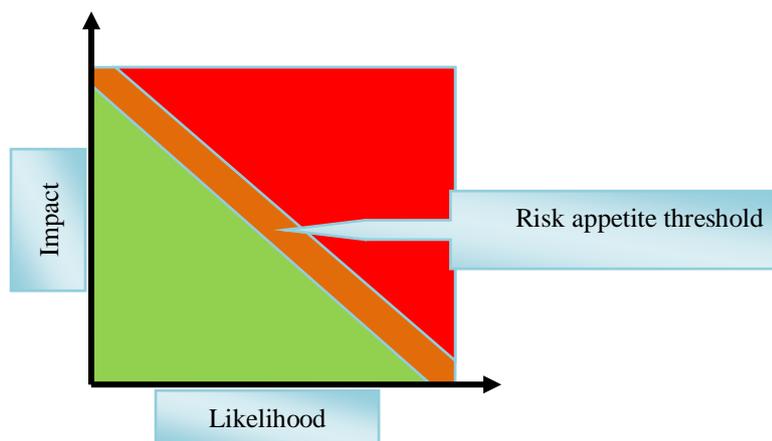
- o Unethical business practices
- o Reputational risk
- o Non-compliance to regulations

Although a company has a zero-tolerance towards these type of actions, it does not mean that it will not occur. It is therefore imperative that corrective and disciplinary actions should be incorporated into the related policies.

- Quantitative statements. These risk appetite statements are linked to some form of measure such as value, percentage or volume.

- o Operational risk appetite statement based on risk and control self-assessments. Based on the RCSA methodology, an operational risk appetite statement can include a matrix (Figure 3), which includes the impact and likelihood scales and a risk appetite threshold.

Figure 3. Operational risk appetite matrix

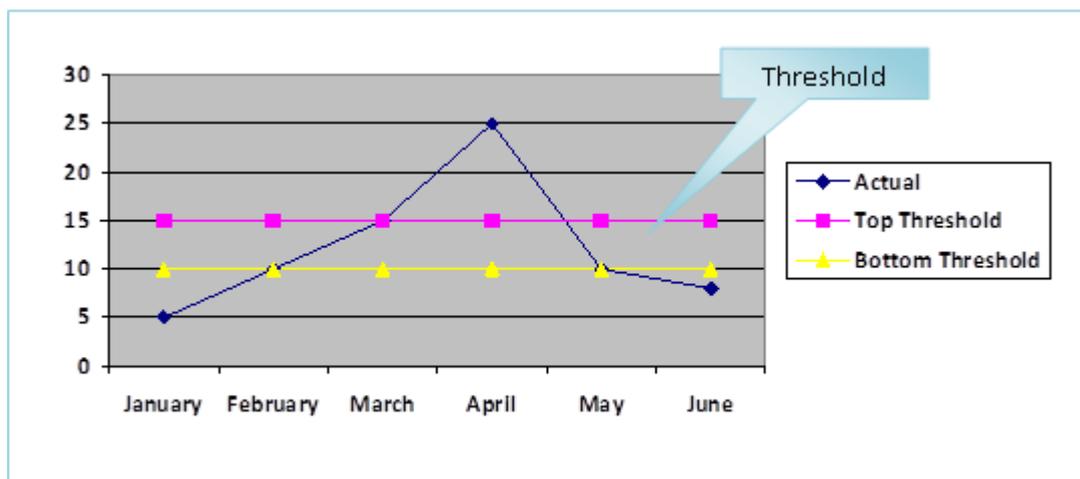


According to Marsh (2009) this approach makes it easy to communicate throughout the organisation, because it is based on the already existing RCSA methodology and approved rating scales of the impact and likelihood of risk events.

o Operational risk appetite statement based on key risk indicators. Another operational risk appetite statement can be based on the Key Risk Indicator process. This approach is based on setting thresholds for a number of key risks. These thresholds will serve as an indication (early warning) when an approved threshold is breached.

According to the Institute of Operational Risk (2010a), the concept of a threshold is to establish boundaries that, when exceeded, alert the organisation to a potentially significant change in risk exposure. This approach is also acceptable and widely used throughout the organisation. It is, however, important that the KRI must be clearly defined and that a threshold is approved by top management. A typical example is illustrated in figure 4 below.

Figure 4. Operational appetite based on key risk indicators



o Operational risk appetite statement based on financial volatility. Operational losses are inevitable during the pursuing of business objectives. Therefore, most organisations take out insurance to cover losses that breach a certain amount. Due to the unexpected nature of operational incidents and consequent losses, some organisations allocate an economic capital for these catastrophic-type losses to ensure that the organisation can absorb these losses and continue should such an event occur. In the banking industry

this capital charge is determined by the central banks in the form of regulatory capital, based on the New Basel Accord. The fundamental objective of this Accord is to develop a framework that would strengthen the soundness and stability of the international banking system while maintaining sufficient consistence that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks (Basel 2004).

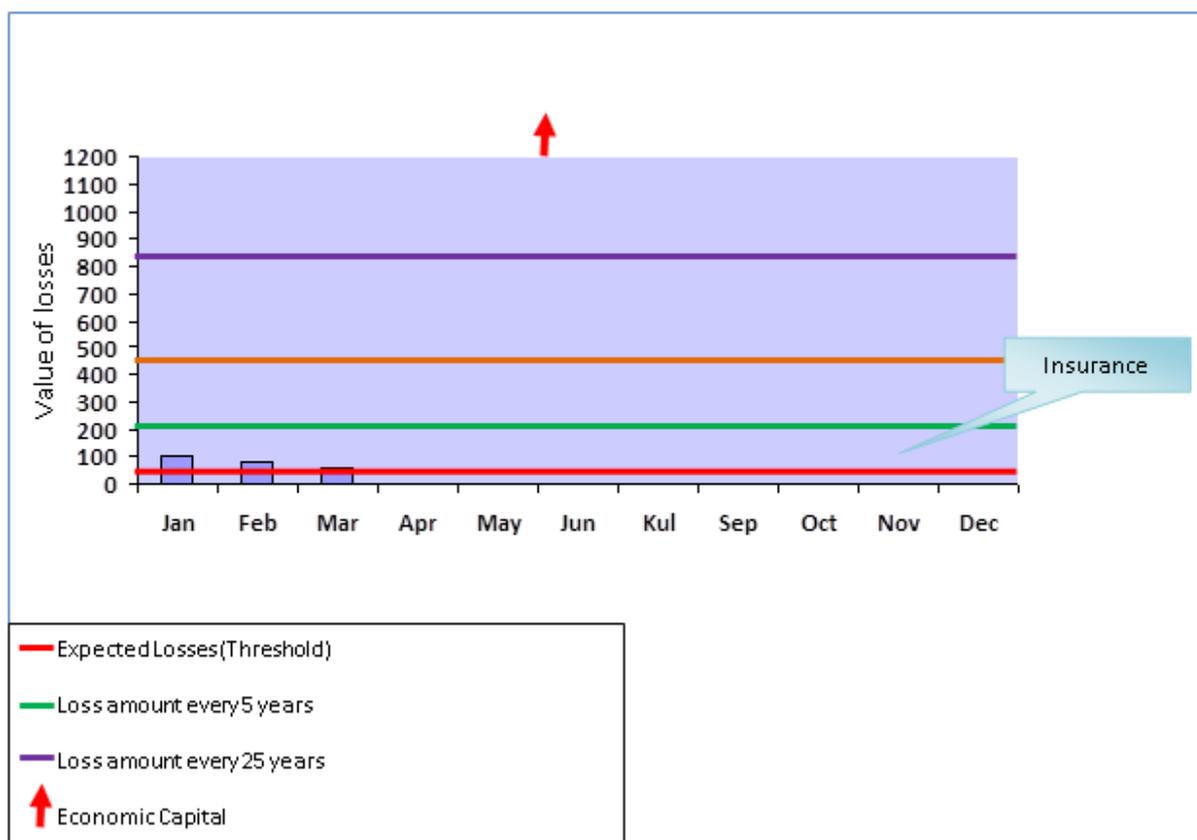
Depending on the business environment, the organisation should determine the financial volatility in terms of potential losses as well as the capital allocation for operational risk. The financial volatility can be expressed as follows:

Expected loss Value

Loss incident every 5 years = Loss value
 Loss incident every 25 years = Loss value
 Economic Capital = Value.

This can be illustrated graphically in Figure 5 below.

Figure 5. Financial volatility in terms of losses



The Economic Capital is determined by a separate process based on given formulas and should cover the unexpected catastrophic loss which could cause the downfall of the organisation. The organisation can decide on an insurance threshold, normally covering losses above the expected and tolerable loss level.

It is clear that thresholds play a crucial role in the setting of a risk appetite statement and it is therefore imperative that top management is involved in the process.

5. Responsibilities of top management

According to the Association of Insurance and Risk Managers (2010), it is important that the board sets rules for risk-taking in respect of all types of risk and at a board level, risk appetite is seen as a driver of strategic risk decisions. As such, it is clear that the setting of a risk appetite statement is an integral part of the business strategy planning process. It can thus be concluded that top management plays a crucial role in the process of setting an operational

risk appetite statement for the organisation. According to Mongiardino and Geny (2007), a clear description of the role of the board of directors and its committees in setting the risk appetite for the organisation is required, which implies that top management should play an active role in this regard. According to COSO (2004), the board should be aware of the organisation's risk appetite, concur with it and review the organisation's portfolio view of risk and consider it against the risk appetite. According to the Institute of Operational Risk (2012), sound governance requires that the operational risk appetite must be owned by the board of directors and established with their full engagement. Therefore, it seems that the process of establishing a risk appetite starts with the board, indicating that it is initiated by a top-down approach. However, the use of the methodologies for operational risk management is based on a bottom-up approach because the risks must be managed at the closest level to the actual exposure. Therefore, the risk information that can be used to set a realistic operational risk appetite

should be received by means of a bottom-up reporting process. On the other hand, it can be deduced that the top-down approach can be viewed as embedding a culture of risk management, which includes the setting of a risk appetite statement. The board should therefore be responsible for embedding the risk management culture and specifying the process to set a risk appetite statement. This can be achieved by including the process and roles and responsibilities in a risk management policy. It is, furthermore, imperative that the board approves the applicable thresholds involved in the operational risk appetite statement, mainly because the ultimate responsibility for the approval of the risk appetite lies with the board. In support of this statement, the Institute of Operational Risk (2012) states that a benefit of the operational risk appetite is to enable the board to exercise appropriate oversight and corporate governance by defining the nature and level of risks it considers acceptable and setting boundaries (thresholds) for business activities. It is however, important to note the dynamic nature of the business environment, which could cause a change in strategy and by implication also an adaption of the risk appetite statement and the approved thresholds.

The aligning of the risk appetite with the business strategy is an important part of setting the operational risk appetite, and therefore, important that it is driven by top management. According to COSO (2004), the board must be aware and concur with the organisation's risk appetite. The role and responsibility of top management regarding the setting of a realistic operational risk appetite can be summarised as follows:

- Embedding of a risk management culture in the organisation, which should include the process of formulating a risk appetite statement for each primary risk type such as operational risk, credit risk and market risk.
- Approval and communication of a risk management policy, indicating the roles and responsibilities at all management levels to determine an operational risk appetite statement. According to the Institute of Operational Risk (2010b), the board must approve the policies developed by senior management and set the risk appetites for the various operational risks.
- Ensuring that risks are managed according to the risk management framework and that accurate and reliable information is reported to the various management levels during the strategy planning process and the execution of activities to achieve the business objectives.
- Approval of the qualitative and quantitative operational risk appetite statements, including the thresholds.

- Monitoring the progress towards the achievement of business objectives within the tolerance levels set by the approved risk appetite.

- Approval of requests to change the approved thresholds and statements aligned with changing business strategy and objectives.

Although this list could be analysed into more specific responsibilities towards the setting of an operational risk appetite statement, it could be used as a guideline when an organisation considers the development and implementation of a risk appetite process.

6. Guiding criteria

Based on the abovementioned literature review, it is possible to determine a non-exhaustive list of criteria that could assist and support the development and or evaluating of an organisation's operational risk appetite process. A summary of these criteria is as follows:

- The process of formulating an operational risk appetite statement should be part of an organisation's risk management process.
- The process of setting a risk appetite statement should be incorporated into a formal policy of the organisation and approved by the board of directors.
 - A formal and communicated definition of an operational risk appetite should be established for the organisation.
 - The operational risk management tools (RCSA, KRIs, Loss History and Scenarios) should be used as an input to formulate the operational risk appetite.
 - The risk appetite statement should form an integral part of the strategy planning process of the organisation at various management levels.
 - There should be a separate risk appetite statement for each main risk type for the organisation (For example: operational risk, credit risk and market risk).
 - The operational risk appetite process should be a combination of a top-down and bottom-up approaches. The bottom-up approach should include the supplying of relevant information (based on the risk management methodologies) and specific risks at the various business levels. The top-down approach should include the approved risk appetite statements for each risk type, based on the approved business strategies.
 - The operational risk appetite statement should include qualitative and quantitative statements which consist of the approved thresholds (boundaries and tolerance-levels).
 - The operational risk appetite statement should be communicated to all levels of the organisation.

- Changes to the thresholds should be approved by top management based on the changing business environment and strategies.

In order to substantiate the arguments of this article, a brief survey was undertaken to confirm the current status as well as the criteria which can assist during a practical approach to formulate an operational risk appetite statement.

7. Research methodology

In order to determine the current status of the use of an operational risk appetite statement as part of a risk management process, it was decided to use the South African banking industry as the target population for a survey. A reason for using banks in South Africa is based on the fact that the banking industry can be regarded as one of the leading industries when it comes to risk management due to the regulatory requirements enforced by the South African Reserve Bank, which are mostly based on the guidelines by the Basel Committee on Banking Supervision. The data was collated by means of a closed questionnaire which was distributed electronically as well as physically to various role-players in the industry. The target population was identified across a variety of roles within the bank; for example, members of the board of directors (top management), risk managers, business managers, compliance officers and financial managers. The main reason for distributing the questionnaire to the aforementioned was that these positions can be regarded as the main role-players during the

organisation's strategy and risk management processes.

The aim of the questionnaire was, firstly, to determine the current status of operational risk management as a specific management discipline as well as the status of formulating a risk appetite. Secondly, it aims to rate the criteria for a practical approach to formulate an operational risk appetite statement and confirm the role and responsibilities of top management.

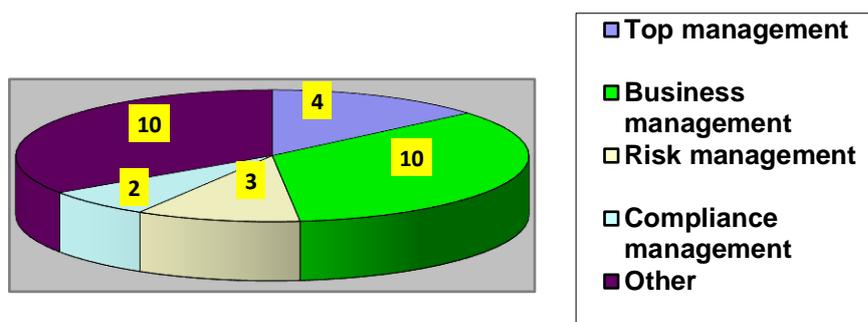
The questionnaire requested respondents to indicate on a 5-point Likert scale their views and experiences regarding specific questions on the status of the implementation of an operational risk and appetite statement. The response was analysed in terms of descriptive statistics according to the following scale:

1. Do not know
2. To no degree
3. To some degree
4. To a moderate degree
5. To a degree
6. To a full degree

7. Research results

The questionnaires were randomly distributed to various role-players in the banking industry of South Africa. A total of 70 questionnaires were distributed and 29 were returned on the due date which represents a 41.4% response. Figure 6 indicates the positions of the respondents, while Figure 7 indicates the years of experience.

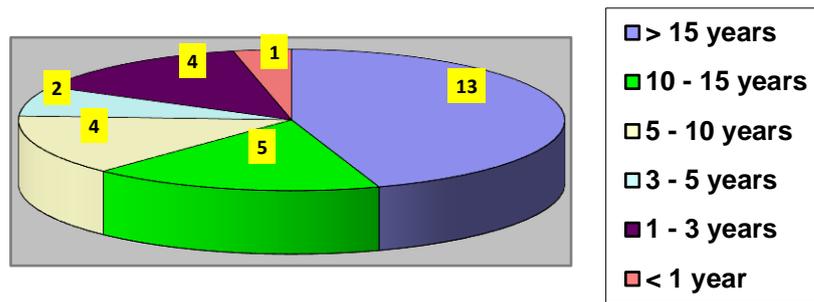
Figure 6. Positions of respondents



Forty-eight per cent of the respondents fall in the top management and business management categories, indicating that most respondents should be familiar with the business of banking and should know the role and responsibilities of top

management. According to the years of experience, 62% of the respondents have more than 10 years' experience in banking, indicating a vast experience in this field.

Figure 7. Years of experience



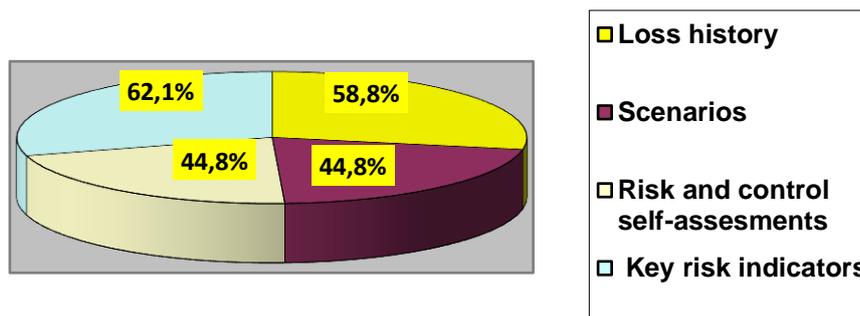
Regarding the status of a definition for operational risk 72.4% of the respondents indicated that it has been accepted and announced to an acceptable degree within their banking structures. Based on this response, it can be concluded that operational risk management is regarded as an important management discipline by banks and that it has been announced in risk management policies.

According to the respondents the basic operational risk management tools are being used to

manage operational risk. Figure 8, indicates the response in terms of the agreement that the respective tools are being used at an acceptable level.

The response indicates that the use of KRIs seems to be the most popular followed by loss history and risk and control self-assessments and scenarios.

Figure 8. Use of operational risk management tools

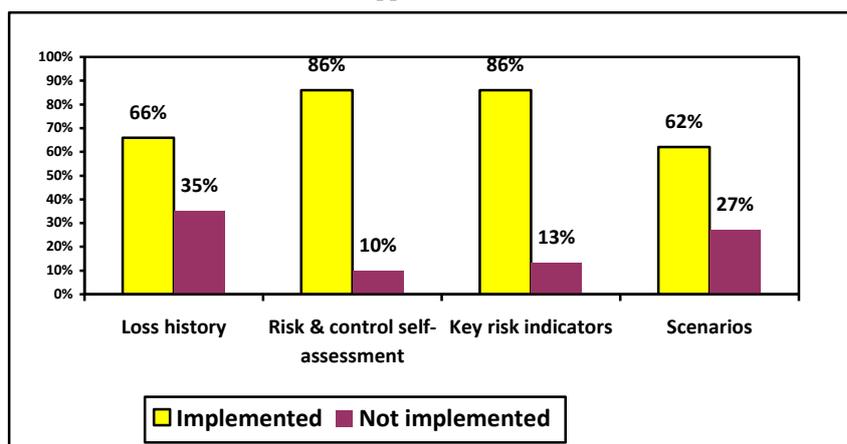


To determine the response on the formulation of a separate risk appetite for the primary risk types, 72.4% of the respondents agreed that an organisation should formulate a separate risk appetite for different risk types, such as credit, market and operational risk. Subsequently, 62.1% of the respondents agreed to the following definition of an operational risk appetite: “The amount of risk an organisation is prepared to tolerate at a given point in time in terms of losses in pursuit of business objectives”. However, only 17.2% of the respondents fully agreed that a formal definition for operational risk appetite had been formulated. As such, it can be concluded that the defining of operational risk appetite is still at a grassroots level. Similarly, 51.7% of the

respondents agreed that an operational risk appetite should be an integral part of a bank’s risk management process. However, 24% of the respondents indicated that they either do not know or that the setting of an operational risk appetite should be part of a risk management process to a lesser degree. The main conclusion in this regard is that the setting of a risk appetite should be an integral part of a risk management process, however, it seems that this aspect still needs to be formulated in more understandable terms.

The use of the operational risk management tools is essential in setting a realistic operational risk appetite. This view is supported by most respondents and illustrated in figure 9.

Figure 9. Utilisation of operational risk management tools as an input to determine the operational risk appetite



The response indicates that 66% agree that loss history is used to a total degree during a risk management appetite process, while 35% indicated that it is not implemented. Similarly, 86% agreed that risk and control self-assessments and key risk indicators are used to a total degree, while 10% and 13%, respectively, indicated that it is not implemented. Sixty-two per cent indicated that scenarios are used, while 27% indicated that it is used to a lesser degree for a risk appetite management process. As such, it can be deduced that, in general, banks are mostly still in a development phase regarding a process for operational risk appetite and the use of operational risk tools. Similarly, the relative high percentages of the response for not using the loss history and scenarios could indicate that these two risk management tools can still be exploited further to assist in the setting of an operational risk appetite.

Sixty-two per cent of the respondents indicated that a process to formulate an operational risk appetite statement has been included in a risk policy. However, 37.9% did not agree that there is a formal process in place. As such it can be concluded that the development of a formal process

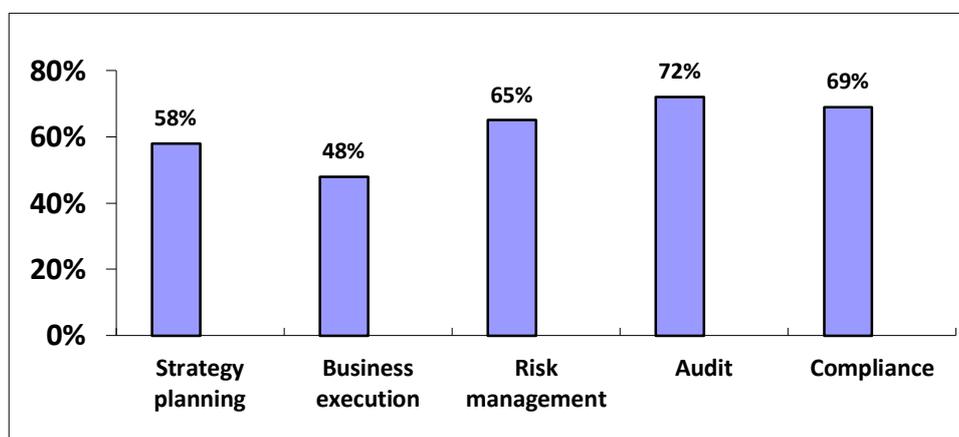
to formulate an operational risk appetite statement should be included in the risk policy, but this still requires some attention.

According to the response, 86.7% of the respondents agreed that the setting of an operational risk appetite statement should be an integral part of a bank's strategy planning process, while 51.7% agreed that it is currently the case. As such, it can be concluded that although most respondents agreed that the setting of an operational risk appetite should be part of a bank's strategy planning process, it still requires some attention to ensure that the process is formalised.

Risk appetite statements should benefit organisations during specific processes. According to the response, (refer to figure 10), the respondents agreed that an operational risk appetite statement would benefit the following processes:

- The risk management process
- The audit management process
- The compliance management process
- The strategy planning process
- The execution of activities to achieve business objectives

Figure 10. Benefit of risk appetite to processes



From the abovementioned response, it can be concluded that although most respondents agreed that an operational risk appetite statement would benefit the mentioned processes, it is clear that currently the benefits are not yet embedded into the actual operations of the business. On the other hand, only 48% agreed that the operational risk appetite process would benefit the business processes. It seems that the risk appetite is currently more applicable to the advisory functions such as risk management (65%), compliance management (69%), auditing (72%) and the planning processes (58%). In order to ensure that the full value and benefits of embedding an operational risk appetite realise, it is imperative that it is utilised during the actual execution of business activities. The primary objective is to ensure that the business operates within the operational risk appetite statement approved by top management. As such, it is clear that the actual embedding of the use of an operational risk appetite statement still requires some attention before the actual benefits can be experienced.

In addition, 55.1% of the respondents indicated that a risk appetite statement is currently determined from a top down approach, while 17.2% agreed that it is a bottom-up approach. For an operational risk appetite statement to be effective, it is crucial that all management levels should participate in the setting of a realistic risk appetite. According to 72.4% of the respondents, the risk appetite should be formulated at different management levels. It can, therefore, be concluded that although the risk appetite statement is approved at top management level, it is crucial that it must be a participative approach at all management levels.

Regarding the qualitative and quantitative approaches to an operational risk appetite statement, 89.7% of the respondents fully agreed that it should be a qualitative statement and 82.7% agreed that it should be a quantitative statement. According to the response, it is clear that an operational risk appetite statement should be qualitative and quantitative in nature. At the same time, 48.2% of the respondents fully agreed to the use of risk and control self-assessments, 79.3% to the use of key risk indicators and loss history for the setting of a quantitative operational risk appetite statement. Therefore, it can be concluded that the risk management tools play a crucial role during the setting of an operational risk appetite statement.

According to the response, the importance of the activities involved during a process to formulate an operational risk appetite is reflected in figure 11. In essence, the response indicates that all respondents are in agreement that the following activities are involved in the management of an operational risk appetite:

- Risk-assessment of business strategies and objectives to identify the risk exposures.
- Identify the organisation's tolerance thresholds for operational risk for each business objective.
- Approval of an overall operational risk appetite statement and tolerance levels for the organisations
- Managing the execution of business activities within the boundaries of the risk appetite statement.
- Adapt the operational risk appetite tolerance levels to a changing business environment and approved by top management.

Figure 11. Activities involved in formulating an operational risk appetite statement

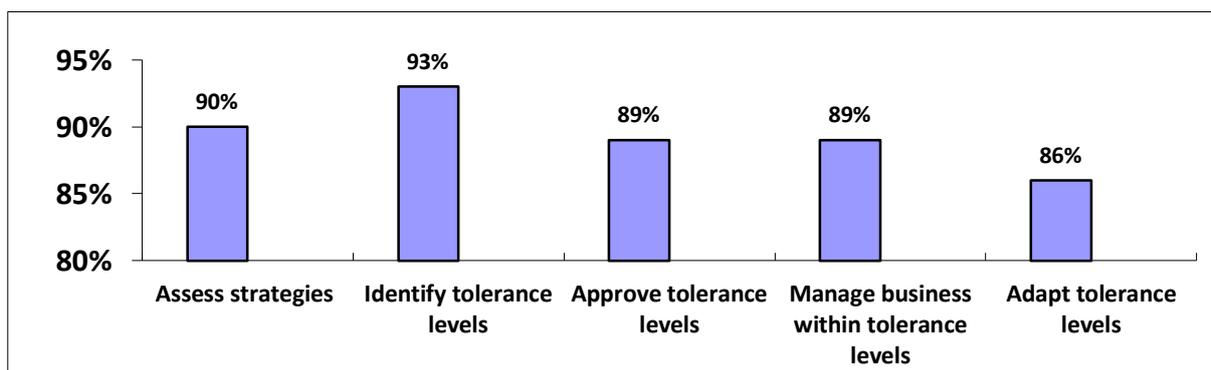


Table 2 provides the response on the importance of the responsibilities of top management towards an operational risk

management appetite process rated in priority order.

Table 2. Priority rating of the responsibilities of top management regarding an operational risk appetite

Responsibility	Percentage	Rating
Ensuring that risk management forms part of the strategy planning process	20.9%	1
Embedding a risk management culture which should include the setting of a risk appetite	20.5%	2
Approving risk appetite statements	19.7%	3
Approving any changes in risk tolerance levels and the adjustment of the risk appetite according to changes in the business environment	19.5%	4
Monitoring the progress of achieving business objectives within the tolerance levels determined by the risk appetite statement	19.4%	5

The most important responsibility of top management regarding the setting of an operational risk appetite was rated (20.8%) as the ensuring that risk management forms part of the strategy planning process. This rating emphasises the principle that risk management should form an integral part of an organisation's strategy planning process and can also be regarded as the first important step in formulating a realistic risk appetite. While the lowest priority was rated at 19.4%, there is no activity that was not rated and the rating is almost evenly spread across the five main responsibilities. It can, therefore, be deduced that the respondents fully agreed with the important role and responsibilities of top management to participate in the setting, approval and management of an operational risk appetite process.

Conclusions

This study provided some insights into the establishing an operational risk appetite process and the formulation of an operational risk appetite

statement. It is evident that operational risk management is an independent risk management discipline within a banking environment; although there are still management issues to be refined such as the setting of an operational risk appetite. Currently, various views and theories exist regarding an actual definition and the strategic fit of an operational risk appetite. Therefore, based on various views and definitions, this article formulated a definition for operational risk appetite as: the amount of risk an organisation is prepared to tolerate at a given point in time in terms of losses in pursuit of business objectives. This can also be regarded as a starting point in developing an operational risk appetite statement.

The primary conclusions drawn from the empirical research can be summarised into a checklist that could also serve as a guideline to evaluate the development, implementation and management of an operational risk appetite process (Refer to Table 3).

Table 3. Checklist to evaluate the implementation of operational risk appetite

#	Guiding criteria
1	Each primary risk type should have a separate risk appetite
2	An organisation should adopt a common definition for operational risk appetite
3	The accepted definition and process to formulate an operational risk appetite should be included in a formal risk policy
4	The primary operational risk tools should be used to provide data to top management as an input to set the operational risk appetite: <ul style="list-style-type: none"> • Loss history • Risk and control self-assessments • Key risk indicators • Scenarios
5	Setting of an operational risk appetite should be an integral part of the organisation's strategy planning process
6	Setting an operational risk appetite should be a combination of a top-down and bottom-up approach, involving all management levels of the organisation.
7	The organisation's operational risk appetite should be formulated in terms of an approved operational risk appetite statement, consisting of: <ul style="list-style-type: none"> • a qualitative statement; and • a quantitative statement
8	The following activities should be incorporated into an operational risk appetite process: <ul style="list-style-type: none"> • Assessment of business strategies to identify the risk exposures

	<ul style="list-style-type: none"> • Determine the organisation's tolerance thresholds for operational risks (losses) for each strategic objectives • Approval of an overall operational risk appetite statement for the organisation • Manage the execution of business activities within the boundaries of the risk appetite statement • Adapt the operational risk appetite thresholds to the changing business environment
9	<p>The main responsibilities of top management regarding risk appetite are:</p> <ul style="list-style-type: none"> • Embedding a risk management culture which should include the setting of a risk appetite • Approving the risk appetite statements • Ensuring that risk management forms an integral part of the strategy planning process • Monitoring the progress of achieving business objectives within the set tolerance levels of the risk appetite statements • Approving of any changes in the tolerance levels of the risk appetite statements

The findings of the empirical research, culminating in the abovementioned checklist, could add value to address the vagueness on the term of operational risk appetite and its practical application. As such, the research question of this article can be answered by the providing of clearer guidelines for understanding the concept and the implementation of an operational risk appetite process.

A risk appetite statement is only a risk management tool and should be regarded as a contributing factor to assist in decision-making during the striving to achieve strategic business objectives. Although the findings of the study are based on the banking industry, it is quite possible that the results might be the same for any other organisation because of the generic nature of the identified concepts related to an operational risk appetite. This possibility could be tested in subsequent research.

It is finally recommended that organisations evaluate the status of implementing an operational risk appetite statement by using the abovementioned checklist. Although the checklist is non-exhaustive, it could surely add value to serve as a guideline to clarify some uncertainties on this topic.

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РАЗДЕЛ 2
КОРПОРАТИВНОЕ
УПРАВЛЕНИЕ
И СОВЕТ ДИРЕКТОРОВ

SECTION 2
CORPORATE GOVERNANCE
AND BOARD ISSUES



DEVELOPING A MODEL TO EVALUATE THE INFORMATION
TECHNOLOGY COMPETENCE OF BOARDS OF DIRECTORS

*Shafi Mohamad**, *Mary Hendrick***, *Conor O'Leary****, *Peter Best*

Abstract

IT governance is critical in the current business environment. Boards of directors are ultimately responsible for ensuring the entities they control have appropriate IT facilities. This study develops a model of IT competences boards should have, to achieve appropriate IT governance.

The model is then pilot tested, using Ireland as a case study, to evaluate two issues. Firstly, whether these are the appropriate competences current boards need and second, whether boards appear to have those competences. A survey was completed by Chief Information Officers (CIOs) of Irish listed companies. Results indicate the model is an appropriate method with which to evaluate board IT competence, and companies in Ireland appear to be at a satisfactory competence level. The significance of the research is that the model can now be used to evaluate board IT competence in other jurisdictions. Furthermore comparisons of managements' evaluations and boards' evaluations can be assessed.

Keywords: Evaluation Model, IT Competence, Boards of Directors, IT Governance, CIOs, Ireland

* *Department of Accounting Finance and Economics, Griffith Business School, Nathan Campus, Griffith University, Australia*

** *Institute of Technology, Tallaght, Dublin, Ireland*

*** *Associate Professor Conor O'Leary, Department of Accounting Finance and Economics, Griffith Business School, Building 1 (N50), Room 2.36, Nathan Campus, Griffith University, 170 Kessels Road, Nathan QLD 4111, Australia*

Phone: +61 7 3735 7225

Fax: +61 7 3735 3719

Email: c.oleary@griffith.edu.au

1. Introduction

Information technology (IT) systems are becoming increasingly indispensable for organisations in their daily operations (Parent & Reich, 2009). As a result, organisations invest considerable capital into IT assets to support the IT needs of their employees and other stakeholders. This results in spending on corporate information assets accounting for more

than 50% of capital outlay (Nolan & McFarlan, 2005). With more and more business being transacted online via the internet, IT dependent business transactions and capital expenditure on IT software, hardware and infrastructure is expected to continue to grow rapidly. The contemporary global business environment is increasingly reliant on IT, which in turn needs to be governed effectively and efficiently.

Currently most business organisations are governed by a board of directors. The board of directors is seen as the ultimate decision making body of the organisation and is considered to be responsible for the major investment decisions, corporate governance and the strategic direction of the organisation (Psaros, 2009). Boards play a critical role in the governance of an organisation and enhance the overall health and wealth of the entity (Borth & Bradley, 2008). Corporate governance is described by Gay & Simnett (2010) as a system by which companies are directed and managed and covers the conduct of the directors, and the relationship between the board, management and shareholders. Information technology governance (ITG) is a subset of overall corporate governance focusing on IT systems, their performance and risk management.

The rising interest in IT governance is partly due to compliance initiatives, for instance the Sarbanes-Oxley legislation in the USA (2002) and the Basel II (2004) banking regulations in Europe. IT governance is also considered critical because of the need for greater accountability for decision-making around the use of IT, in the best interests of all stakeholders.

The International Standard for Corporate Governance ISO/IEC 38500 (2008) has helped clarify IT governance by describing it as the management system used by directors. In other words, IT governance is about the stewardship of IT resources on behalf of the stakeholders, who expect a return from their investment. The directors responsible for this stewardship look to management to implement the necessary systems and IT controls. Wagner (2011) amongst others notes the potential benefits that can be achieved by following best practice in all IT governance areas. It follows therefore that additional research in the area of IT governance should prove beneficial to all stakeholders. Yet, despite the continued call for improved IT governance there has been little research on how boards actually govern IT (Van Grembergen, De Haes and Guldentops, 2004). Many researchers have called for a specific focus on what boards do around IT governance, as they consider that overall corporate governance cannot be effectively discharged unless IT is governed properly (Musson and Jordan, 2005, Borth and Bradley, 2008 and Bhattacharya and Chang, 2008).

Further justification for additional research into IT governance can be found in the general area of research on corporate governance. According to the 2008 International Audit Committee Member Survey conducted by the Audit Committee Institute (ACI) of KPMG International (KPMG, 2008) nearly two-thirds of audit committees rate IT as one of the key non-financial risks over which they have oversight. The same study finds that IT is the fifth ranked overall challenge confronting audit

committees, putting it ahead of regulatory and fraud concerns. To complicate matters further, many respondents to the survey believe that the information they receive about their IT risks is of a lower quality than the information received about their other risk and oversight responsibilities. Another survey conducted by the Audit Committee Institute of KPMG Australia in 2010 (KPMG, 2010) identified several significant developments which can potentially impinge on the work of audit committees. Two critical IT issues specifically identified are; the emergence of Web 2.0 technologies and the expansion of cloud computing.

The above factors all combine to provide the motivation for the current study. A review was conducted of all the extant professional and academic literature in the area of IT governance with the expressed purpose of developing a model with which to evaluate the competences boards currently have in this area. The model was then tested in a public company environment jurisdiction, to evaluate its effectiveness. The model is found to be an accurate assessor of IT competences and the directors of companies in the selected jurisdiction were deemed to possess appropriate IT competences.

The remainder of the paper is organised as follows. A literature review section follows, from which the various IT competence sources are summarised and based on these, two research questions are raised. Section three then outlines the proposed IT competence model extracted from the literature. Section four outlines the research methodology utilised. Section five analyses the results. Finally section six concludes the paper and offers some future research possibilities.

2. Literature Review

The literature review section is divided into three areas. Proposed sources of IT competences are extracted from three separate groups: IT associations, accountancy bodies and academic research.

IT associations

IT governance is defined by the the International Standard for Corporate Governance of IT (ISO/IEC 38500, p.3) as:

the system by which the current and future use of IT is directed and controlled. It involves evaluating and directing the plans for the use of IT to support the organisation and monitoring this use to achieve plans. It includes the strategy and policies for using IT within an organisation.

The standard provides a model, vocabulary and six Principles for Good Governance of information and communication technology (ICT) as follows:

1. Establish Clearly Understood Responsibilities for ICT
2. Plan ICT to best support the organisation
3. Acquire ICT validly
4. Ensure that ICT performs well, whenever required
5. Ensure ICT conforms with formal rules, and
6. Ensure ICT respects human factors.

Another model from an IT association worth considering, when assessing the competency requirements of boards of directors, is the Control Objectives for Information and Related Technology (CobiT) model. CobiT is a framework created by the Information Systems Audit and Control Association (ISACA) for information technology (IT) management and IT governance. ISACA, which is an international professional association that deals with IT Governance, is an affiliate member of the International Federation of Accountants (IFAC). CobiT supports IT governance by providing a framework to ensure that:

1. IT is aligned with the business
2. IT enables the business and maximises benefits
3. IT resources are used responsibly, and
4. IT risks are managed appropriately.

These two definitive IT models are by definition very specific to IT experts. In order to equate them more specifically to the business environment it is beneficial to review what professional accounting bodies view as critical IT expertise needed by their members.

Accountancy bodies

The International Education Standard (IES 2, IFAC, 2003) for professional accountants notes the information technology component of accounting curricula should include the following subject areas and skills:

- General knowledge of IT;
- IT control knowledge;
- IT control competences;
- IT user competences; and
- One or a mixture of, the competences of the roles of manager; evaluator or designer of information systems (IFAC 2003:33).

Guidance in information technology knowledge and competences for professional accountants is further expanded upon in the International Education Guideline 11: Information Technology for Professional Accountants (IEG 11, 2003). Table 1 lists 22 skills and the level of attainment required for these items.

Table 1. Information Technology competences as required by IEG 11

	Information Technology Item	Skill Level
1	Computer-assisted audit techniques (to evaluate information system processing operations and controls and to analyse and evaluate monitoring processes and activities)	IT control & evaluator role skills
2	Operating systems	User role skills
3	Word processing (in a relevant accounting/business context)	User role skills
4	Spreadsheet software (in a relevant accounting/business context)	User role skills
5	Database software (in a relevant accounting/business context)	User role skills
6	Internet tools(Email, Web browser,FTP) (in a relevant accounting/business context)	User role skills
7	Professional research tools(in a relevant accounting/business context)	User role skills
8	Business presentation software (in a relevant accounting/business context)	User role skills
9	Anti-virus software and other security software (in a relevant accounting/business context)	User role skills
10	Utility software and other relevant software (in a relevant accounting/business context)	User role skills
11	Accounting packages	User role skills
12	E-business systems (ERP, CRM and business automation systems)	User role skills
13	Networks(LAN)	User role skills
14	Electronic commerce (B2C,B2B,encryption tools, digital signatures/certificates, key management)	User role skills
15	Back-up and recovery	User, Manager role
16	Outsourced services (Internet Service Providers, Application service providers)	Manager role skills
17	EDI and e-commerce activities	Manager role skills
18	Access controls (logical and electronic)	Manager role skills
19	Communication	Manager, Designer & evaluator role skills
20	Document design specification	Designer role skills
21	Testing of system	Designer, Manager role skills
22	Planning of system evaluation	Evaluator role skills

Similarly, a review of the competency requirements of various national accounting bodies in countries such as Australia, Canada, the UK, USA, South Africa, and Malaysia all reveal a requirement for competence/proficiency in the IT area.

Academic research

Many academic studies have looked at the IT skills needed in the business workplace and the extent to which business people possess them. Theuri and Gunn (1998) examined the way in which information systems courses have been designed and structured in American universities and then related these practices to the systems skills expectations of the employers of accounting graduates. Hostrom and Hunton (1998) note how assurance services provided by the auditing profession are changing and that the fundamental issue now is that of control over information and related technology.

Coenenberg, Haller and Marten (1999) investigated the current state of accounting education for qualified auditors in Germany and identified challenges faced by that country due to changes in the accounting and auditing environment resulting from the increased use of IT in business applications. Howieson (2003) notes how IT advances will redefine the relationship between clients and professional experts, because more powerful technology will empower clients to play a bigger role in managing their own affairs.

Greenstein and McKee (2004) conducted a literature review that resulted in the identification of 36 critical information technology skills. They then surveyed academics (in accounting information systems and auditing) and audit practitioners in America to determine their self-reported IT knowledge levels and perceptions about the best places to learn IT skills. Table 2 summarises some of the major skills required.

Table 2. List of critical IT skills from Greenstein & McKee

The director as a user of IT: Business Automation Skills	
Element	Capability
Word processing	Apply word processing software in a relevant accounting/business context
Spreadsheets	Apply spreadsheet software in a relevant accounting/business context
Presentation Software	Apply presentation software in a relevant accounting/business context
Internet tools	Apply Internet tools in a relevant accounting/business context
Research tools	Apply professional research tools in a relevant accounting/business context
Image processing software	Apply image processing software in a relevant accounting/business context
The director as a user of IT: Office Management Skills	
Element	Capability
Database search and retrieval	Ability to search and retrieve data from a database
Knowledge work systems	Ability to work with knowledge work systems to aid directors in the creation, integration and communication of knowledge
The director as a manager, designer and evaluator of IT	
Element	Capability
Electronic data interchange	Ability to perform EDI(traditional and web-based) transactions
Digital communications	Ability to understand digital communications(including wireless communications)
Network configurations	Ability to understand various network configurations(internal & external)
Internet service providers	Ability to understand the issues around the management of internet service providers
Encryption software	Ability to understand the use of encryption software to change data, using some type of encoding/decoding algorithm
Firewall software/hardware	Ability to understand the use of security technology to enforce an access control policy between networks
User authentication	Ability to understand the use of software and devices to identify system users
Intrusion detection and monitoring	Ability to understand the use of security technology to identify unauthorised requests for services

Trites (2004) states that information technology (IT) plays a serious role in any modern business system. Therefore IT considerations play an important part in the controls that are necessary

to preserve and protect corporate assets from misappropriation, loss and misuse. He subsequently identified four critical categories within which IT governance could be assessed. These are discussed

further in the next section. Finally, Delmond and Lebas (quoted in IFAC, 1998) note how recent developments in information technologies have increased the quantity of financial and non-financial data that can be accessed by accountants, as well as the scope and speed of data analysis and transmission.

Research questions

The above literature review highlights three disparate bodies of work, all noting various IT competences within their own domain and for their own specific purpose. The IT groups developed standards to provide assistance to IT practitioners. The professional accountancy bodies developed frameworks to ensure members are capable enough in the specific area of IT. Academic research has developed frameworks to evaluate among other things, how effective IT training is.

The stated objective of this paper is to develop a model with which to evaluate the competency of board members in relation to IT governance issues. Based upon the diverse range of sources utilised above, two research questions (RQ) are therefore raised.

RQ1: Can a framework for assessing Board IT competences be developed with indexes for different areas of competence?

RQ2: Will a pilot test on a selected jurisdiction uncover any evidence of a knowledge gap as to the level of competence boards possess, in relation to IT governance issues?

3. Development of an IT competence model

A model with which to evaluate IT competence of directors needs to be framed in such a way as to be understandable to boards, all members of which may not be at the same level of computer expertise. Directors are responsible for overall corporate governance and so it was decided to frame the model in terms of critical general corporate governance principles. Referring to Trites (2004) study mentioned previously four critical sections were therefore identified. These are:

1. strategic planning issues,
2. internal control issues,
3. business risk issues, and,
4. privacy and legal issues.

Each section was then taken and filled in with specific points, extracted from the three categories of sources identified in the literature review section. This resulted in 15 strategic planning competences, 9 internal control competences, 4 business risk competences and 5 privacy and legal competences. Tables 3 to 6 respectively list all individual competences.

Table 3. Strategic Planning Issues

1	The strategic value of IT to the company
2	The company's awareness of options for the effective, efficient and acceptable use of IT
3	Alignment between all IT activities and the company's objectives
4	Mechanisms are in place for monitoring information security risk
5	Awareness of technology-based competitive threats
6	Innovative use of IT to undertake new businesses and improve processes
7	Making use of the latest technologies for both scheduled and impromptu meetings
8	Making use of secure IT tools for all internal communication purposes
9	Making use of data analytics to support decision making at every level throughout the organisation
10	Ability to critically evaluate IT investment recommendations
11	Considering all stakeholder concerns and needs when making IT investment decisions
12	Ensuring appropriate human resource policies are in place
13	Ensuring ample resources are available to enable staff to leverage new technologies
14	Ensuring appropriate contractual agreements are in place with IT vendors/ suppliers
15	Awareness of the influence of company culture on the overall effectiveness of IT governance

Table 4. Internal Control Issues

1	Ensuring appropriate oversight of all IT related strategic and operational risks
2	Instituting appropriate IT governance mechanisms be it at board or at committee level
3	Ensuring standards for security and document retention are in place
4	Setting up IT fraud prevention/detection platforms throughout the organisation
5	Setting up mechanisms to ensure that the company gets value for money from all its IT investments
6	Ensuring that IT monitoring and measurement systems deliver expected results
7	Ensuring that plans and policies are implemented and effective
8	Conducting regular reviews of IT security and reliability measures
9	Ensuring appropriate IT project management systems are used

Table 5. Business Risk Issues

1	Being cognisant of developments in IT trends and emerging technologies for future business needs
2	Ensuring that all issues related to IT business continuity risk are identified and acted upon
3	Ensuring appropriate use of social media platforms to track and assess consumer sentiment
4	Ensuring relationships with third party IT service providers are sustainable

Table 6. Privacy and Legal Issues

1	Ensuring that all local legislative and regulatory requirements for protecting personal information as well as policy and procedures for compliance are adhered to
2	Ensuring compliance with all relevant local legislation pertaining to the use of software, hardware, service agreements and copyright laws
3	Ensuring compliance with any relevant overseas regulations such as Sarbanes-Oxley, HIPAA, Basel, etc.
4	Ensuring compliance with all professional standards, frameworks and methodologies affecting IT governance
5	Ensuring that the decommissioning or disposal of IT assets is done in accordance with environmental legislation and regulations

4. Research methodology

Survey instrument

The model was then incorporated into a survey instrument for testing. The survey instrument was in three parts. The first part listed five demographic questions about the respondent’s company, his/her position (Chief Information Officer, Chief Executive Officer etc.) and years of experience. As regards the company, three questions identified the size of the company (by turnover); the industry sector it was in and which stock exchanges it was listed on.

Part two then listed the 33 competences in their four categories and asked the respondents to evaluate, in terms of importance, each IT issues facing their company today. Part three then re-listed the 33 items and respondents were asked to rank the level of competence they considered the board of their company possessed to deal with each issue. Appendix 1 lists an abridged version of the questionnaire showing the questioning relating to the four “business risk” issues.

Pilot test jurisdiction and respondents

It was decided a small jurisdiction, but one with a developed economy and a stock exchange with corporate governance requirements, was needed to test the model. Therefore the Republic of Ireland was chosen as it is a jurisdiction with a small manageable sample size given that the Irish Stock Exchange (ISE) has 72 listed companies only. All companies listed are subject to strict Companies Act requirements, stock exchange listing

requirements (ISE, 2013a) and corporate governance principles (ISE, 2013b). The Irish economy is also defined as a developed economy by the World Bank, world economy rankings.

The specific individual respondents surveyed were therefore the Chief Information Officers (CIOs) of all Irish public listed companies. The list of companies was extracted from the official Irish Stock Exchange listing. A mail-out was organised to all 72 companies. Four were returned as incorrectly addressed leaving 68 targeted companies. Seven responses were received. This yielded a response rate of 10% which is deemed typical when surveying “time busy” people such as the CIOs of public listed companies. A survey by O’Leary et al. (2013) of company directors of Australia’s top 200 companies yielded a response rate of 12%. Similarly a survey of Malaysian company directors conducted by Salleh et al. (2013) yielded a response rate of 12%. The sample was therefore considered representative and valid as there is no reason to assume non-respondents would have had different views from those who took the time to respond.

5. Results

The results were analysed to evaluate and respond to the two research questions posed earlier. This was achieved by assessing the rankings of the CIOs in relation to (i) the importance of each particular issue and (ii) the perceived level of board competence to deal with each issue. Table 7 summarises the raw data.

Table 7. Raw Data scores (Imp = importance, Comp = competence)

Strategic Planning Issues		Imp	Comp
1	The strategic value of IT to the company	4.285	4.428
2	The company's awareness of options for effective, efficient and acceptable use of IT	3.857	4.000
3	Alignment between all IT activities and the company's objectives	3.857	3.714
4	Mechanisms are in place for monitoring information security risk	4.285	4.285
5	Awareness of technology-based competitive threats	3.571	3.857
6	Innovative use of IT to undertake new businesses and improve processes	3.714	4.142
7	Making use of the latest technologies for both scheduled and impromptu meetings	3.571	4.142
8	Making use of secure IT tools for all internal communication purposes	4.000	4.000
9	Making use of data analytics to support decision making throughout the organisation	4.285	4.142
10	Ability to critically evaluate IT investment recommendations	3.857	3.714
11	Considering all stakeholder concerns and needs when making IT investment decisions	4.000	4.000
12	Ensuring appropriate human resource policies are in place	3.571	3.857
13	Ensuring ample resources are available to enable staff to leverage new technologies	3.571	3.857
14	Ensuring appropriate contractual agreements are in place with IT vendors/ suppliers	4.428	4.142
15	Awareness of influence of company culture on overall effectiveness of IT governance	3.857	4.142
Internal Control Issues			
1	Ensuring appropriate oversight of all IT related strategic and operational risks	4.285	4.142
2	Instituting appropriate IT governance mechanisms be it at board or at committee level	3.714	3.714
3	Ensuring standards for security and document retention are in place	4.285	4.142
4	Setting up IT fraud prevention/detection platforms throughout the organisation	4.000	3.857
5	Setting up mechanisms to ensure company gets value for money from IT investments	4.000	3.857
6	Ensuring that IT monitoring and measurement systems deliver expected results	3.857	4.000
7	Ensuring that plans and policies are implemented and effective	3.714	4.000
8	Conducting regular reviews of IT security and reliability measures	4.428	4.285
9	Ensuring appropriate IT project management systems are used	3.571	3.857
Business Risk Issues			
1	Being cognisant of developments in IT trends and emerging technologies for future business needs	4.000	3.714
2	Ensuring that issues related to IT business continuity risk are identified and acted upon	4.000	4.000
3	Ensuring appropriate use of social media platforms to track/assess consumer sentiment	3.857	3.714
4	Ensuring relationships with third party IT service providers are sustainable	3.714	3.857
Privacy and Legal Issues			
1	Ensuring that all local legislative and regulatory requirements for protecting personal information as well as policy and procedures for compliance are adhered to	4.285	4.285
2	Ensuring compliance with all relevant local legislation pertaining to the use of software, hardware, service agreements and copyright laws	4.285	4.000
3	Ensuring compliance with any relevant overseas regulations such as Sarbanes-Oxley, HIPAA, Basel, etc.	4.142	3.857
4	Ensuring compliance with all professional standards, frameworks and methodologies affecting IT governance	4.000	3.857
5	Ensuring that the decommissioning or disposal of IT assets is done in accordance with environmental legislation and regulations	3.857	4.142

Firstly, reliability tests were run to check the validity of the data. Cronbach Alpha scores were calculated for all eight group evaluations as per Table 7 (i.e. importance and competence scores for each of the four groups of issues). The scores ranged from .752 to .961 indicating 75% to 96% of the items are measuring the same construct. These percentages are considered acceptable as the reliability factor analyses provide satisfactory measures when compared to Nunnally and Bernstein's (1967) seminal benchmark figure of 0.70.

The importance of the issues was then tested, by reviewing respondents' answers to Part two of the survey instrument. On a scale of 1-5 the lowest score given to an item was 3.75 (fairly important) and the highest was 4.288 (very important). All 33 items were ranked as important with the overall average rank at 3.94 (Table 8, row 6, column 2) which is almost 4.00, making each item "very important" on average. Critically, space was left in an open ended question at the end of the survey instrument for respondents to add any other issues they considered critical to IT governance which were not already in the 33 listed competences (refer Appendix 1). None were listed.

Table 8 summarises the means on a group basis for each batch of issues. Group means, as regards the importance of the groups of issues ranged from 3.86 to 4.11. This again tends to suggest the respondents considered all items important and considered the group classification a reasonable methodology with which to evaluate overall IT importance.

Table 8. Group Mean Scores and Ranking of Issues and Competences by CIOs

	Issues	Rank	Competences	Rank
Strategic Planning	3.91	2	4.02	2
Internal Controls	3.86	4	3.98	3
Business Risk	3.89	3	3.81	4
Privacy and Legal	4.11	1	4.02	1
Overall	3.94		3.96	

RQ1 is therefore deemed to be answered in the affirmative, up to this point. It appears feasible to develop a model with which to evaluate how well or otherwise, boards are managing IT issues for their companies. The first task is to come up with a structured list of important items, and a scale with which to measure them. The current model appears to have achieved this. The respondents agreed all items were important and there was consensus among the respondents as to the items assessed. Finally, no items were identified which had been omitted from the lists.

Additional support for the evaluation of RQ1 and an assessment of RQ2 was then performed by reviewing respondents' answers to Part three of the survey instrument, their assessment of their board's competence to deal with the IT issues identified. Scores ranged from 3.71 to 4.42 with the overall average rank at 3.96 (Table 8, row 6, column 4) which is again, almost 4.00. The group mean assessments of competence are summarised at Table 8 and range from 3.81 to 4.02. This tends to suggest respondents were able to use the model to evaluate how competent their boards were in relation to IT governance issues.

RQ1 can therefore be evaluated in the affirmative. Respondents considered the 33 issues as important, did not identify any omitted IT issues and were able to use the matrices to assess the performance of their boards as regards competence in the IT governance area.

Further support for the veracity of the model is derived from a review of Table 8 rankings of the groups of issues. In terms of importance, Privacy and Legal issues were ranked most important followed by Strategic Planning. Internal Control and Business Risk issues were then ranked fourth and third respectively. When competence to deal with these issues was then evaluated, an almost identical ranking order emerged. Privacy and Legal and Strategic Planning issues were jointly ranked first, with Internal Control and Business Risk issues coming third and fourth. This suggests respondents recognised the importance of the issues and evaluated the board competence accordingly, thus resulting in a similar ranking pattern.

RQ2 is also answered in the affirmative. Management of the evaluated companies considered overall that their boards of directors were very competent in dealing with current IT issues. No significant weaknesses, or even

significant gaps as to the evaluation of the importance of an item and the board competence to deal with it, were noted. It appears management of Irish companies considers their boards are on top of current critical IT governance issues. This would be expected in a developed economy with a sophisticated Stock Exchange system, which Ireland currently has.

Summary and Conclusions

The importance of IT governance has undoubtedly escalated over the last decade but as Van Grembergen and De Haes (2010) observe, boards sometimes appear to be struggling to understand the state of IT within their companies. On occasion they do not have sufficient information to govern IT effectively, with many board members displaying a lack of IT skills and interest in discussing IT at board meetings. Company boards are ultimately responsible for IT governance. Chalaris et al. (2005) summarise these responsibilities as: the realization of promised benefits as a result of IT's alignment with that of the organization; the exploitation of opportunities and maximization of benefits from IT enabling the organization; the responsible use of IT resources; and the appropriate management of IT-related risks. Hence, some assistance as to the specific necessary competences boards should have in the IT area appears critical. These also need to be framed in a model directors can understand, as all directors do not have the same level of IT skills and training.

This research study therefore attempts to address a perceived gap in the IT governance literature, by providing an actual model with which to evaluate the level of IT competence boards actually possess. A model of 33 specific competences from 4 overall categories of IT governance issues was therefore developed from three separate sources. These are: IT bodies, professional accounting bodies and academic research. The model was then tested in a pilot jurisdiction, all public companies listed on the Irish Stock Exchange (ISE). Results suggest the model is an effective tool to evaluate board IT competence levels. Furthermore, in this particular jurisdiction, board competences were assessed by company management as at an acceptable level. This was as anticipated for a jurisdiction with a developed economy and a sophisticated stock exchange

system which has mandatory corporate governance principles (ISE, 2013b) attached to membership.

Past literature on IT governance has focused on the domains of IT strategic alignment, IT resource management, risk management, performance measurement, and IT value delivery. These five domains have gained global recognition as accepted relevant domains of IT governance (Johnson, 2005). But the IT environment is dynamic and the increased reliance on outsourcing these days by major corporations and advances in cloud computing will only expand the areas of IT governance. This in turn will expand company boards' needs for IT competences. A model to evaluate such competence levels therefore appears important. This highlights the significance of the current research.

The model can now be used to evaluate IT competence levels in other jurisdictions. The level of competence could then be compared from one jurisdiction to the next. It can also be used to evaluate whether the competence of company boards as regards IT issues, varies with the level of (i) corporate legislative controls (ii) stock exchange requirements and (iii) corporate governance codes. Critically, the current study has requested management (via CIOs) to evaluate board level competences. Future research could get boards to self evaluate their competence and then get management to evaluate board competence and compare the two to see if any competence "gaps" appear. The results of such future research may assist boards to better understand the governance of IT and allow them to consider the impact of IT structure on board IT governance processes.

Limitations

As with any study of this ilk, results and analysis are dependent upon the responses received from participants. Whether the responses they provide are an accurate reflection of their true thoughts on the matter, or have been adjusted (to provide responses which would appear more appropriate) is a matter the research cannot determine. For example CIOs may have been afraid to be too critical of the boards of their company for fear of reprisal. The small sample size (although representing 10% of the population) is also acknowledged, but as explained previously, a manageable total population with appropriately satisfactory governance characteristics was considered critical to an effective evaluation of the model's capabilities and limitations. The participants in this particular jurisdiction did not identify any shortcomings in the model, such as other critical IT issues not considered. Testing in a different environment may have uncovered such items. Future research may shed some light on this possible limitation.

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APPENDIX 1. Abridged version of Survey Instrument

PART 1: DEMOGRAPHIC PROFILE

Please tick 1 box to answer each of the following questions.

1. What is your company's industry sector?

- Manufacturing Finance Service Retail Media
 Plantation Tourism Mining Agriculture Other _____

PART 2: IMPORTANCE OF IT ISSUES

3. Business Risk Issues						
Please rank your assessment of the IMPORTANCE of the following IT issues to your company, by marking one box on the scale provided						
#	Issues	Very	Fairly	Neither Unimportant nor Important	Fairly	Very
		Unimportant			Important	
1	Being cognisant of developments in IT trends and emerging technologies for future business needs					
2	Ensuring that all issues related to IT business continuity risk are identified and acted upon					
3	Ensuring appropriate use of social media platforms to track and assess consumer sentiment					
4	Ensuring relationships with third party IT service providers are sustainable					

PART 3: BOARD IT COMPETENCY

3. Business Risk Competences						
Please rank the level of COMPETENCE your board currently has to deal with these issues by marking one box on the scale provided						
#	Competences	Lacking Significant	Lacking Some	Neither Competent nor Incompetent	Fairly	Very
		Competence			Competent	
1	Being cognisant of developments in IT trends and emerging technologies for future business needs					
2	Ensuring that all issues related to IT business continuity risk are identified and acted upon					
3	Ensuring appropriate use of social media platforms to track and assess consumer sentiment					
4	Ensuring relationships with third party IT service providers are sustainable					

Finally, please list any other IT issues you consider important, which have not been included above:

CHALLENGING GOVERNANCE BETWEEN INTERNAL AND EXTERNAL ACTORS: A RESOURCE DEPENDENCE APPROACH FOR STUDYING BOARD DYNAMICS AND INTERACTIONS

*Andrea Tomo**, *Alessandro Hinna***, *Danila Scarozza****, *Ernesto De Nito*****,
*Gianluigi Mangia******

Abstract

This research represents a continuation of a previous systematic research conducted few years ago by some of the authors (Hinna et al. 2010, 2014). In order to focus on the need to deepen the study on board dynamics in public organizations, this study presents an overview of international literature regarding boards in public organizations, in order to evidence if, and in which terms “board dynamics and interactions” has been a topic of research in public governance in recent years. Then, using a resource dependence approach the paper tries to understand how external factors and pressures can influence board composition and board interaction. The results will contribute and provide suggestions to further research on board dynamics in public organizations.

Keywords: Board Dynamics, Board Interactions, Public Sector, Resource Dependence Theory

* *PhD Student at University of Naples "Federico II"*

Email: andrea.tomo@unina.it

** *Associate Professor at University of Rome "Tor Vergata"*

Email: alessandro.hinna@uniroma2.it

*** *Research Fellow at University of Roma "Tor Vergata"*

Email: danila.scarozza@uniroma2.it

**** *Associate Professor at University of Catanzaro "Magna Graecia"*

Email: denito@unicz.it

***** *Associate Professor at University of Naples "Federico II"*

Email: gianluigi.mangia@unina.it

1. Introduction

In public sector literature relevant issues regarding behavioral dimensions about the board of directors are still few investigated (Hodges et al. 1996; Farrell, 2005; Hinna et al. 2010; 2014), especially considering issues related to board dynamics and board interactions.

Despite the poor attention on this dimensions, there is a general agreement on the fact that both dynamical and interactive processes within the board can influence board effectiveness and organizational performance (Ingley and Van der Walt, 2005; Schmidt and Brauer, 2006, Minichilli et al. 2009).

In particular, it looks interesting to focus on these aspects by also considering the external influence exerted by the context in which public organizations act: as for private organizations, even for public organizations, which are particular multi-stakeholders structures (Huse and Eide, 1996), the external context plays an important role in

influencing organizational dynamics and performance (Pfeffer and Salancik, 1978; Long, 2006; Grissom, 2010).

To deepen this concept, we try to understand how external factors and pressures can influence board dynamics and board interaction by applying the resource dependence theory as suggested by Hillman et al. (2000; 2009).

This article represents a continuation and a more in depth analysis of a previous work conducted by the authors (Hinna et al. 2014) on the behavioral perspective in boards of public organizations, with a particular focus on board dynamics and board interactions.

The paper proceed as follows: in the first part the reasons for deepening the analysis on board interactions and dynamics in public sector are presented. In “A resource dependence approach” section we try to analyze the most relevant contribution on board dynamics and interactions by applying the resource dependence theory (Pfeffer and Salancik, 1978) to understand how external

factors and pressures can influence board composition and board interaction even in public sector organizations. In the third section we present the conceptual framework adopted to analyze the collected papers through the literature review. In the following sections the method of research and analysis are presented. The final sections contain the presentation of the results, followed by some discussions and conclusions.

2. Board Dynamics and Board Interactions: What Literature Says?

Several studies both in private and in public governance literature stress how the attention and the understanding of the board behavioral dimensions are now the basic conditions for effective governance (McNulty and Pettigrew, 1999; Westphal et al. 2001; Leblanc and Schwartz, 2007; van Ees et al. 2009). On the basis of previous corporate governance studies, the behavioral

dimensions could be categorized as follow (Huse, 2007):

- a. board characteristics: these are the formal and structural characteristics that denote the board as a team (characteristics of the actors, demographic composition, selection process, compensation, competence/skills and motivation)
- b. board dynamics: they refer to the process dimensions that concur to explain board behaviour (interactions both inside and outside the boardroom, ethics, power, decision making processes, conflicts, etc.).

The first block, the board characteristics, refers to all the elements which could constrain, empower or facilitate actions and behaviors within boardroom. For example, the competences of board members are a relevant element to perform the various task assigned to the board (Johannisson and Huse, 2000; Hillman and Dalziel, 2003).

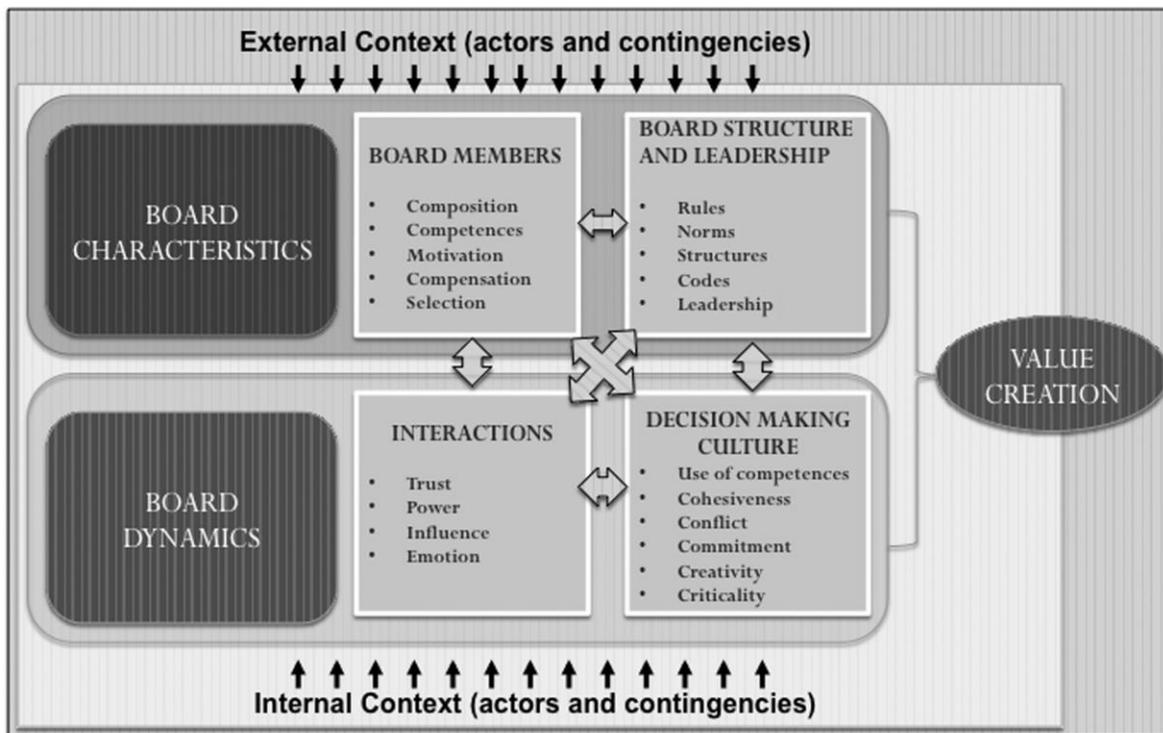


Figure 1. Board behavioral dimensions (Source: Hinna et al., 2014)

Moreover, the board dynamics may benefit from motivated individuals (Steel and König, 2006). Also the presence of formal and informal rules and norms, the idea of leadership (Roberts et al. 2005) referred to the roles, attributes and styles of the board chair, the affective and cognitive conflicts or, for example, the use of knowledge and skills such as the creativity during the definition of tasks elements such as strategy or policy development and implementation, may moderate the dynamics among board members.

However, according to Huse (2007), the most relevant issue to understand the human side of corporate governance are the interactions, that more than other dimensions could be assume as the central core for explaining board dynamics. In literature, in fact, the board has been considered as an open system with interactions among board members, the top management team and various other actors both inside and outside the boardroom (Pettigrew, 1992).

According to Gnan et al. (2013), this is particularly true for public organizations, that can be considered as multi-stakeholders structures with a main objective in managing and gaining legitimacy through public consensus. Different stakeholders mean significant differences in expectations: the divergence and convergence of stakeholders' expectations may provide an organization's management with critical leverage in using boards for stakeholder management (Huse and Eide, 1996). However, the roles played by the boards also depend by the changing relationships between external and internal actors. Because of the pressures deriving from the requests of the different actors involved, boards are liable to characterize issues differently and to hold different opinions about what the appropriate responses to these issues are (Dutton and Jackson, 1987; de Cabo et al. 2011).

Starting from these premises, and considering both previous studies about board dynamics and the main results emerging from previous literature review (Hinna et al. 2014), it could be useful to face board interactions in public governance literature considering two main categories of analysis: a) relationships with both internal and external actors; b) power, trust, emotions and conflict.

a) Relationships with both internal and external actors

Interactions inside the boardroom, mainly finalized to the exchange of information, are described and classified in terms of frequency of board meetings, frequency of interactions among the directors besides board meeting, and frequency of face-to-face interactions between the directors and the main interaction partners. In particular, inside the organization, the most important actors with whom board members should interact are represented by the top management team, due to the need to shape strategic directions, to make informed decisions and to protect the interest of stakeholders (McNulty and Pettigrew, 1999; Stiles and Taylor, 2001; Hendry and Kiel, 2004; Huse, 2007). For example, studying internal interaction, Reid and Turbide (2012) contribute to the discussion of board interactions in the particular context of organizational crises. They come to the result that the underlying dynamics of trust/distrust and control/collaboration appear to explain change from one stage to another in these crisis scenarios, providing some understanding of how boards and managers might consider developing their relationships so as to better control the disruptive effects of a crisis.

For a long time, focusing the attention only on the internal dynamics, many scholars recurred exclusively to agency theory to explain board interactions. However, it is interesting to note that in the public sector - in comparison to what happens in the private sector (Huse, 2007) - the

agency theory is not a unique or dominant analytical perspective. Indeed, we can observe that the relationships between boards and management and, more generally, between politics and administration, is generally studied from a democratic perspective (Maitlis, 2004; Grissom, 2012; Reid and Turbide, 2012).

According to this perspective, the boards have to represent the interests of stakeholders, but at the same time they have to resolve or choose between the contrasting interests of different groups of stakeholders, to set the overall policy of the organization (which can be implemented by administrators), to hold staff to account the implementation and, finally, to be publicly account for the organization as a whole.

Some authors (Benz and Frey, 2007) try to open the discussion to combine the agency perspective with the stakeholder one in defining boards roles.

In their opinion, the public governance approach differs in its ideas and research implications from corporate governance theories. This applies, first, to the agency theory: corporate governance mechanisms have to be introduced for containing and disciplining the managerial self-interest.

The public governance approach is similar to the agency theory when it stresses the need to find ways to control self-interested managers' behavior (Benz and Frey, 2007). At the same time, public governance literature, more than the corporate governance one, goes far beyond the focus on the internal management of the firm, adopting the stakeholder theory. In fact, as Fields (2007) reveals, boards may be best able to protect stakeholders by pressing management to undertake changes requested from the external environment (i.e. public sector reforms)(de Cabo et al., 2011; Grissom, 2010; 2012).

Considering also the board external relationships, in fact, scholars usually describe a set of boards tasks expectations and, therefore, a set of type of interactions with external stakeholders expanding the board function beyond the internally focused and distrustfuling agency approach by fostering a trusting and collaborative board/management relationship (Reid and Turbide, 2012).

As a consequence, this "extended" boards' role asks for a participation to the formulation and the decision on strategic change that may help public organizations to adapt both to important environment changes and to some particular request coming from the community. Still with reference to what may determine the form and nature of the relationship between the board and external stakeholders is also interesting to note that some antecedents are endogenous. On this regard, for instance, Jonnergard and Stafsudd (2011), notice

that when board roles and activities do change, it may either be done through the initiative of the top management team or the board of directors. In cases when behavior is changed through the initiative of directors, they may either be due to the composition of the board having changed.

The same was also observed recently by Pettersen, Nyland and Kaarboe (2012) analyzing hospital boards in Norway: the authors observed that when politicians were included in the boards in 2006, the politicians and the employees constituted a majority in the boards, and the roles of the hospital boards were changing towards the stakeholder perspective.

However, from all these studies emerge a particular attention to external relations to the boardroom as main observation point, but not to internal relations. This evidence sets a clear research gap to be bridged if academic scholars really intend to investigate the relationship between board dynamics/interactions and organizational performance.

This is even truer if we look at the results gathered from the first attempts to analyze the interpersonal dynamics within board meetings. In this context, it is certainly important the contribution of Brown (2005), exploring the association between board and organizational performance, where the board interpersonal dimension provided a unique explanation of judgments of organizational performance.

b) Power, trust, emotions and conflicts

Power is another important issue in board dynamics (Mintzberg, 1983; Pearce and Zahra, 1992; Pettigrew and McNulty, 1995): through the exercise of power, board members may contribute (more or less) to the strategizing in boardroom (Zajac and Westphal, 1996; Bunderson, 2003; Johnson et al. 2003; Ravasi and Zattoni, 2006). According to Dahl (1957) "An individual has power over another individual to the extent that the former can get the latter to do something that the latter would not otherwise do" (Dahl, 1957, p.202). In addition, power as a relation between actors is linked to the concept of influence (Pettigrew and McNulty, 1998; Yukl, 1998; Huse, 2007). Literature (Lukes, 1974; Luhman, 1988; Huse and Eide, 1996) define different types of power (direct, indirect...), but with particular reference to board dynamics it is important to stress that power and influence could both induce to the creation of alliance both inside and outside the boardroom and explain also the political dynamics (Michels, 1962; Ocasio, 1994).

Moreover, for understanding relationships among actors and, more in general, behaviours also the role of trust is an essential element (Larson, 1992; Bromiley and Cummings, 1995; Browing et al. 1995; McAllister, 1995; Hosmer, 1995; Korsgaard et al. 1995; Huse, 1998, 2007). Some

scholars (Donaldson, 1990; Donaldson and Davis, 1991; Huse, 1990; 2000;), in fact, defined trust as an important "bidirectional" control mechanism used both by principal and agent. Most studies of boards and governance make implicit assumptions about trust, but few studies are precise in defining the term consequently it is possible to distinguish, for example, between competence-based trust or integrity-based types of trust (Hosmer, 1995; Ring, 1996; Sapienza et al. 2000).

In the area of interactions we refer also to emotions: they could be manifested with different degree of intensity during working processes, they may reflect rationality or irrationality, they evolve during time, they may restrain or drive behaviours (Brundin, 2002; Brundin and Nordqvist, 2008).

Finally, as suggested by existing literature, for a better understanding of board interactions both the affective reactions of decision makers and the cognitive processing (Dutton and Jackson, 1987; Amason, 1996; Gibson and Earley, 2007; Huber and Lewis, 2010) in the definitions of tasks elements, such as strategy or policy development and implementation access have to be take into account. Decision-making processes, in fact, involving not only board members but also internal and external actors could be characterized by several kinds of conflicts. First of all a cognitive conflict that refers to judgmental differences about how best to achieve organizational objectives; it is based on technical disagreements regarding how information might be interpreted (Amason, 1996; Higashide and Birley, 2002; Berg, 2007). In addition, both personal incompatibilities and different preferences or values (Amason, 1996) determine the development of affective conflict which tends to be emotional and more ideological in nature. Here, there may not be a political consensus among actors over the weight assigned to particular outcomes, especially outcomes involving non-monetary impacts. (Berg, 2007, p. 4).

Both cognitive and affective conflict are important topics to be investigated in public governance debate, since public boards have specific challenges to face related to multiple, conflicting, and ambiguous goals. Therefore, defining board tasks, political and social issue interpretation activates and motivates the protection of power and resources by board members (Narayanan and Fahey, 1982) predicting both cognitive and affective conflicts (Burns, 1962; Daft and Weick, 1984; Thomas et al. 1994; Jehn, 1997).

3. A Resource Dependence Approach

Early studies conducted on board behavior argue that interactions difficulties (i.e. process losses) and conflicts prevent boards from fulfilling their roles (Forbes and Milliken, 1999; Gibson and Earley, 2007; Grissom 2010; Grissom 2012). The adoption

of different governance perspectives (Table 1) of analysis to the definition of a different board roles in public administration and, therefore, indirectly, to a different shape and nature of the relationship between the boards and internal and external actors.

Starting by the "agency theory" point of view, for example, some authors discuss the role and therefore the conditions for an effective control over the management (Cornforth and Edwards, 1999; Cuervo and Villalonga, 2000; West and Durant, 2000; Farrell, 2005; Benz and Frey, 2007). Others, moving their arguments from the

perspective of "stewardship" type, try to highlight the role of support that the board should take in relation to the administration, to improve its performance (Greer and Hoggett, 2000; Farrell, 2005; Skelcher et al. 2005). As previous stated there is, then, a group of scholars who, instead, moving from the importance of protecting legitimate interests expressed by stakeholders, discuss the conditions under which those interests can be effectively protected (Oldersma et al. 1999; West and Durant, 2000; Flinders 2004; Nestor, 2005; Klijn and Skelcher, 2007).

Table 1. The different models of governance perspective. (Source: Cornforth, 2003)

Theory	Interests	Board members	Board role	Model
<i>Agency theory</i>	Owners and managers have different interests	Owners' representatives	Compliance/conformance: safeguard owners' interests oversee management check compliance	Compliance model
<i>Stewardship theory</i>	Owners and managers share interests	Experts	Improve performance: add value to top decisions/strategy partner/support management	Partnership model
<i>Democratic perspective</i>	Members/the public contain different interests	Lay representatives	Political: represent constituents/members reconcile conflicts make policy control executive	Democratic model
<i>Stakeholder theory</i>	Stakeholders have different interests	Stakeholder representatives: elected or appointed by stakeholder groups	Balancing stakeholder needs: balance stakeholder needs/make policy/strategy control management	Stakeholder model
<i>Resource dependency theory</i>	Stakeholders and organization have different interests	Chosen for influence with key stakeholders	Boundary spanning: secure resources maintain stakeholder relations being external perspective	Co-option model
<i>Managerial hegemony theory</i>	Owners and managers have different interests	Owners' representatives	Largely symbolic: ratify decisions give legitimacy managers have real power	"Rubber-stamp" model

By analyzing the literature on public sector, what results is the lack of a resource dependence approach to explain the relationship between the board and the external actors. In fact, while in the private sector this kind of interaction is quite always analyzed in terms of how the board interacts with the external context to provide resources, legitimacy and relationships to let the organization survive, this approach is not so taken into account in the public domain.

Pfeffer and Salancik in 1978 introduced the resource dependence theory (RDT), basically founded on the fact that each organization is influenced by external pressures and depends on the external context in which acts to get the fundamental resources to survive. The influence exerted by the external context, in fact, may lead to a situation of uncertainty over the organization success and survival.

These considerations are particularly related to the role covered by managers in order to let the

organization survive by involving external and internal stakeholders using co-optation strategies.

The external context has the power to influence both the organizational behavior and the organizational performance: for instance, an organization can reach the competitive advantage only if its resources and particular characteristics are recognized as distinctive by the external context in which acts.

Many organizational theories underline the importance of the resources, so that it becomes vital to the organization to modify its business strategies as the external context changes and as the possibility to obtain certain specific resources.

The RDT identifies the external resources as the main source of influence for the organizations, but the authors highlight the fact that the organization may manage and control external pressures – as suppliers, competitors, institutions, etc. – and try to impose their power over the other actors.

Strictly linked to these considerations are the concept of power and influence, as previously highlighted.

In particular, the impact of RDT over board studies makes interesting to understand the role of the boards of directors in exerting their power to provide necessary resources to the organization (Hillman et al. 2000), especially during critical periods for the organization - as a crisis (Reid and Turbide, 2012).

Hillman et al. (2000) present a comparison between the most used agency theory and the resource dependence theory: while the agency theory is mainly set on the problem of monitoring the agent's behavior, the RDT concentrates on the role that managers should cover to connect the firm with external factors and on the influence they should exert to reduce uncertainty. Pfeffer and Salancik (1978) evidenced how as uncertainty increases, the need for external linkages increases and more outsiders directors would be needed on the board.

Each director brings to the organization specific resources and attributes (Kesner, 1988; Kosnik, 1990; Hillman et al. 2000); except their leadership competencies, and their maturity, the main differences are more visible in terms of personal experience, skills, information and external linkages (Baysinger and Butler, 1985).

As Pfeffer and Salancik stated, a board's composition reflects the firm's external dependencies: that means that it is possible to see strategic changes within the board as the external context in which the organization acts changes.

Hence, it is clear that external factors and configurations influence the internal configuration of the board and consequently may have a reflection over board interactions, board performance and organizational performance (Grissom, 2010).

These considerations made on the private sector, are particularly fitting also on the public sector as they are considered as multi-stakeholders structures (Gnan et al. 2013). Public sector organizations are created to fulfil responsibilities of government and are expected to cooperate in the policy development and the delivery of services. Moreover, especially in the last decade, many public agencies are often created under the guise of addressing market failure and are maintained to contribute to the common good. Also for these reasons, public organizations operate nowadays in a much more turbulent and uncertain environment than before. Uncertainty is a force affecting many decisions of the organization. To increase the effectiveness of the decisions it is necessary to reduce the uncertainty of the environment by ensuring the goodwill of key external actors who may affect the action taken into organization through the existence of the resource dependence

between the organization and the same actors. Based on the analysis of the literature it may be stated that for the public organization external stakeholders and the community's support are more important for decision making than economic issues, which are crucial for private organizations. That means public organizations should measure achieved results and present them to the stakeholders so that they are more willing to share their resources with the organization.

To sum up, as both research dependence theory and stakeholder theory are not well developed in the context of public organizations, we believe that examining how management of stakeholders relationships may decrease resource dependence theory may help also to highlight the dynamical aspects of board interactions as in the private domain.

So, this literature review tries to provide an in depth analysis of these interactions both within and outside the boardroom.

4. Research Method

Identification of the Study

Because of the lack regarding behavioral boards dimensions in the public sector literature – as evidenced from a previous literature review conducted by some of the authors (Hinna et al. 2010; 2014) - we decided to focus our analysis on board dynamics, even considering the need for a deeper understanding on board interactions, emerged from a recent literature review (Hinna et al. 2014), based on the same journals, -

Adopting the same methodological steps, also for this research we focused on the most quoted journals for the public sector and collateral journals of particular interest in terms of international management studies.

We identified the set of relevant journals stemming from the Aidea ranking, which is based on the Journal Quality List and the Impact Factor, as well as some previously well-established rankings (Geary et al. 2004; Harvey et al. 2007). AIDEA distinguishes the following five disciplinary areas: Banking and finance, Public sector Management, Accounting and Control, Organisation, Management and Strategy. Furthermore, within each disciplinary area, the Journals are subdivided into four categories (levels), from the highest to the lowest: A, B, C, D. Consistent with the aim of our research, we analysed only journals that recur in the AIDEA A category.

The time span is set to 1999–2013: as in our previous work, the choice of the starting point is related to the introduction of issues generally referred to in the Public governance concept in the academic international debate at the end of the

1990s, providing a new frame in which the board of directors (in the public sector) might be studied, while the ending point is extended to 2013 to include eventual new results. The analysis is focused on all the journals that recur in the AIDEA A category of both Public sector Management disciplinary area (13 in number) and Organization disciplinary area (13 in number). In addition we decided to take into account other five publications, all included in the Management and strategy disciplinary area, with a specific aim in governance studies, among all the Journals included in the AIDEA list, even in other disciplinary areas.

On this basis, we examined the following international journals:

1. Journals in Public Sector Management

Governance, Health Care Management Review, Health Policy, Health Policy Planning, Journal of Policy Analysis and Management, Journal of Social Policy, Non-profit and Voluntary Sector Quarterly, Philosophy Public Affairs,

Journal of Public Administration Research and Theory, Public Administration Review, Public Administration, Social Science and Medicine, Value in Health.

2. Journals in Organization

Administrative Science Quarterly, Group & Organization Management, Human Relations, Human Resource Management (US), Journal of Management, Journal of Organizational Behaviour, Leadership Quarterly, Organization, Organization Science, Organization Studies, Organizational Behaviour and Human Decision, Organizational Research Methods, Strategic Organization

3. Journals in Management and Strategy

Academy of Management Journal, Academy of Management Review, Journal of Management Studies, Journal of Management and Governance, Corporate Governance: An International Review.

Overall, we analyzed 31 journals (Table 2). We organized the database obtained by creating an excel worksheet for each journal examined.

Table 2. List of journals

DISCIPLINARY AREA	JOURNALS
<i>PUBLIC SECTOR MANAGEMENT</i>	Governance
	Health Care management Review
	Health Policy
	Health Policy Planning
	Journal of Policy Analysis and Management
	Journal of Public Administration Research and Theory
	Journal of Social Policy
	Non-profit and Voluntary Sector Quarterly
	Philosophy Public Affairs
	Public Administration
	Public Administration Review
	Social Science & Medicine
	Value in Health
	<i>ORGANIZATION</i>
Group & Organization Management	
Human Relations	
Human Resource Management (US)	
Journal of Management	
Journal of Organizational Behaviour	
Leadership Quarterly	
Organization	
Organization Science	
Organization Studies	
Organizational Behaviour and Human Decision	
Organizational Research Methods	
Strategic Organization	
<i>MANAGEMENT AND STRATEGY</i>	Academy of Management Journal
	Academy of Management Review
	Corporate Governance: An International Review
	Journal of Management and Governance
	Journal of Management Studies

As suggested by Siebels and zu Knyphausen-Aufseß (2011), in order to identify the relevant and significant studies, our purpose was to follow a structured six-step selection process:

1. Search of electronic libraries/databases using different keyword combinations.

We carried out the research on the full text papers using various search engines (Jstor, Blackwell Synergy, Academy of Management, Wiley Interscience or simply using the search mechanism of the journal under consideration). To select papers about boards dynamics and board interactions, for each journal we established the following combination of keywords: “board dynamics” AND “public administration”; “board dynamics” AND “public sector”; “board dynamics” AND “public governance”; “board interactions” AND “public administration; “board interactions” AND “public sector”; “board interactions” AND “public governance”.

2. Elimination of substantive irrelevant articles by reading the individual title and selective scanning of the abstract.

We excluded book reviews, forums, interviews and panels, the main reason being that we wanted to focus on research findings rather than on opinion-based manuscripts.

3. Consolidation of results from ‘journal research’ and elimination of duplicates.

4. Ensuring substantive relevance by reading all abstracts of the remaining papers/publications and evaluating their respective.

5. Further safeguarding of relevance and substance by reading the remaining articles/publications in their entirety and discarding publications that fail to address the research questions.

6. Inclusion of additional papers that were identified via cross-referencing during the analysis of the bibliographies of papers/publications retrieved in step

In particular, from the selection phase (step 1 to 5) we obtained 15 papers.

The research for keywords and full text has the advantage of completeness, but the defect of generalization. In a second moment, therefore, we examined each paper in detail to verify the adherence to the topic of the research (step 5).

Within these 15 papers, 3 proved not to be relevant with our research framework (they focus on other themes as , e.g., audit committees and the use of internet in non-profit sector).

Finally, we find additional paper addressing the research question by cross-referencing the 12 papers (step 6), then finding 8 more papers.

Analysis of the Studies

After the selection in the analysis of the papers, we analyzed and filtered the original database using the

content analysis methodology (Krippendorff, 1980). This methodology consisted in codifying the papers into categories, by selecting those papers that satisfied one of the following two conditions:

1) the papers selected had “board dynamics and board interactions in public sector” as the specific object of the research;

2) the papers selected had “board dynamics and board interactions in public sector” not at the core of the paper, but the paper still gave considerable input to understand ‘boards dynamics’.

The criteria of selection were outlined and discussed exhaustively among the codifiers to eliminate possible areas of uncertainty and ambiguity.

A pilot phase preceded the analysis of our sample. In the pilot phase, a small set of papers was selected by all researchers, within the same subsample. The discrepancies between the codifiers were re-analyzed and the differences resolved. On the basis of this set of selection criteria and decision rules, each researcher independently selected the papers with adherence to the topic of the research.

5. Results

Despite in our previous work (Hinna et al. 2014) - about behavioral perspective in analyzing the board of directors - one of the issues raised and analyzed was about board interaction and board dynamics, this review - based on the use of six different couples of keywords (“board dynamics” AND “public administration”; “board dynamics” AND “public sector”; “board dynamics” AND “public governance”; “board interactions” AND “public administration; “board interactions” AND “public sector”; “board interactions” AND “public governance”) - just found, in the first phase, 25 papers.

Once consolidated the results by eliminating duplicates and non-significant papers, we arrived to a final database of 20 papers.

The journal with the highest rate of results is Corporate Governance (5 papers).

Because of this scarce result, in analyzing issues about board dynamics and board interactions, we included also those papers - exploring the same theme - found in our previous works (13 papers on a total of 84); it is important to highlight that these papers have been found by conducting a literature review with different keywords (“top management team” AND “public administration”; “top management team” AND “public sector”; “top management team” AND “public governance”; “board” AND “public administration”; “board” AND “public sector”; “board” AND “public governance”).

As result of our previous analysis, we highlighted that there was a need of a more in-depth

analysis about the theme of board dynamics, and this specific literature review on this topic, and with these scarce results, evidences how it is still true.

By analyzing the 20 papers, we found that issues about board dynamics and board interactions are often related to topics as board diversity and external pressure exerted on the board.

Hence, even if some papers proved to be borderline and a categorization could be quite a forcing, it is possible to individuate three categories: 11 results are about conflict, power and trust; 5 papers are more focused on aspects as “how” board diversity may influence board interactions”; while 4 papers concentrates on the environmental influence on directors’ performances.

The following sub-sections will now provide the review of the found papers.

Conflict, power and trust

Particularly interesting, within this first classification, are two works by Grissom (2010, 2012) about conflict within boards of public organizations.

The author examines dynamics within the board by considering the impact of extrinsic and intrinsic factors on decision-making conflict: as he defines, “this process leads to opposition among the parties that results in some pattern of actions and reactions”.

Grissom (2010) found that, although the conflict among leaders and team members in private organization has received a good deal of attention, conflict on boards in public organizations has received very little.

Grissom highlights that large degrees of intra-board conflict, by creating tension and antagonism, can lower decision quality and that excessive divisiveness may undermine boards’ efforts to define and achieve common goals and make boards less effective.

The author, in analyzing which extrinsic factors can influence board conflict, points out that “larger boards, boards in more active interest group environments and boards whose members are elected from single-member districts all experience greater conflict” (Grissom, 2010). But he also found that some intrinsic factors make a difference as well: different ideologies, e.g., report greater conflict and more difficult working together, while racial differences report lower degrees of board conflict.

The real interesting analysis conducted by Grissom (2010) is about the causes that lead to board conflict: the author underlines that the accent has always been put on the results and only few studies have focused on the causes of intragroup conflict, as well as just few studies attempted to

identify what factors predict greater degrees of conflict.

In particular, Grissom individuates three extrinsic factors that influence board conflict:

- the complexity of the task environment;
- board structural characteristics (how and what kind of board members are selected);
- the electoral environment in which the board operates (in particular related to interest group activity).

While Grissom has not found an important role played by factors as race and gender diversity on board conflict, relevant intrinsic factors are indeed found in:

- the heterogeneity of membership (as different backgrounds and ideologies): according to the author, it increases the number of alternatives brought to the table, making reaching consensus more difficult;
- Member vision and goals: when individual goals for board action are incompatible, conflict is likely to arise;
- Board decision making process variables, as the use of self-evaluation, delegation of decisions, information sharing within the board.

According to Cornforth (2001), Grissom underlines the importance of good governance practices for board effectiveness, so that recurring to these processes board may encounter less conflict, because “professionalization may serve to bring regularity and routine to the decision making process” (Grissom, 2010).

Van der Walt and Ingley (2003), as Grissom (2010, 2012), evidence that demographic differences lower social cohesion and that social barriers reduce the likelihood that minority viewpoints will be incorporated into group decisions.

Differently from these studies, that analyze board dynamics as result of a pre-constituent situation (board members’ background), Ingley and van der Walt (2005) analyze the board dynamics as an influencing factor over board performance. In particular, the authors analyzed the strategic orientation of the board, highlighting the extent to which individual directors and the board as a whole can actually influence key outcomes and, thereby, their governance contribution.

Through a survey conducted on 3,000 directors in New Zealand, Ingley and van der Walt show the high rate of board involvement in developing the strategy and in shaping vision and mission; these results contribute in evidencing the important role covered by board members in decision-making process and the impact they have on board and organizational performance, even if the authors highlight the fact that “only a small minority [of directors] confirm that their board does have its own strategy as distinct from the overall corporate strategy. This suggests that many New

Zealand boards of directors have not fully internalized the strategic dimension of their role and, with the exception of some of the larger corporations, have not reached a level of professionalism that perceives a need for a strategic approach in relation to the performance of board tasks and activities”.

Maitlis (2004) and Reid and Turbide (2012), indeed, had analyzed the relationships between the board and the staff: the former has analyzed factors through which CEOs influence their boards, while Reid and Turbide have analyzed the relationship in the context of organizational crisis.

Maitlis (2004) highlights that agency theory and managerial hegemony theorists saw CEO influence as typically deriving from measures of board structure and composition (Daily and Dalton, 1994; Pearce and Zahra, 1991; Westphal, 1999): CEOs are seen as exerting influence by determining and maintaining the composition of the board to retain those directors sympathetic to their views or ready to support their proposals.

Reid and Turbide (2012), indeed, point out that agency theory “reflects distrustful board/staff relationships, emphasizes board control, and appears most applicable to the for-profit sector, where relationships are financially framed” and that “Not-for-profit board members are volunteers, unpaid and avocational, often chosen more for their boundary-spanning abilities than for their professional knowledge of the field. In this sector, lack of expertise in the organization’s field of business makes board monitoring difficult”.

Hence, according to the authors, agency-type monitoring in non-profit sector may be impossible: this is why in this context, often, board members appear to develop trust in CEO’s knowledge and judgment, generating CEO influence over the board (Miller, 2000).

Maitlis (2004) evidences that, in the non-profit sector, research has highlighted a variety of structural factors that determine the balance of influence between the CEO and board: e.g, the demographic characteristics of board members, the size of the organization, the perceptions of environmental predictability, the strength of the organization’s executive leadership and the perceived legitimacy, or reputation, of its board members (Provan 1980; Murray et al. 1992; Harlan and Saidel 1994; Saidel and Harlan, 1998).

Different studies have identified various types of board/staff relationships, suggesting a contingency approach (Alexander et al. 1993; Golensky, 1993; Bradshaw, 2002): in fact, as Cornforth (1999) highlights, board’s power over staff is a more complex, dynamic and changing process, affected by both internal and external factors.

Westphal (1998) showed that boards can become less powerful when their independence is

increased. Examining changes in boards over time, Westphal found that a reduction in structural independence prompted CEOs to increase their use of persuasion and ingratiation tactics with their directors. As a result, and counter to the predictions of agency theory, the power of these more independent boards diminished.

Maitlis (2004) puts in evidence the relevance of some studies conducted in non-profit sector (Heimovics and Herman 1990; Herman and Heimovics 1990a, 1990b) that revealed the linkage between organizational success or failure to a CEO’s relationship with his/her board.

“This research suggests that that the most effective CEOs carry out their roles through ‘board-centred leadership’, which includes behaviours such as ‘facilitating interaction in board relationships’, ‘showing consideration and respect towards board members’, and ‘promoting board productivity’” (Maitlis, 2004).

In her work, Maitlis found four key influence process in the relationship CEO/board: exploiting key relationships, managing impressions, managing information, and protecting formal authority.

In particular, key relationships with key directors and organizational stakeholders have an effect on the power that a CEO can exert on his/her board: these kind of relationships help the CEO in being always better informed on any significant matter than any other member in the boardroom, so he/she can easily have influence on them.

Managing impressions, indeed, is about the impression the CEO can project of him/herself to a range of groups/individuals: if the CEO displays a positive impression, based on legitimacy, competence and leadership, he/she would appear like a powerful actor to the board.

The third key process is managing information: here the ability of the CEO stays in his/her capacity to gather, hold and disseminate information to certain key parties at strategically advantageous times.

The last process concerns with the extent to which the CEO can protect his/her formal authority while trying to extend it whether is possible.

Maitlis, then, inserts these four processes into a so-called “set of interconnected process” as a powerful set of influence mechanisms that results by the interplay that takes places from all the actors involved, which sees the CEO exerting influence on the board not only through the more classical tactics as ingratiation, pressure and upward appeals, but through the central role he assumes within the stakeholders’ network.

According to Wood (1992), that individuated three phases during organization life and discovered that board/staff relationships varied over time, Reid and Turbide (2012) analyzed these relationships in the context of organizational crisis.

As Wood, they also identified three phases: “before the storm” the board has high trust in the executive leadership, so it disengages its active involvement and collaboration with the staff; when “the crisis trigger”, board members alter their behavior, their trust in the CEO becomes distrust, and assume the organization control by entering direct into contact with stakeholders bypassing the executive staff; in the last phase, “continued survival”, once the organization is stabilized, the board moves into a more mature and collaborative relationship but characterized, as defined by Reid and Turbide (2012), by a mixture of trust and distrust.

Board diversity

This category deals with those papers that analyze board interactions and dynamics more focusing on board diversity in terms of gender, cultural and professional background.

Many studies have concentrated on this issue to explain board performance and relationship with the external context (Goodstein et al. 1994; Milliken and Martins, 1996; Gabrielsson and Huse, 2004).

Meier et al. (2006) analyze the different gender interaction with basic managerial function to affect the organizational performance.

The authors found that management and gender interact, and they state that especially researchers on public management should take into account these findings. In fact, women managers seem to manage better upward (in terms of leveraging results from political overseers), while they generally get lower results from managing downward and outward than do their male counterparts.

On the opposite, Rose (2007) has conducted a study upon all the Danish listed firms to verify female directors impact on organizational performance: his study has shown that “gender in relation to board composition does not influence firm performance”.

Van der Walt and Ingley (2003) focus on the implications that board members’ different characteristics may have on the decision making process.

The authors put in evidence board diversity by pointing out that “As a group, a board of directors combines a mix of competencies and capabilities that collectively represents a pool of social capital for their organization”. This diversity may be represented by different directors’ characteristics as age, gender, ethnicity, culture, religion, knowledge, professional background, life experience, technical skills and expertise (Van der Walt and Ingley, 2003; Gazley et al. 2010); thus, according to the authors, board diversity refers to the mix of human

capital that a board of directors comprises collectively and draws upon in undertaking its governance function. The aim of introducing greater diversity within the board is to better balance different skills and attributes that are needed for decision making, but also to reflect societal characteristics: “New Governance” scholars, in fact, observe the importance of stakeholder and citizen participation in public policy making (Naff, 2001; Bingham et al. 2005; Gazley et al. 2010).

Van der Walt and Ingley (2003) cite an interesting research by Fondas (2000) about implications on decision making: this study reveals that boards with larger proportions of women are less inclined to let CEOs dominate proceedings and more likely to engage in power sharing; this kind of boards have significantly more influence over management decisions than boards without female directors.

Furthermore, Fondas (2000) evidence another important aspect: female directors may encounter barriers to exert their role in the strategic function; in fact, according to Bilimoria and Piderit (1994), women serve predominantly on less important and less strategic board committees (e.g. public relations), while men tend to serve on committees with a larger strategic role (e.g. executive, remuneration, finance).

Another interesting point is raised by Carver (2002): to let diversity flourish, it must be accepted to examine all ideas, regardless of origin, otherwise the variety of opinion can become so suppressed or strident as to become ineffective.

Starting by these considerations, Van der Walt and Ingley (2003) come up to the conclusion that it is important to facilitate diversity, but to optimize the richness of diversity, this variety should be assimilated to speak as one voice.

Bradshaw and Fredette (2013), indeed, has studied board diversity as a consequence: they tried to analyze which factors influence on the appointment of directors from different ethno-culture in non-profit organizations. Coherent with resource dependence theory (Pfeffer and Salancik, 1978), they found that macro-contextual/environmental factors have impact on board diversity, in particular the diversity extent in the community in which the organization operates. Findings also show that these kind of organizations benefit from embedding and institutionalizing board diversity; furthermore this formalization contributes to improve boardroom diversity.

Board diversity which is limited, according to de Cabo et al. (2011), by the percentage of female manager in the firm: the more this presence is low, the less it will be the presence of female directors on the board.

Environmental influence on board performances

Many relevant studies have identified the important role played by the external context in influencing organizations and their activities (Pfeffer and Salancik, 1978; Powell and DiMaggio, 1983; Meyer and Rowan, 1977).

The role covered by directors in this “relationship” with the external context has been often seen as a role of co-optation for the organization (Pfeffer and Salancik, 1978): their expertise and influence with community forces can help the firm to avoid conflicts with the interests of this groups and to avert threats to the firm stability or existence (Selznick, 1965). This role played by directors serves also to legitimate the firm, and the level of prestige associated with a community influential director could be used to measure the extent to which the director brings legitimacy to the firm (Hillman et al. 2000).

Long (2006) evidences how environmental factors have been determinant in affecting board activities in UK: e.g, reforms have changed the number of independent directors, addressed chairman/CEO duality, and imposed age, term and compensation arrangements for executive and non-executive directors.

Because of several important board failure in the recent history and the consequent need to know more about board conduct, corporate compliance, responsibilities, performance pressure and visibility levels on boards of directors have increased: in fact, boards are expected to demonstrate to shareholders and stakeholders the quality of their decision making process, their ability to exercise corporate control, their capacity to understand and interpret the changing in the external context, and their willingness to regularly review their architecture (Demb and Neubauer, 1992; Pearce and Zahra, 1992; Blake, 1999; Long, 2006).

As stated by van der Walt and Ingley (2001) “board of directors are facing new challenges in the 21st century which demand a greater understanding of technological advances, social pressures and international competitiveness”.

According to Conger and Lawler (2001), each board has unique competences and requirements and respond to stakeholders’ needs, organizational issues and economic cycles in different ways; thus interactions could be different for each board, also depending from the different level of responsibility.

De Cabo et al. (2011) have analyzed factors influencing women appointment on Spanish companies’ boards: one main factor they found is the presence of female directors in the industry; the more this percentage is low, the more it will be the unwillingness to appoint women on the board, thus confirming how external pressures and factors can have influence on board composition.

6. Discussion and Conclusion

The aim of this paper was to analyze board interactions and board dynamics within public organizations through a resource dependence approach.

Our paper contributes to raise the question about understanding the role of board directors and their interactions/dynamics both with internal and external actors.

Hence, we have analyzed the most relevant contributions showing external factors conditioning organizational life and performance: by this analysis, it is clear the relevance of the impact both on the role covered by board directors and on the results that the organization can reach (Dalton and Daily, 1998; Dalton et al. 1999; Finkelstein and Mooney, 2003).

We have highlighted that, despite its importance in explaining relationships between board directors and both internal and external stakeholders, the resource dependence theory does not find an application in the public sector as in the private one.

Thus, we have underlined how external influence is even more relevant for public organizations, which activity is particularly affected by a wider range of stakeholders than private organizations.

These considerations are at the basis of our work, to evidence how the resource dependence theory may in a good way explain the relationship with the external context and how this relationship can influence on internal board dynamics and performances.

Then, we have presented the results of the literature review with the aim to comprehend if, and in which terms, literature has specifically addressed the issue of board dynamics and board interactions within public organizations.

Despite the literature review is conducted by using six different couples of keywords, the results show there are really few works specifically dealing with this theme: just 12 papers were found on a set of 31 journals.

These findings confirm that in the public debate the theme of board dynamics is not addressed as in the private domain.

Anyway, what appears clear by the even few found papers, is that several authors refer to the relationship between the board and the external context: even if they don’t refer directly to the RDT, the accent on the external context confirms our idea about the important analysis approach that the resource dependence theory may also give to the public debate on boards.

In particular, our work has tried to take into account a resource dependence approach, to highlight the role directors cover, especially in multi-stakeholder structures as public organizations

may be defined, and to verify if this approach could also explain some sort of linkages between the external relationship and internal board dynamics/interactions.

An important point to highlight is that only a part of the findings deals with “real” dynamical issues of the board, and that even some aspects that at first glance may appear as “dynamical” issues (e.g. diversity), by deepening analyzing them, it is possible to evidence that they look more static than dynamic.

In particular, by analyzing the results, what comes out is the fact that some internal dynamics are explained by the influence of external factors: for example, board composition and board diversity often are influenced by the context in which the organization acts (in terms of gender, professional background, ideologies, etc...).

With the exception of few works (Maitlis, 2004; Grissom, 2010), what seems not investigated are the interactions within the board: with this concept, we refer not only to internal dynamics explained by external factors, but even to those dynamics and interactions that stem out by human and behavioral interaction within the board.

Thus, due to the lack in literature, our findings indicate as interesting issue to address in future a specific focus on dynamical aspects within the board, also by taking into account the behavioral perspective.

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ARE EFFICIENT CEOs HIGHER REMUNERATED? A DATA ENVELOPMENT ANALYSIS OF SELECTED JOHANNESBURG SECURITY EXCHANGE COMPANIES

*Merwe Oberholzer**

Abstract

The originality of the study is that performances of CEOs are estimated by determining how efficiently they convert their own remuneration and other key company input resources into a key performance output. Accounting-based data, with the Du Pont analysis as conceptual framework, were applied as the other company input and output determinants. The main purpose was to determine whether there is a difference in remuneration of CEOs who are efficient and inefficient, as estimated by data envelopment analysis. A sample of 167 Johannesburg Stock Exchange-listed companies, divided into large, medium and small, from the industrial and resource sectors is empirically investigated. According to the Student t test, the study found that there is no statistically significant difference between the remuneration of efficient and inefficient CEOs of large and small companies, but for medium-sized companies, the inefficient CEOs are statistically significantly higher remunerated. A possible reason for this contradiction is, inter alia, that market-based performance determinants were not taken into account, which could lead to a different conclusion. The practical implication is that an accounting-based model is developed for company boards, which should consider using accounting-based data more frequently to benchmark their CEOs' remuneration, since not only are these data readily available to make comparisons with peers, but it can be influenced more easily by a CEO as in the case of market-based determinants.

Keywords: CEO Remuneration, Efficiency, Performance, Du Pont Analysis, Accounting-Based, Data Envelopment Analysis

* School of Accounting Sciences, Private Bag X6001, Potchefstroom 2520, South Africa

Phone: (+27)18 299 1075

Fax: (+27)18 299 1426

Cell: (+27)83 564 3391

Email: Merwe.Oberholzer@nwu.ac.za

1. Introduction

The debate concerning CEO remuneration is an old issue and the majority of research in this field questions the relationship between firm performance and CEO remuneration (Geiger and Cashen, 2007). Stanwick and Stanwick (2001) mentioned more than a decade ago that although the topic of CEO remuneration is well explored in academic research, there is still a great deal to be learned. Approximately 25 years ago, Jensen and Murphy (1990) identified the core of the problem when researching the performance-remuneration issue, namely that the results are inconsistent. Today, there is still a great deal to be learned, because researchers still provide a stream of mixed results. There are many recent studies' results that support the hypothesis of a relationship between CEO remuneration and performance (Nulla, 2013; Faleye et al., 2013; O'Connell and O'Sullivan, 2013; Scholtz and Smit, 2012; Sigler, 2011; Lee et

al., 2007; Zhou, 2000). On the other hand, many studies could not find a relationship (Bradley, 2011; Theunissen, 2010; Heaney et al., 2010; Krugel and Kruger, 2006; Grinstein and Hribar, 2004; Gunasekaragea and Wilkinson, 2002).

It is clear from the literature that company performance is not the only factor that influences CEO remuneration. Many other factors should also be borne in mind, namely company size, risk, leverage, ownership, age of CEO, tenure, talent, including risk forecasting skills, labor market state and board size (Srivastava, 2013; Hearn, 2013; Sigler, 2011; Fulmer, 2009; Gabaix and Landier, 2008; Nwaeze et al., 2006; Gunasekaragea and Wilkenson, 2002). However, performance and size seem to be the most important drivers of CEO remuneration (Nulla, 2012; Oberholzer, 2014; Cordeiro et al., 2006; Zhou, 2000) and hereof many authors agree that company size is the single most significant driver and the only factor that has a constant and a positive correlation with CEO

remuneration (Dan et al., 2013; Sigler, 2011; Vermeulen, 2008; Devers et al., 2007; Geiger and Cashen, 2007). Therefore, when analyzing the relationship between CEO remuneration and company performance, steps must be applied to control the effect of size (Chen et al., 2009). For example, researchers have conducted relationship studies with market-based determinants (Krugel and Kruger, 2006; Heaney et al., 2010), accounting-based determinants (Chhaochharia & Grinstein, 2009), and other factors, such as number of employees (Sigler, 2011), as possible proxies for company size when studying CEO remuneration.

In an effort to link CEO remuneration with company performance, the majority of studies performed relationship analyses and asked the question whether there is a correlation between CEO remuneration and company performance indicators. Researchers have chosen performance determinants that are market based, such as return to shares, market value, market value added, Tobin's q and market-to-book value (Nulla, 2013; Scholtz and Smit, 2012; Griffith et al., 2011; Bradley, 2011; Heaney et al., 2010; Fulmer, 2009; Lee et al., 2007; Gunasekaragea and Wilkinson, 2002; Zhou, 2000); accounting-based determinants, from the statement of comprehensive income, profit (Nulla, 2013; Theunissen, 2010; Krugel and Kruger, 2006; Grinstein and Hribar, 2003), total sales (revenue) (Scholtz and Smit, 2012; Griffith et al., 2011; Theunissen, 2010; Grinstein and Hribar, 2004; Stanwick and Stanwick, 2001), and from the statement of financial position, equity (Nulla, 2013) and total assets (Scholtz and Smit, 2012); accounting-based ratio determinants used are return on equity, return on assets and earnings per share (Nulla, 2013; Oberholzer and Theunissen, 2012; Bradley, 2011; Sigler, 2011; Heaney et al., 2010; Fulmer, 2009; Grinstein and Hribar, 2004; Stanwick and Stanwick, 2001; Zhou, 2000); and other factors, such as customer satisfaction (O'Connell and O'Sullivan, 2013). From this summary of previous studies, it is clear that there are many performance determinants to choose from and that most researchers prefer to apply multiple determinants. Therefore, it is a difficult task to select appropriate performance measures, which makes a case for the selection to be based on a predetermined framework.

This study differs from the above-mentioned studies and investigates an issue that has not received much attention before. This is to define performance as the efficiency of CEOs to convert their own remuneration, as well as other key company resources into key outputs. The argument of the study is that CEOs can be seen as company resources – and resources should be utilized to create wealth. It will be a one-dimensional view if CEO remuneration is considered as the only resource; therefore, what is needed is a model to

estimate the efficiency of how multiple company resources can be converted into key outputs. For this matter, the study will apply data envelopment analysis (DEA) because it has the ability to aggregate the relative efficiency into a single measure where multiple inputs and multiple outputs are used (Avkiran, 2011; Coelli et al., 2005).

The study attempts to classify CEOs as efficient or inefficient and the research question is whether efficient CEOs are higher remunerated than inefficient CEOs. The main purpose of the study is to determine whether there is a statistically significant difference in remuneration between those groups. The secondary purpose is to perform a relationship analysis regarding to the extent that CEOs' remuneration changes when there is a change in performance. A related study has been done by Faley et al. (2013), who investigated the relationship between productivity and CEO remuneration. Another study, closely related to this study, has been conducted by Chen et al. (2009), who investigated the relationship between banks' CEO efficiency, by using DEA and CEO remuneration. Other authors who used DEA in studying CEO remuneration are Cordeiro et al. (2006), Oberholzer and Theunissen (2012), and Theunissen (2012), who investigated DEA models to benchmark CEO remuneration as an alternative for regression analysis.

To fulfill the purpose, a sample of 167 Johannesburg Stock Exchange (JSE)-listed companies from the industrial and resource sectors is empirically investigated. A DEA model is developed to estimate the efficiency that CEOs convert their own remuneration and other inputs into performance outputs. The DEA results are used to classify CEOs as either efficient or inefficient. Statistical methods applied are firstly descriptive statistics, secondly the Student t test, to investigate the mean differences between the remuneration of efficient and inefficient CEOs, and thirdly, the Spearman rank-order correlation, to investigate the relationship between the efficiency (performance) of CEOs and their remuneration. To address the effect of size influences on CEO remuneration, the sample companies are divided into three groups according to their size, measured by the market value of assets. Assuming the companies in a group are more or less of a similar size, the problem is addressed that company size may have threatened the validity of the study (Bradley, 2011). With both the Student t test and the Spearman rank-order correlation test, the mean company size of efficient CEOs is statistically tested to be equal to those of inefficient CEOs' company size, and that there is no relationship between company size and CEO remuneration, respectively.

This study brings new insight to the literature. By estimating the efficiency of CEO remuneration, in conjunction with other multiple company

resources to create wealth, the contribution is that it provides a basis that goes beyond the questions of the relationship between performance and remuneration. The efficiency estimate provides a best practice benchmark to indicate to what extent inefficient CEOs' remuneration (and other key input resources) should be decreased maintaining the current output performance levels. From this study, an accounting-based model is created that can be used by board members to benchmark their CEOs' remuneration against its peers.

The remainder of the study will evolve as follows: The next section provides the background, including the rationale of the study, the rationale of applying DEA and the conceptual scope of the study. This will be followed by a theory section to explain DEA. Thereafter, the method and materials are explained. This will be followed by the findings of the empirical study and then a discussion thereof and the study will be concluded thereafter.

2. Background

Rationale of the study

CEO remuneration recently received a great deal of negative media attention in South Africa and companies are accused of the fact that their CEOs are excessively remunerated (Lamprecht, 2014; Finweek, 2012; Joubert, 2011; Ensor, 2010). This media attention has led to a number of studies investigating CEO remuneration of JSE-listed companies (Nthoesane and Kruger, 2014; Bradley, 2011; Theunissen and Oberholzer, 2013; Scholtz and Smit, 2012; Oberholzer and Theunissen, 2012; Dommissie, 2011; Theunissen, 2010; Krugel and Kruger, 2006). The reason for the media attention is summarized by Theunissen (2012) as firstly that CEOs gain huge amounts of remuneration when they exercise their share options, which is mainly a function of the prevailing share price that is due to market factors and not so much their own contribution. Secondly, there is a presumption that the discrepancy between remuneration and performance has led to these pay hikes. Thirdly, the 'Lake Wobegone Effect', which is a perpetual upward spiraling effect where companies are paying ever-increasing compensation to their CEOs, because most boards want their CEOs to be in the top half of the CEO peer group to convince shareholders that they are above average. This study is an effort to investigate the performance-remuneration issue from a different angle, i.e. the efficiency of CEOs, to be able to conclude whether there is fairness in CEO remuneration.

Rationale of applying DEA

This study applies DEA as a measurement of company performance, which is a non-parametric

efficiency measurement technique, using linear programming to estimate a comparative ratio of weighted outputs to weighted inputs for each company. The efficiency estimate is relative to the other companies in the sample and can be expressed in terms of technical, allocative, scale and cost efficiencies, although this study only focuses on technical efficiency, an indication of how well inputs are converted into outputs (Coelli et al., 2005). The main reason for applying DEA is its ability to accommodate multiple inputs and multiple outputs (Avkiran, 2011; Coelli et al., 2005). As seen from the introduction, measuring CEO performance requires that multiple company determinants should be considered. Therefore, DEA will be an effective approach to estimate which CEOs are efficient or inefficient.

Although many previous studies have measured CEO performance as indicated by market performance, this study excludes market performance, since the argument is that CEOs have little or no influence on the market. To a certain extent, a CEO can influence the share price through good governance, but there are also numerous uncontrollable market factors that can influence the share price (Financial Mail, 2008). Therefore, this study will focus on accounting data to select appropriate input and output variables for its DEA model. An advantage of using accounting-based data is that it is readily available. Non-accounting data, such as number of employees, number of transactions, number of retail outlets and/or branches (Cronje, 2002), which are frequently used in DEA models, are also not included because they are not readily available.

Applying a DEA model with multiple input and output accounting-based data provides a superior measurement, since the problem with accounting line items in financial statements is that they are meaningless on their own and must be interpreted against the backdrop of the accounting policy (Correia et al., 2011). Accounting-based ratio analysis is a technique to further analyze financial statements that express a relationship between two accounting line items; however, the problem is the selection of an appropriate ratio, since the literature cannot agree on the relative importance of the different ratios and it is only appropriate if companies focus on a single input to convert into a single output (Chen, 2002).

Nevertheless, instead of focusing on individual accounting line items, researchers have developed multiple input multiple output accounting-based DEA models where the relative performance of firms is aggregated into a single estimate. The input variables consist of accounting line items, such as assets, equity and expenses, as well as output variables such as revenue and profit (Oberholzer, 2013; Ho and Oh, 2010; Guzmán and Arcas, 2008; Lo and Lu, 2006; Luo, 2003; Seinfeld

and Zhu, 1999). Other researchers have developed DEA models and use financial ratios as input and output variables in their models (Avkiran, 2011; Ablanedo-Rosas et al., 2010; Edirisinghe and Zhang, 2007; Halkos and Salamouris, 2004). These models serve as a basis for this study to create its own DEA model.

Conceptual scope

For any study to be sensible, it should have a conceptual scope as a basis to measure the results against. For this study, the Du Pont analysis is chosen for this role. This analysis consists of three ratios to measure profit performance, which are

calculated by using several accounting-based line items. The Du Pont analysis indicates how the net profit margin and asset turnover affect return on assets, and how return on assets and leverage affect return on equity (ROE) (Figure 1). The strength of the Du Pont analysis model is its ability to aggregate the performance of firms into three broad categories, namely income, investments and capital structure (Correia et al., 2011). Therefore, the Du Pont analysis is an internal profit performance measurement, because it is only based on accounting line items without any market-based influences.

Figure 1. Du Pont Analysis

$\text{ROE} = \text{(net profit/sales)} \times \text{(sales/assets)} \times \text{(assets/equity)}$ <p style="text-align: center;"> Profit margin Return on assets Return on equity </p> <p style="text-align: center;"><i>(Source: Correia et al., 2011).</i></p>
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Starting from the far right side in Figure 1, the efficiencies are measured pertaining to how (1) equity is converted into assets, (2) how assets are converted into sales, and (3) how sales are converted into net profit. It is indicated that assets, sales and profit are alternately the output variables, and equity, assets and sales are alternately the input variables. Therefore, assets and sales are both inputs and outputs and equity is only an input and profit is only an output. The input-output issue becomes clear when it is explained within the context of the business cycle, where capital (equity plus liabilities) is needed to acquire assets, and assets are utilized to generate sales revenue, and sales revenue is utilized to realize a profit. To accommodate these four variables in a single model, the logic is to use the first two components in the business cycle sequence, namely equity and assets, as input variables, and the last two, namely sales and profit, as output variables. Note that it will not make sense to use capital, or both its components, equity and liabilities, as input in conjunction with assets, because the sum of equity and liabilities equals assets. A problem that may arise is that when companies expand their operations by increasing their assets, the new assets may be financed by debt, in other words by increasing liabilities. This will lead to the adverse situation that the equity-to-debt ratio becomes distorted with more weight in liabilities, which increases the financial risk of the company. To ensure that CEOs limit this risk, the study recommends that when assets and equity are used as input variables, they should be accompanied by

the leverage ratio, liabilities/equity, which implies that low liability and high equity levels reduce finance risk. It also makes sense to include leverage, because Chintrakarn et al. (2014) concluded that powerful CEOs avoid debt and view leverage as negative.

Another phenomenon in practice is that many companies experience net losses from time to time. The problem is that DEA cannot deal with negative data (Kerstens and Van de Woestyne, 2009; Zhu, 2009). To solve this problem, the study recommends that profit is removed as output variable and replaced by total expenditure as an input variable, since the product of sales less expenditure equals profit. The rationale is that profit can be omitted by using expenditure as an input standing opposite to sales, the output variable. Omitting profit as an output performance variable was also done by Frijns et al. (2012), Oberholzer (2012), and Wang et al. (2010).

3. Theory

DEA as an efficiency measurement

A model is needed to estimate the technical efficiency of CEOs to convert inputs into outputs. For this purpose, DEA was selected by comparing the efficiency of how the same multiple inputs and the same multiple outputs are converted by a company, relative to their peers included in the sample (Min et al., 2009; Coelli et al., 2005). DEA effectively estimates the frontier by finding a set of linear segments that envelop the observed data.

DEA can determine efficiencies from an input-orientated (input minimization) or output-orientated (output maximization) point of view (Coelli et al., 2005). Two approaches are available, i.e. constant return to scale (CRS) and variable return to scale (VRS). The CRS implies a proportionate rise in outputs when inputs are increased (Avkiran, 1999). CRS assumes that a company is automatically considered fully scale efficient, implying that the company always achieves economies of scale. Although the technical efficiency based on CRS provides the ultimate optimal value, its assumption is significant, since CRS may only be valid over a limited range and its use should be justified (Anderson, 1996). Alternatively, the less restricted VRS approach can be used, which implies a disproportionate rise or fall in outputs when inputs are increased (Avkiran, 1999). In other words, applying CRS means that the analyst expects that the remuneration-to-size ratio should stay unchanged, implying the largest and the smallest company in a size category have similar remuneration-to-size ratios. An analyst applying VRS assumes that this ratio may change over the spectrum, implying that the ratios for smaller and larger companies in a group may differ.

The less restricted VRS approach is selected for this study so that the size of the companies has as little as possible influence on the efficiency to convert inputs into outputs. Furthermore, an input-orientated approach is followed, which will determine with how much CEO remuneration and other company input resources should decrease to maintain the current level of output. The software provided by Zhu (2009) is used for this study. The technical efficiencies can take on values between zero and one, where zero signals total inefficiency and one total efficiency. [For a comprehensive explanation of the mathematics for an input-orientated VRS approach, see Zhu (2009) and Coelli et al. (2005).]

4. Method and materials

Method

The epistemological approach of this study is more positivistic than interpretive, embracing an empirical study modeling secondary data obtained from the JSE-listed companies to compare whether the difference between efficient and inefficient CEOs' remuneration is statistically significant. Findings made from secondary data provide a medium to high level of control (Mouton, 2011), implying medium to high reliability of the findings if the research process is described in such a way that a repetition thereof will lead to similar findings. The validity of the study is ensured by incorporating only CEO remuneration and other

accounting-based variables that can fulfill the purpose of the study.

Data

Data were extracted from the McGregor BFA (2014) database for 2013. From the database, analysts have a choice between published or standardized data. The former was selected for the study because this is the readily available format provided in companies' annual integrated reports, and this study did not attempt to compare data from different companies, which may require some sort of standardization. In a few cases, where monetary values are not in terms of rand (ZAR), the average exchange rate of 2013 was applied to convert those values. Furthermore, one company has changed its financial year-end and the values for nine months in its statement of comprehensive income are proportionally converted to 12 months.

The companies listed on the main board of the JSE are grouped into three main sectors, i.e. resource, industrial and financial (Business Day, 2014). For this study, only resource and industrial companies are included in the sample, since many financial companies have low levels of assets, making them difficult to compare to other sectors. It was also practice to omit the financial companies in similar studies, for example Nulla (2013), Frijns et al. (2012) and Lee et al. (2007).

A total of 218 companies were detected in the database, of which only 167 are operational and/or provided all the required data. It has already been explained that company size may have a significant influence on CEO remuneration. To eliminate the size effect, the companies were divided into three equal groups; 56 large, 56 medium and 55 small companies. This three-level classification was also applied by Nulla (2012), who investigated 120 TSX/S&P companies. Previous studies used the following variables as proxies for company size when studying CEO remuneration: Market-based factors, market capitalization (Krugel and Kruger, 2006); accounting-based factors, from the statement of comprehensive income, turnover/revenue (Chhaochharia and Grinstein, 2009; Fulmer, 2009; Nourayi and Daroca, 2008; Geiger and Cashen, 2007; Stanwick and Stanwick, 2001; Zhou, 2000) and total expenses (Chen et al., 2009), and from the statement of financial position, total assets (Griffith et al., 2011; Chourou et al., 2008; Grinstein and Hribar, 2004; Gunasekaragea and Wilkenson, 2002; Zhou, 2000) and total equity (Theunissen, 2010); and another factor, number of employees (Sigler, 2011; Nourayi and Daroca, 2008). Following Heaney et al. (2010), the market value of assets is used as a proxy for company size, which is represented by the book value of liabilities plus the market value of equity. The following data from the statement of financial position (SFP), statement of

comprehensive income (SCI) and sundry items are extracted from the McGregor BFA database: The average share price for the year [Sundry Items: 149] multiplied by the ordinary shares in issue at year-end [Sundry Items: 101] plus the sum of preference shares [SFP: 008], outside shareholders interest [SFP: 012] and total liabilities [SFP: 022].

Design of DEA model

Two components of CEO remuneration are included as input variables; firstly, guaranteed total costs to company, which include the base pay as measured by 'salary' plus prerequisites and pension as measured by the total of 'retirement and/or medical' contributions, 'allowances and benefits', 'motor and travel' allowances and 'fee/levy payment'; and secondly, annual bonus plans as measured by total of 'bonus paid in current year', 'performance bonus', 'other benefits' and "once-off payments". To simplify – CEO remuneration is split into these two categories and will be further indicated as "Salary" and "Bonus" and the sum thereof as "Total pay". The database also provides long-term incentives as measured by 'gains on shares'. Since these gains are only disclosed in the year that rights are exercised, it is extremely difficult to value them, especially when only one year's data are under consideration. The exclusion of long-term incentives was also practiced in studies by Nulla (2013), Nulla (2012), Scholtz and Smit (2012), Bradley (2011), and Theunissen (2010). Therefore, this study only investigates the short-term remuneration of CEOs.

The conceptual framework of the study is helpful to identify the remaining input and output variables of the DEA model. The following input variables are selected: total assets, including intangible assets [SFP: 051], total equity [SFP: 013] and leverage that equals total liabilities [SFP: 022] divided by total equity. Dealing with revenue and total expenditure, two approaches can be followed; firstly, where revenue consists of turnover (sales) plus other income, which is investment income and interest received, and total expenditure consists of cost of sales, general administration and selling expenses, interest and financial charges. The alternative, applied in this study, is to use turnover [SCI: 060] as output variable, and total expenditure is the turnover less profit before tax [SCI: 099], which implies that other income is used to reduce total expenditure. The following is a summary of the DEA model:

Input: x1 = CEO salary
 X2 = CEO bonus
 X3 = Total assets
 X4 = Total equity
 X5 = Total expenditure
 X6 = Leverage
 Output: y1 = Turnover

This DEA model differs from those of related DEA studies, for example Chen et al. (2009), who included bank-specific variables such as interest income and expenditure, and non-interest income and expenditure. The models used by Oberholzer and Theunissen (2012), Theunissen (2012), and Cordeiro et al. (2006) were not based on the conceptual framework of the Du Pont analysis and they also did not include other variables in conjunction with CEO remuneration components as input variables.

Statistical analysis

Descriptive statistics

Firstly, descriptive statistics are used to analyze the independent (x) and the dependent (y) variables included in the DEA model. Secondly, descriptive statistics are used to analyze the total short-term CEO pay, which consists of the salary and bonus of efficient and inefficient CEOs. Furthermore, the market value that is used as a proxy for company size will also be analyzed.

Analysis of means

To test the difference between the means of efficient and inefficient CEOs' remuneration, the Student t test statistics are used, assuming independent samples and unknown population standard deviations. Microsoft Excel was used and therefore the F test was first performed to determine whether a t test, assuming equal variances, or a t test, assuming unequal variances, should be run. The null hypothesis states that there is no difference between the means of the two samples; at a level of 5% of significance it implies that $p < 0.05$ assumes unequal variances and $p > 0.05$ assumes equal variances. Thereafter, a one-sided upper-tail hypothesis t test, at the 5% significance level, is performed for the difference between the remuneration means of efficient and inefficient CEOs. The one-sided upper-tail test is required to answer the research question of whether the mean total CEO pay, broken up into salary and bonus, of efficient CEOs is greater than the mean CEO remuneration of inefficient CEOs, ($\mu_e - \mu_i > 0$). Let e refer to the population of efficient CEOs and i to the population of inefficient CEOs. Then (Wegner, 2007),

$$H_0: \mu_e - \mu_i = 0$$

$$H_1: \mu_e - \mu_i > 0$$

The study further hypothesized that there is no difference between the mean market size of large, medium and small companies, respectively, of efficient and inefficient CEOs. This is to determine whether the size classification is valid and that size

effect does not distort the CEO remuneration. Therefore, a two-sided hypothesis test at the 5% level of significance is required, because the market values of the two groups are tested at a specified value ($\mu_e - \mu_i = 0$). Then (Wegner, 2007),

$$H_0: \mu_e - \mu_i = 0$$

$$H_1: \mu_e - \mu_i \neq 0$$

Analysis of relationships

The study also investigated whether there is a monotone relationship between total CEO pay, broken up into salary and bonus, and firstly company size and secondly technical efficiency. The Spearman rank-order correlation coefficient is calculated when the data seem not to be normally distributed; for example, technical efficiency, where all the efficient companies obtain a score of one, while the inefficient companies' scores range between zero and less than one. Since the expectation is that a number of companies will obtain a score of one, it is important to use an average ranking for companies with the same score, e.g. if five companies obtain a score of one, the average ranking for each of them is three and the next company is ranked as number six. The two-sided hypothesis test, at a 5% level of significance, is done to prove that there is no rank-order correlation between CEO remuneration and

company size and technical efficiency, ($p = 0$). Then (Wegner, 2007),

$$H_0: p = 0$$

$$H_1: p \neq 0.$$

5. Results

Descriptive statistics for DEA and DEA results

The market value of companies' assets is used as a proxy for size to divide the sample companies into the categories of large, medium and small. Regarding large companies, Table 1 illustrates that the mean of the market value and all the other x and y variables, in monetary terms, are materially higher than the median, implying that there are few companies with appreciably higher variable values than the rest of the companies; the frequency distribution is positively skewed. The same phenomenon can be seen for the medium companies, but the mean and median differences are less extreme than those of the large companies. The variables of small companies are much more normally distributed, with small differences between the mean and median. The minimum and maximum values show that there exists a wide range in each of the three groups.

Table 1. Descriptive statistics of company size and DEA x variables and y variable (Rand (R) million)

	Size	x variables						y variable
	market value (R)	Assets (R)	Equity (R)	Expen-diture (R)	Leverage	Salary (R)	Bonus (R)	Turnover (R)
Large (n=56)								
Mean	368380	96731	46465	80213	1.33	10.579	5.841	86711
Median	46603	30569	14233	23444	1.08	7.038	4.087	26182
Minimum	16172	3692	1377	2610	0.17	1.560	0.000	1265
Maximum	5338984	1295093	602148	2003996	4.39	101.780	40.676	1945114
Medium (n=56)								
Mean	6285	5108	2610	5738	1.06	3.958	2.850	6154
Median	4710	3597	1679	4611	0.84	3.769	2.034	5189
Minimum	1743	688	461	447	0.15	1.128	0.000	505
Maximum	16159	23134	14998	26529	3.06	14.435	14.406	27401
Small (n=55)								
Mean	761	723	387	969	0.98	2.819	0.982	993
Median	717	644	326	687	0.94	2.597	0.365	798
Minimum	72	61	42	23	0.15	0.798	0.000	10
Maximum	1698	2244	1359	4472	4.00	4.503	9.000	4464

Software, purposefully developed by Zhu (2009), was used to calculate the input-orientated technical efficiency (TE) estimates to determine

how efficiently each company is relative to the other companies in its group. Table 2 exhibits the results of the DEA.

Table 2. Technical efficiency according to the VRS approach

	VRS technical efficiency (TE)		
	Large	Medium	Small
Mean	0.922	0.951	0.953
Median	0.999	0.997	1.000
Minimum	0.589	0.611	0.565
Maximum	1.000	1.000	1.000
	n	n	n
Efficient	28	28	28
Inefficient	28	28	27
Total	56	56	55

The mean technical efficiencies of large, medium and small companies in Table 2 of 0.922, 0.951 and 0.953, respectively, imply that the inputs should on average be decreased by 7.8, 4.9 and 4.7% for this group of companies, respectively, to operate on the VRS efficiency frontier. The data in Table 2 were also helpful to identify efficient and inefficient companies; half of the companies in each group are fully efficient, with a technical efficiency score of 1, while the remaining half's scores are less than 1, classified as inefficient.

Hypothesis test for relationship

Testing the null hypothesis regarding to the relationship between CEO remuneration and technical efficiency (TE), the Spearman rank-order correlation coefficient (R) is indicated in Table 3. Note that the relationship between technical efficiency and remuneration is negatively correlated in all cases. H0 is rejected for medium companies'

total pay in favor of H1, since there is strong sample evidence ($p < 0.05$), implying that there is a relationship between total pay and technical efficiency. It can therefore be concluded that a strong negative relationship exists between the technical efficiency and the total pay of medium-sized companies' CEOs. There is only weak sample evidence ($0.05 < p > 0.1$) to reject H0 in favor of H1 regarding the bonus of medium-sized companies' CEOs, implying that H0 is probably true – that there is no relationship between the bonus and technical efficiency.

Testing the null hypothesis regarding CEO remuneration and company size, H0 is rejected for large and medium-sized companies' total pay and salaries and medium-sized and small companies' bonuses; there is overwhelmingly strong sample evidence ($p < 0.01$) to support H1. In other words, there is a positive relationship between CEO remuneration and company size.

Table 3. Spearman rank-order correlation coefficient (R)

Remuneration	Large		Medium		Small	
	Size	TE	Size	TE	Size	TE
Salary						
R	0.51	-0.11	0.35	-0.18	0.063	-0.1
p value	<0.001*	0.407	0.007*	0.174	0.646	0.46
Bonus						
R	0.25	-0.05	0.39	-0.22	0.35	-0.029
p value	0.058***	0.704	0.002*	0.1***	0.008*	0.834
Total pay						
R	0.43	-0.13	0.44	-0.29	0.21	-0.11
p value	<0.001*	0.358	<0.001*	0.03**	0.125	0.406

* Significant at 1% (two-sided). ** Significant at 5% (two-sided). *** Significant at 10% (two-sided).

Descriptive statistics of efficient and inefficient CEOs and hypothesis test for means

Table 4 exhibits the descriptive statistics regarding the CEO remuneration and company size of the efficient and inefficient CEOs. In all instances, in monetary values, the means are higher than the medians, implying that there are few companies with appreciably higher variable values than the rest of the companies; the frequency distribution is

positively skewed. For large companies, the mean salary and total pay of efficient CEOs are the highest, relative to inefficient CEOs, while the bonuses of inefficient CEOs are the highest. However, the median values for the three components, i.e. salary, bonus and total pay, are higher for the inefficient CEOs. For medium and small companies, the mean and median salary, bonus and total pay of inefficient CEOs are higher than those of efficient CEOs. Also important to

note is that the mean technical efficiency of large, medium and small companies equal one, while the means are 0.843, 0.901 and 0.904 for the three groups, respectively. This implies that, on average,

the inputs of the inefficient companies should decrease by 15.7, 9.9 and 9.6%, respectively, for those companies to operate on the VRS efficiency frontier.

Table 4. Descriptive statistics for efficient and inefficient CEOs (Rand (R) million)

Size	Efficient					Inefficient				
	TE	Salary (R)	Bonus (R)	Total pay (R)	Market value (R)	TE	Salary (R)	Bonus (R)	Total pay (R)	Market value (R)
Large (n=28;28)										
Mean	1	11.830	5.692	17.522	424801	0.843	9.328	5.990	15.318	311959
Median	1	6.254	2.371	9.073	37278	0.878	7.413	4.772	11.960	64260
Min	1	1.560	0.000	1.560	16172	0.589	4.192	0.000	6.309	17597
Max	1	101.780	40.676	115.230	5338984	0.998	39.489	30.660	70.149	3130543
Medium (n=28;28)										
Mean	1	3.469	2.202	5.671	5708	0.901	4.448	3.498	7.945	6861
Median	1	3.303	1.442	4.848	4501	0.925	4.051	2.511	7.020	4734
Min	1	1.128	0.000	1.333	1864	0.611	2.400	0.152	3.021	1743
Max	1	6.312	14.406	20.363	16159	0.993	14.435	12.559	26.994	15799
Small (n=28;27)										
Mean	1	2.806	0.844	3.650	798	0.904	2.834	1.125	3.959	722
Median	1	2.469	0.223	2.919	783	0.942	2.804	0.419	3.714	679
Min	1	0.798	0.000	1.084	72	0.565	1.773	0.000	1.894	110
Max	1	4.503	9.000	13.503	1679	0.998	4.503	5.715	9.012	1698

Table 5 is an extension of Table 4 to indicate whether the mean differences between efficient and inefficient CEOs are statistically significant. Calculating the F value was helpful to determine whether equal or unequal variances should be assumed for the t test, where $p < 0.05$ assumes unequal variances and $p > 0.05$ assumes equal variances. Thereafter, a one-sided upper-tail hypothesis t test, at a 5% level of significance, is done for the difference between the remuneration means of efficient CEOs and inefficient CEOs. The

negative t values in Table 5 confirm the phenomenon in Table 4 that the mean values for inefficient CEOs are higher than those of efficient ones, except for the salary and total pay of large companies. Regarding medium companies, the $p < 0.05$ for salary and total pay indicates that there is strong sample evidence to reject H_0 in favor of H_1 . Furthermore, there is weak sample evidence for the bonus of medium companies to support H_1 , which means that H_0 is probably true.

Table 5. Hypothesis test for differences in means

Large companies	Salary	Bonus	Total pay	Size
F	7.416	1.991	3.236	2.495
P(F<=f) one-tail	0.000	0.040	0.002	0.010
t Stat	0.631	-0.150	0.443	0.416
P(T<=t) one-tail	0.266	0.441	0.330	
P(T<=t) two-tail				0.680
Medium companies				
F	0.347	0.937	0.686	0.740
P(F<=f) one-tail	0.004	0.434	0.167	0.220
t Stat	-1.968	-1.568	-1.998	-1.018
P(T<=t) one-tail	0.028**	0.061***	0.025**	
P(T<=t) two-tail				0.313
Small companies				
F	2.150	1.792	1.853	1.174
P(F<=f) one-tail	0.027	0.070	0.060	0.343
t Stat	-0.107	-0.667	-0.539	0.575
P(T<=t) one-tail	0.458	0.254	0.296	
P(T<=t) two-tail				0.568

** Significant at 5% (one-sided). *** Significant at 10% (one-sided).

Regarding the company size of efficient and inefficient CEOs, the p values are all well above 0.05, implying that there is no sample evidence to support H1.

6. Discussion

The mean technical efficiencies of large, medium and small companies are 0.922, 0.951 and 0.953, respectively (Table 2). When the efficient CEOs (companies) are removed, the mean technical efficiencies of inefficient companies are 0.843, 0.901 and 0.904, respectively (Table 4). This implies that, on average, the inputs, which consist of CEO salary and bonus, total assets, total equity, total expenditure and leverage, should decrease by 15.7, 9.9 and 9.6%, respectively, for the inefficient companies to operate on the VRS efficiency frontier to also become fully efficient.

A statistical test was executed to determine whether there is a monotone relationship between CEO remuneration and technical efficiency. It is hypothesized that the remuneration should be positively correlated with the technical efficiency of CEOs. Against this expectation, the study reveals that the null hypothesis is not rejected, except for the total pay of medium companies, implying that there is no relationship between CEO remuneration and technical efficiency. This means that when the performance of CEOs changes, there is no change in their remuneration. The results are in line with previous studies that could also not find a relationship between CEO remuneration and performance (Bradley, 2011; Theunissen, 2010; Heaney et al., 2010; Krugel and Kruger, 2006; Grinstein and Hribar, 2004; Gunasekaragea and Wilkinson, 2002). For medium companies, the null hypothesis is rejected and the conclusion is made that a statistically significant negative relationship exists between the technical efficiency and the total pay of medium companies' CEOs. These results imply that when these CEOs' efficiencies increase, there is a decrease in their total pay. The results are in contrast with previous studies that found positive relationships between CEO remuneration and performance (Nulla, 2013; Faleye et al., 2013; O'Connell and O'Sullivan, 2013; Scholtz and Smit, 2012; Sigler, 2011).

The statistical test, to determine whether the mean differences between efficient and inefficient CEOs are statistical significant, revealed that the null hypothesis is not rejected for large and small companies, implying that, statistically, there is no significant difference between the remuneration of efficient and inefficient CEOs. For medium companies, the null hypothesis is rejected for salary and total pay, which leads to the conclusion that there is a statistically significant negative difference between the CEO remuneration of efficient and inefficient CEOs. These results imply that for

medium-sized companies, the efficient ones are significantly lower remunerated than the inefficient ones.

The study also found that there exists a significant positive relationship between the company size for each of the categories, large, medium and small companies, and the CEO remuneration. The results are supported by many other studies that also found that company size is a significant driver for CEO remuneration (Dan et al., 2013; Sigler, 2011; Vermeulen, 2008; Devers et al., 2007; Geiger and Cashen, 2007). The study also found that there are no significant differences between the company size of efficient and inefficient CEOs, which implies that the remuneration of efficient and inefficient CEOs can be compared without the fear that differences in remuneration are driven by company size.

Conclusion

The research question asked whether efficient CEOs are higher remunerated than inefficient CEOs. To answer this question, the main purpose of the study was to determine whether there is a statistically significant difference in the remuneration of efficient and inefficient CEOs. The secondary purpose was to perform a relationship analysis regarding the extent that CEOs' remuneration changes when there is a change in performance. To answer this research question, the study concludes that, for large and small companies, there is no statistically significant proof that the one group is higher remunerated than the other. Regarding medium-sized companies, the answer is clear; efficient CEOs are not higher remunerated than inefficient CEOs. To the contrary, inefficient CEOs are statistically significantly higher remunerated.

There are several possible reasons and/ or limitations of the study, as to why it could not prove that, as expected, efficient CEOs are higher remunerated than inefficient ones. Firstly, this study estimated CEO efficiency using the conceptual framework of the Du Pont analysis, which is accounting-based, to unravel profit performance. Therefore, market-based performance determinants were not taken into account, which could lead to a different conclusion. Secondly, the less restrictive VRS DEA approach was followed. When using the CRS approach, there is much more discriminating power and only CEOs operating on the CRS frontier, who are not only technically efficient but are also scale efficient, will be included in the efficient group. Applying the CRS approach could also lead to a different conclusion. Thirdly, it is possible that CEO remuneration is to some degree related to the performance of previous periods. Therefore, incorporating time lags in the study could also lead to a different conclusion.

The study fills the knowledge gap related to when estimating CEO efficiency that is based on accounting data included in the Du Pont analysis, this efficiency does not drive CEO remuneration. The practical implication of the study is that company boards should pay more attention to benchmark their CEOs' remuneration within the context of their efficiency estimated by accounting-based data. An efficacy accounting-based DEA model is developed for this purpose, because not only are these data readily available to make comparisons with peers, but it can also be influenced more easily by a CEO as in the case of market-based indicators. As found, nearly 50% of the CEOs are to some extent inefficient, and from an input-orientated approach, they are to some extent overpaid. Therefore, the fairness of the 50% inefficient CEOs' remuneration can be questioned, since the efficient CEOs provide a benchmark that indicates on average how much they are overpaid.

The originality is that this is the first effort for non-financial companies to determine DEA efficiency to estimate CEOs' performance and to include CEO remuneration as input variable with other company resources. A logical remuneration-efficiency hypothesis could state that efficient CEOs should be better off. The contribution of this study, within the context of its limitations, is that such a hypothesis should be rejected. Future studies that are recommended are, firstly, to estimate CEO efficiency by using market-based indicators, or a combination of accounting-based and market-based indicators; secondly, to apply the more discriminating CRS approach; thirdly, to incorporate time lags between remuneration and efficiency; and finally, to analyze exactly how much each inefficient CEO is overpaid.

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LESSON LEARNT FROM QUALITY CEO - CREATIVITY DEVELOPMENT FOR LEARNING ORGANIZATION WITH IMPACTS

Shirley Mo-Ching Yeung

Abstract

The purpose of this paper is to explore the factors to develop creativity for building a learning organization. Methods of developing creativity from a quality CEO have also been investigated. This paper draws conclusions from a qualitative content analysis with reporting on the CEO of Apple in 2011 to identify the key factors for a quality CEO to develop creativity. After reviewing literature on leadership, management, quality, learning organization and carry out content analysis of reporting on Apple CEO, it has been found that individual attributes – persistence, observation, passion and belief; and perception of task – value creation and target customer education affect the success of strategy implementation in product innovation. An environment with freedom and culture is needed for creativity; and involved parties need to enjoy the implementation process with a spirit of innovation. Though the findings are of managerial relevant to business management, validation of the model with quantitative data is required for a holistic view of building a sustainable learning organization. The ultimate output of the paper is a model of developing creativity for a learning organization. Therefore, management of organizations shall consider these findings when motivating staff to develop creativity. The paper details the elements for developing creativity in a learning organization; and this is important for the sustainability of different kinds of organizations in the business world.

Keywords: Leadership, Management, Quality and Learning Organization

1. Introduction

Launching new products and services successfully in the market rely heavily on the kinds of leadership. Leaders can influence employees' behaviour with desired outcome. De Jong et al. (2007) mentioned that leaders influenced employees' innovative behaviour through their deliberate actions aiming to stimulate idea generation and application; and by their more general daily behaviour. With decisions of leaders in staff management and implementation of new ideas, products and services will then have a higher chance of success.

De jong et al. (2007) highlighted that Leader-member exchange (LMX) theory focused on the social exchange relationships between leaders and employees. It proposed that the quality of the relationship between a leader and followers influenced outcomes, such as subordinate satisfaction, supervisor satisfaction, performance, commitment, role conflict, role clarity and turnover intentions. Hence, acceptance of new products or services well depends on quality relationship of leader and subordinates. In fact, these are the two main principles of "Total Quality Management" (TQM) and ISO 9000 - leadership and people involvement.

After decision-making, implementation and quality relationship of leaders and subordinates, "Quality" and "Control" are the issues that need to be well aware of in the product and service delivery process. Bornman (2004) mentioned that there were many attempts to define "quality"; and one of the definitions used in managerial literature was that quality was the extent to which the product met the demands; another was 'customer satisfaction'.

The concepts of "Quality Control" (QC), "Quality Management" (QM) "Total Quality Management" (TQM), "Quality Assurance" (QA) mean different kinds of things for manufacturing, servicing and educational industries. This is especially important for industries involving with hi-technological products with a dynamic general business environment and on-going changes on customers' requirements.

Quality Assurance (QA) is a hot issue spreading from manufacturing into higher education in the past decade. Traditionally, QC process has been a fundamental process in product quality. Nowadays, manufacturing and service industries engage in different kinds of quality assurance activities; and mysterious shopper scheme is one of these QA activities for service quality. Educators in service industries discussed about the use of performance pledge in retail business, the needs, the types, and the frequencies

of measuring business success and staff performance. According to Borahan, Nilufer Gozacan & Ziarati, Reza (2002), the distinguished feature of QA is a series of planned and systematic actions to provide adequate confidence that a product or service will satisfy given requirements for quality. In fact, QA has been evolving from three main concepts (Yeung, 2010). They are:

- "Quality Control" (QC) - operational techniques and activities that are used to fulfill requirements for quality;
- "Quality Management" (QM) - overall management function that determines and implements the quality policy; and
- "Total Quality Management" (TQM) - management philosophy and organizational practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization.

QA is the job of every one no matter working in an assembly line at the back end or in a retail shop facing customers. Very often, leaders of different industries will have to face the changing requirements from customers. They need to cultivate a mindset of QA into the hearts of subordinates in order to establish a learning culture within an organization.

2. Stakeholders and Quality

Yeung (2010) mentioned that the term "Stakeholder" has been put into today's management vocabulary. In fact, it provides a full picture for management to map their 'ought to be' – "obligations" and as well as their 'need to be' – "customers' requirements". Having a stakeholder map, it can help management to identify the needs, the requirements and the expectations of their internal staff and external customers in handling product design, product, development, product and service delivery. Besides identifying the types and number of stakeholders, management also needs to know their psychological and cultural needs for the success of product and service delivery.

Schermerhorn (1999) has stated clearly that the main purpose of management is to induce a positive impact on human behaviour in an organization. The control of human behaviour can be found during the activities of planning, organizing, leading and controlling. Management of firms offering hi-technological products/ services are especially aware of the market demand and of the competency level of the staff.. Without competent and creative staff, new products or new services will not emerge and the market share will not be maintained, not to mention gaining the market share.

For the internal stakeholders - staff members, management can arrange appropriate product

training or soft skill development workshops to motivate staff to learn for change and for improvement. And, management themselves should also demonstrate their core competency via participation in daily work, communication with subordinates and engagement with the public. Butler and Waldroop (1999) mentioned that senior managers needed to understand the psychology of work satisfaction of talented subordinates, making sure that they were happy in their jobs; and matched their life interests with job duties to emotionally drive passions and develop commitment in jobs. Very often, happiness can translate into commitment and engagement.

For the external stakeholders - wholesalers, retailers and end-users, educating the public on the new products and innovative services are needed as sometimes the public may not have the knowledge about the functions of the new products and the services that they can offer to improve their quality of lives.

In order to manage people's behaviour successfully internally and externally, Drucker (2006) mentioned that realization of common goals and common values with ongoing training and timely responses to change were fundamental in management. He further pointed out that management is about handling human beings, integrating variables, unifying objectives, developing people toward common objectives for results. Applying the management concepts of Drucker into the commercial sector, management need to manage staff in different processes or different departments of the ways to fulfil the requirements of customers and to educate them to make a wise choice in product or service selection.

Cultivating quality concepts into the minds of management and staff can help organizations focus on customers' needs and work on improvement areas. According to Kothari (2006), quality includes fulfilling a set of inherent characteristics, meeting stated or implied needs or expectations, conforming to specifications; and moving towards customer satisfaction. Koslowski (2006) shared the same idea of Kothari by quoting the insights put forward by quality theorists of Crosby, Juran and Deming that management was responsible for establishing the purpose of an operation, determining measurable objectives, and taking actions necessary to accomplish those objectives with innovation and breakthrough on top of control. Hence, quality can be found in the process and it is a responsibility too. He further uncovered that:

- Quality was defined by customers;
- It could be changed;
- It was not just about inspection, testing, rework, control; and
- It should emphasize more on prevention for defects.

In order to achieve “quality” and fulfil the “needs” of customers in the fast-moving commercial world, theories and models of quality and learning have emerged. However, the deeds of a quality leader are definitely needed to trigger instant influence to the sub-ordinates to bring in sustainable impacts to the society. Presently, Singh & Schick (2007) have put forward a model of “Customer Value Funnel” (CVF) for developing and delivering value to customers. The four main areas covered in the model are:

- 1) Global business community (macro-environment)
- 2) Market (micro-environment)
- 3) Organization
- 4) Customers

From a superficial level, leaders of organizations serve the needs of the customers and the society. However, leaders also need to consider the needs of the internal customers – employees. Based on the four elements of the CVF model, leaders should strengthen the knowledge of micro and macro environment to their sub-ordinates with appropriate understanding of their organization culture and professional soft skills training to fulfil the needs of the customers and the society. Hence, the elements becoming a quality leader need to be explored. The acts and deeds of a quality leader can influence directly and deeply to the sub-ordinates, in terms of their relationship, their overall performance, and the value created in products and services to the customers. As a result, the researcher intends to explore the driving forces for the CEO, Apple to become a quality leader who has been turning Apple into a learning organization in the past decades.

3. Development of Strategy and Organizational Learning for Quality

John (2006) mentioned that the development of strategy is closely linked with learning. Purposely-designed strategic activities can help develop organizational learning culture. “As the strategic planning across is widely accepted across all sectors of the economy, it has the potential: to provide an effective means of directing resources in order to achieve desirable learning within an organization towards its long-term viability.” (p.353) John further pointed out that modern organizations operated in very uncertain and challenging times. The demands of globalization, rapid technological change and increasing competitiveness put enormous pressure on them to remain viable. To ensure long-term sustainability, organizations had to develop appropriate strategic responses to change. (p. 364).

In order to sustain business, during the design stage of organizational culture, management need to work closely with the front line staff in shops and

the managerial staff in the back office. Industry practitioners and academics should work collaboratively to identify the core elements to build a learning culture. Learning shall start from management and end in all levels of staff for quality and sustainability.

Meredith and Burkle (2008) highlighted that learning shall embed theory and practice. Kolb’s Learning Cycle (Kolb and Fry, 1975; Kolb, 1984 in Meredith and Burkle, 2008) contains the four components essential to learning, which are:

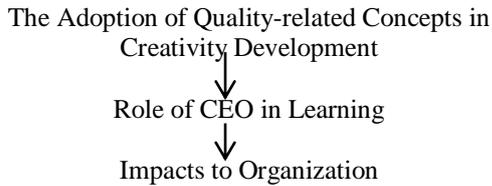
- 1) Abstract conceptualization;
- 2) Active experimentation (also known as simulations);
- 3) Concrete experience; and
- 4) Reflective observation.

The above components are not only the major considerations to manage shops and back offices, but also the elements to build learning organizational culture. Reflection of “quality” in the delivery process is definitely important. Previous research seldom covered the key factors for a quality leader facilitating learning among staff members to develop creativity with qualitative analysis. The aim of this paper is to explore the key factors for a quality leader and the impacts of having a quality leader in a learning organization. Without a quality leader with creativity, new products may not be developed and innovative services may not be delivered with success. Under the product design, development and launching stage, a quality leader plays an important role in maintaining and improving staff quality and in establishing a learning culture in an organization. Hence, a conceptual framework to explore factors for creativity development from the study of a quality CEO is recommended as below:



The aim of this study is to identify the key factors for creativity development through understanding the activities that the CEO of apple have done in the past with applying quality management and learning organization related concepts when conducting the qualitative analysis. Thus, it is hypothesized that there is a significant relationship between the quality of CEO and the

operating environment of the organization, for example, stakeholder expectations and product characteristics. Hence, the hypothesized model is:



4. Analysis Method

Textual messages from textbooks, essays and newspapers are works of people. From these verbal or non-verbal textual messages, the behavior of people and organizational patterns can be analyzed in an indirect way. They can be regarded as a tool to understand the thinking and belief of people, to persuade people's minds to accept ideas, to differentiate practices among certain groups of people and to see the trend of certain practices. As a result, organizational behavior can be understood and predicted through analysis of textual messages. With analysis, behavior will then be inferred and controlled by management. Hence, communication, organization behaviour and business management are inter-related relationship. According to Fraenkel & Wallen (2003), this is a desirable way to systematise and quantify data.

Content analysis can be objective in the way of describing fundamental inherent characteristics of messages and applying characteristics into related areas. On the other hand, it can be subjective in the way of using own point of view in interpretation. Hence, the researcher has been aware of selecting representative sample of textual messages.

The main purpose of the study is to show how the Chief Executive Office (CEO) develops creativity of which influencing staff to implement strategy with creativity. As the learning process is a complex interaction between management and staff; and between organizations and customers, consolidating relevant activities into a model for implementation and evaluation is needed for a quality organization. This research begins with a theoretical approach of leadership, quality, management, and learning organization to design a model of creativity development. After building a fundamental theoretical approach, articles of two magazines from the U.S. after the death of the CEO of Apple in October 2011 were analyzed. The researcher further increased the database to include newspaper reporting of CEO, Apple from WiseNews to analyze the frequency of the selected key words to form a model of creativity for a learning organization as shown in the following Diagram 1.0.

1) Environment	(0.02 % coverage)
- Influence	(0.09 % coverage)
- Educate	(0.11 % coverage)
- Value	(0.06 % coverage)
- Impact	(0.04 % coverage)
- Package	(0.03 % coverage)
- Activities	(0.03% coverage)
2) Individual	(0.1% coverage)
- Persistence	(0.11% coverage)
- Observation	(0.13% coverage)
- Belief	(0.03% coverage)
- Passion	(0.02 % coverage)

Quotation on "Creativity-related" keywords from searched articles

"..He rightly says that cultural creativity needs freedom and an open."

Quotation on "Education-related" keywords from searched articles

"..be a valuable complement to education initiatives on the mainland".

"This is especially true as the economy improves and the job market expands. Young people are looking for a number of priorities to be met - personal development, fast advancement and career opportunities, to name a few - and if their expectations are not met, they are more than happy to move to other places where they feel they have a better chance of being met."

Quotation on "Package-related" keywords from searched articles

"...their functionality, but because they promote a certain set of values."

Quotation on "Persistence-related" keywords from searched articles

"..valuable technology company, must now continue to deliver amazing products and.."

Quotation on "Value-related" keywords from searched articles

"These products have significant emotional value, they have sentimental value...they're connected."

Quotation on "Observation-related" keywords from searched articles

..he's the best example to follow," said Zhang. Yin Cheng, ..."

"..to maintain the popularity of its products.."

"...flowers, tokens and cards in honor of the Apple co-founder.."

"..changed my life." Another note read...spirit lives forever."

Through identifying the elements, implementing activities and consequences, a model of creativity development has emerged; and the following research objectives will then be achieved:

- 1) Exploring the key factors for a quality CEO; and
- 2) Identifying methods to develop creativity in products/ services/ processes/ talent development for a learning organization.

4.1. Results

Research Question:

1) What are the key factors leading to become a quality CEO?

2) What are the methods used to develop creativity in products/ services/ processes/ talent development for a learning organization?

Table 1. Key Factors for Quality CEO with Creativity

Dimension	Source : Bloomberg Business Week, Oct. 10-16, 2011.	Source: Isaacson, Walter (2011) "American Icon", Time Magazine, Oct.17. pp.32-33.
Internal Factors for Creativity/ Personality		
1) Passion	"There is no reason not to <i>follow your heart</i> ."	"... I came to find him deeply compelling, and I realized how much his personality was ingrained in the products he created. <i>His passions, demons, desires, artistry, devilry and obsession for control were integrally connected to his approach to business...</i> "
2) Belief	"The only way to be satisfied to do what <i>you believe is great work</i> ." "It's only by saying no that you can <i>concentrate on the things that are really important</i> ."	
3) Persistence	"Don't let the <i>noise of others' opinions</i> drown our your own inner voice."	"The unified field theory that ties together <i>Jobs' personality and products begins with his most salient trait, his intensity</i> . It was evident even in high school. By then he had begun his lifelong experiments with <i>compulsive diets</i> - usually only fruits and vegetables – so he was as lean and tight as a whippet. He learned to <i>stare unblinking at people, and he perfected long silences punctuated by staccato bursts of fast talking</i> ."
4) System of Thinking	" <i>Simple</i> can be harder than complex. You have to <i>work hard</i> to get your <i>thinking clean</i> to make it simple." "Creativity is about <i>connecting things</i> ." "When you ask a creative person how they did something, they may feel a little guilty because they didn't really do it, they <i>just saw something</i> ."	
5) Observation		
External Factors / Task		
1) Value in Tasks	"But it's <i>worth</i> it in the end."	
2) Educate Target Audience	"A lot of times, people don't know what they want until you <i>show it to them</i> ."	
3) Package the Tasks	"When he returned as chief executive officer, he guided Apple through a streak of <i>new products</i> that proved his belief <i>that art and commerce, complicated ideas and simple packages, could be merged into a universal aesthetic</i> . Each launch brought <i>more magic, more acclaim, more profits – less Jobs</i> ."	
4) Benchmark for Impact with Influence	"The memorials outside Apple stores around the world are a testament to his ability to <i>affect people and expand their sense of the possible</i> ." "In the coming weeks we'll report at length on Apple's future and take a close look at whether the company Jobs co-founded at the age of 21 and <i>nurtured into the most valuable corporation</i> in the world can <i>continue to dominate technology and popular culture</i> ."	"He designed the Mac after appreciating the power of <i>graphic interfaces</i> in a way that Xerox was unable to do, and he created the iPod after <i>grasping the joy of having a thousand songs</i> in your pocket in a way that Sony, which had all the assets and heritage, never could accomplish. <i>Some innovations by being good at the big picture. Others do so by mastering details. Jobs did both, relentlessly</i> ." "He revolutionized six industries: <i>personal computers, animated movies, music, phones, tablet computing and digital publishing</i> . You might even add a seventh : <i>retailing</i> , which Jobs did not quite revolutionize but did re-imagine." "He made products (3) that were completely <i>innovative, combining the beauty of poetry and the power of processors</i> ." "And he was able to infuse into its genetic code the <i>design sensibilities, perfectionism and imagination</i> that make it likely to be, even decades from now, the company that thrives best at the <i>intersection of artistry and technology</i> ."
Total	Simple (3) Complex/ Complicated (2) Value/ Worth (2) Heart/ Inner Voice (2) Connect/ Universal (2) Product (1)	Products (3) Personality (2) Unified / Connect (2)

Table 1 shows the CEO of Apple is a quality leader who can fulfil the needs of customers with I-products that combine technology with art, creativity and simplicity. His success is originated from doing things with passion and persistence to renovate, having a belief of creating value in products with personality via system thinking and connectivity (Individual Level); and tasks of connecting innovative ideas into a complex-to-simple universal way to bring in value (Task Level).

Hence, the key factors for developing a quality CEO with creativity are a combination of internal factors: passion, belief, persistence, system thinking and observation and external factors: create value, educate target audience and package the task.

Besides conducting content analysis on the two American magazines, the researcher also searched the engine of “WiseNews Search” for the reporting of the CEO of Apple in Hong Kong

English newspapers – South China Morning Post, Hong Kong Standard and China Daily from the date of his death – Oct 5 to the end of November, 2011. 28 articles have been screened out of the total 77 (36%) articles and results have been found for the research questions 2 and 3.

Research Question:

2) What are the methods used to develop creativity in products/ services/ processes/ talent development for a learning organization?

Table 2 shows that implementing products, services, processes and talent development, involved parties need to enjoy the process with a spirit of innovation when developing technological products for information, for communication and for entertainment. The CEO needs to have a vision to make things alive through connectivity and transformation for a product with singularity but value and impact to the society.

Table 2. Selected Scripts on Implementations of Creativity in Products/ Services/ Processes/ Talent Development

2011.11.05 South China Morning Post	“In keeping with someone who built his fame and fortune by <u>melding technological advance</u> with creative design, his was a thoroughly modern death – and so was the backlash.” “Jobs <u>enjoyed</u> so such glow – although one only has to walk down a Hong Kong street to see his real legacy, the legions of people plugged into the world through his products.”
2011.11.03 South China Morning Post	“Although it retains the same design elements of the previous model, the iPhone 4S delivers new features such as a faster processor, an 8-megapixel camera, high-definition video recording and the highly touted “Siri” personal assistant <u>technology</u> .” “A voice-based command system that responds to natural language is completely in the <u>spirit</u> of a Steve Jobs product which <u>pushes the boundaries</u> of user friendliness.”
2011.10.25 South China Morning Post	“Apple cofounder Steve Jobs for the difference he made to their <u>lives</u> with <u>innovation</u> that revolutionised access to <u>information, communication and entertainment</u> .”
2011.10.16 South China Morning Post	“Jobs played a major role. After leaving Apple in 1985, he founded NeXT Computer and developed the NeXTSTEP operating system that Berners-Lee found so useful for creating the web.”
2011.10.12 China Daily	“Steve Jobs was a great innovator and <u>visionary</u> . He personalised computing, started a new era in <u>technology</u> with the smartphone and produced the first example of a successful tablet computer. He was the first to successfully <u>combine</u> art and design with <u>technology</u> .”
2011.10.11 China Daily	“...only Steve had the charm and eloquence to be a star to the outside world. We cheered as he explained – in eloquent, simple terms, speaking for all of us – the effect that personal computers could have on people’s <u>lives</u> .. Steve insisted on being closed in order to control and deliver a unified, coherent experience to <u>consumers</u> . His obsession with detail was <u>legendary</u> ...His company reflects that <u>singularity</u> of focus. “
2011.10.11 China Daily	“In fact, the key for the company to retain its market power is its <u>innovation</u> , a skill for continually reinvent its product, and the empire has never failed to maintain such a skill.”
2011.10.08 China Daily	“..It looks at Jobs’ <u>technology</u> obsessions while sharing his own stories of touring iPod and iPhone factories in China. Steve Jobs had an enormous impact on our <u>lives</u> .”
2011.10.08 China Daily	“These products have significant emotional <u>value</u> , they have sentimental <u>value</u> , they’re <u>connected</u> , if you will, to the bloodstream of the person who’s likely to be the purchaser...Mr. Jobs really continues to exist in a much different manner through these products...He’s dead, but his soul is <u>alive</u> ...he was the soul of an idea for many people who want to do things better, differently.”
2011.10.07 China Daily	“Apple <u>visionary</u> changed how we used <u>technology</u> ...many people remembered how much he had done to <u>transform</u> the worlds of computing, music and mobile phones, <u>changing</u> the way people <u>communicate</u> and access <u>information and entertainment</u> . The world rarely sees someone who have had the profound <u>impact</u> Steve has had, the effects of which will be felt for many generations to come...A college dropout with a passion for <u>minimalist</u> design and a marketing genius... Jobs reinvented the technology world four or five times.... first with Apple II in the 1970s; then in the 1980s with Macintosh, the ubiquitous iPod debuted in 2001, the iPhone in 2007 and in 2010 the iPad...Jobs described his world as very simple....I know I need to <u>change</u> something.... There is no reason not to follow your heart.”
2011.10.07 China Daily	“Mac pro, iPod, iPhone and iPad, ...He’s <u>changed</u> the face of computing.”
2011.10.07 Hong Kong Standard	“You have <u>changed</u> the world. You have <u>changed</u> my life...He has <u>changed</u> the world
2011.10.07 South China Morning Post	“ <u>Technology</u> giant must still deliver amazing products without its ‘creative, driven leader...the world’s most <u>valuable technology</u> company, must now continue to deliver amazing products and services that would remain true to Jobs’ exacting standards and keep aggressive competitors at bay....”

Total	Technology (11)
	Change/ transform (6)
	Lives (4)
	Visionary/ vision (4)
	Value/ impact (4)
	Innovation (2)
	Information (2)
	Communication (2)
	Entertainment (2)
	Combine/ connect (2)
	Singularity/ simple/ minimalist (2)
	Enjoy (1)
	Spirit (1)

The most significant consequence that CEO, Apple brings in is the realization of methods developing creativity. Table 3 demonstrates that an environment with freedom and cultural elements is

required to inspire individuals to explore what they enjoy most, how to interact with others and what kind of changes that they intend to experience and bring to the society.

Table 3. Selected Scripts on Developing Creativity from a Quality CEO

2011.08 China Daily	“To produce such talents, we should not try to learn only from the accomplishments of other countries. Instead, we need to create the <u>conditions</u> that produce and encourage <u>individual</u> thinking.” “You cannot expect sophisticated solutions to complex problems to come from people who do not believe in their own unique talents.” “Creativity and innovation are popular topics in the Chinese media right now, but how are we supposed to have these qualities without recognizing <u>individual</u> strengths and <u>potential</u> ?” “There is no use trying to produce the nex Bill Gates, Steve Jobs, or Mark Zuckerberg unless we create <u>conditions</u> conducive to the <u>unleashing of people’s potential</u> .”
2011.05 China Daily	“Jobs’ letter of love <u>inspires</u> creativity in his fans.” “One month after Steve Jobs’ death, his love letter to his wife for their 20 th wedding anniversary has <u>inspired</u> a string of translation and retranslations as fans of the Apple co-founders search for the perfect words to express their appreciation.”
2011.10.25 South China Morning Post	“Whenever talk turns to Jobs of late, it seems to generate debate. Was he a callous and savvy businessman with no heart, who pinched other people’s ideas, or was he a genius who <u>changed</u> the way we <u>interact</u> with the <u>technology</u> that so many Apple junkies swear by?...”
2011.10.25 South China Morning Post	“... <u>cultural</u> creativity needs <u>freedom</u> and an open-market <u>environment</u> ... The authorities must strike a delicate balance if regulation is not to stifle creativity.”
2011.10.14 South China Morning Post	“I designed my image back in May 2011 because I wanted to celebrate the fact that someone who had cancer was still working, still <u>driving forward</u> and <u>still thinking positively</u> about the future.”
2011.10.13 Hong Kong Standard	“Jobs comes across as a confident yet humble man, mentioning several truly inspiring things about life....he’s a lover of the arts, but ended up choosing to go into business school for a degree in investment banking.... All we can do now is to trust our instincts, <u>give life our all, and enjoy the ride</u> .”
2011.10.11 China Daily	“ The company has already formed a unique corporate <u>culture</u> and met the high standards set by Jobs.”
Total	Conditions / environment (3) Individual (2) Potential (2) Inspire (2) Change/ Interact (2) Live a live/ enjoy (2) Culture (2) Freedom (1)

Conclusion

Through content analysis of recent news on the CEO of Apple, the key factors leading to become a quality CEO, the characteristics of activities implemented in products, services, processes, talent development; and methods used to develop creativity are identified with a model of developing creativity for a learning organization established. (Figure 1).

It is suggested that creativity has to be embedded into the hearts of management, staff members with a strategy to develop new products,

new services, new processes and new talents for sustainability under globalization with dynamic and changing customer expectations. Hence, creativity can help enhance quality indirectly if it can be purposely implemented into strategic activities for developing a learning culture.

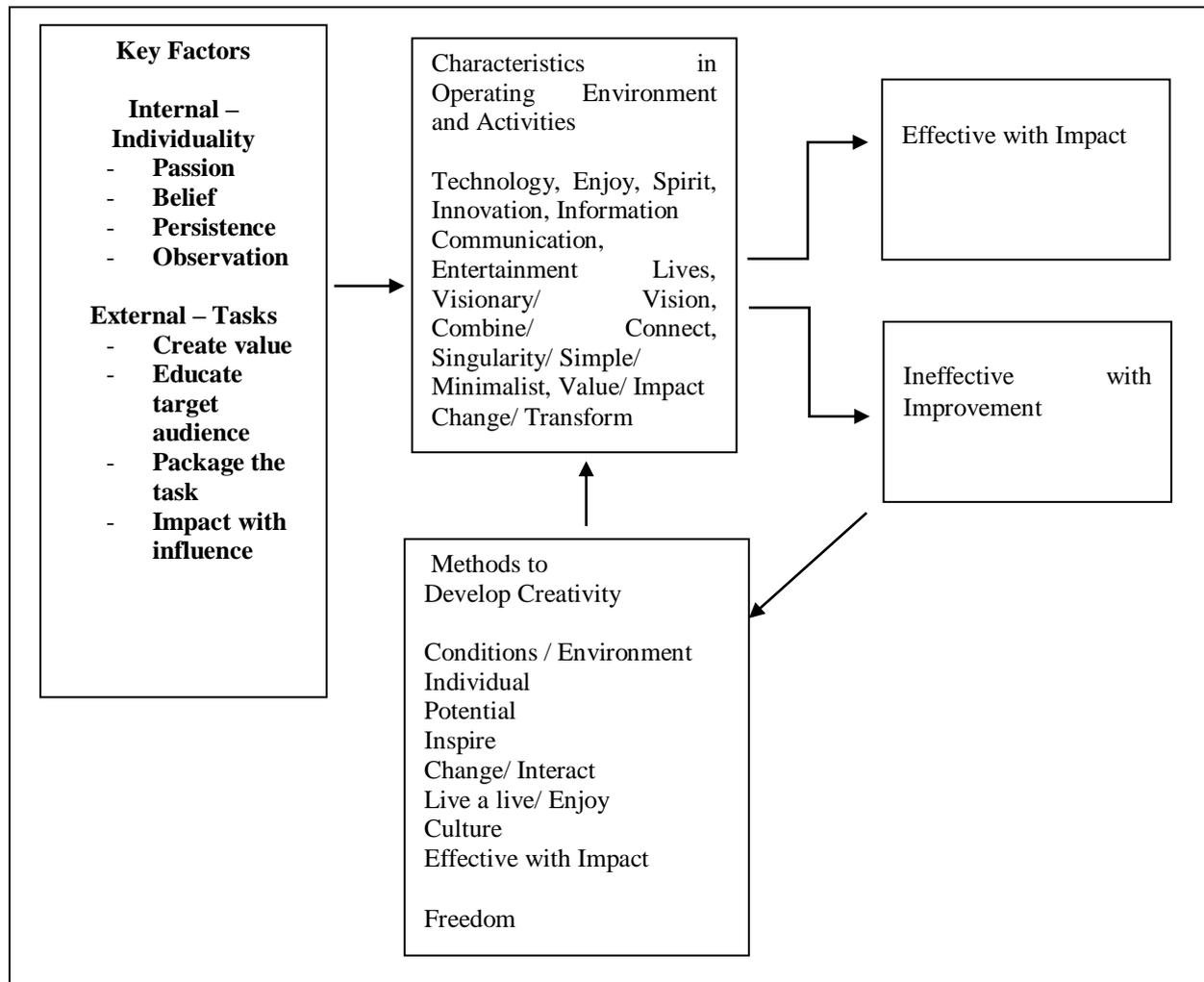
The qualitative findings of the above have demonstrated that there is a significant relationship between the quality of CEO and the operating environment of the organization, for example, stakeholder expectations and product characteristics.

This suggests that it would be useful to have more role models of creativity development for followers in different industries. In addition, the present study has linked quality management concepts with the quality of people - CEO. This aligns with previous findings that quality of the relationship between a leader and followers influenced outcomes, such as satisfaction and performance.

Though the methodology used in this research is a qualitative one, representative reporting has

been identified from the East and the West with recent effect. It is suggested to have quantitative data to increase the reliability and validity of the model. Further research shall be conducted to validate the methods identified for developing and enhancing creativity of which is a topic of interest in the 21st century, especially in the digital marketing and higher education sectors.

Figure 1. Model of Creativity Development in Learning Organization



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РАЗДЕЛ 3
КОРПОРАТИВНОЕ
УПРАВЛЕНИЕ
В РАЗВИВАЮЩИХСЯ СТРАНАХ

SECTION 3
CORPORATE
GOVERNANCE IN
DEVELOPING COUNTRIES



THE IMPACT OF GOVERNANCE AND OWNERSHIP STRUCTURE
ON DISCLOSURE PATTERNS TRANSCENDING MAJOR
REGULATORY CHANGE IN MALAYSIA

Poh-Ling Ho, Grantley Taylor***

Abstract

The purpose of this study is to investigate the extent of voluntary disclosures between 2006 and 2009 that transcends major regulatory and governance changes in Malaysia and to assess the association between strength of corporate governance structure, and ownership structure on the extent of voluntary disclosures of Malaysian listed firms over that period. The average level of voluntary disclosure within the annual reports of sample firms increased over the two periods. Further, the extent of voluntary disclosure is significantly positively associated with strength of corporate governance structure in both 2006 and 2009. Firms with concentrated ownership structure are associated with more extensive voluntary disclosures. These findings highlight the importance of an effective governance regime and concentrated ownership structure in reducing information asymmetry and agency costs and thereby enhancing the level of voluntary disclosures. These findings also have practical implications for policy-makers, analysts, auditors and regulators in Malaysia as well as East Asian countries.

Keywords: Voluntary Disclosure, Corporate Governance, Ownership Structure, Malaysia

JEL Classification: M41

* Curtin University, Malaysia, CDT 250, 98009 Miri, Sarawak, Malaysia

Phone no.: +60-85-443939

Fax no.: +60-85-443851

Email: pauline.ho@curtin.edu.my

** School of Accounting, Curtin Business School, Curtin University, Australia

1. Introduction

In an increasingly volatile global market economy, investors require enhanced corporate disclosures that can assist them to make more informed decisions. Sound corporate governance and improved disclosure are important for the corporate world. The objectives of this study are to determine

the variation in the extent of the voluntary disclosure practices in the annual reports of Malaysian listed firms between 2006 and 2009 that transcends major regulatory and governance changes in Malaysia and to assess the relation between strength of corporate governance structure, and ownership structure on the extent of voluntary disclosures in those years.

The current economic climate presents an enormous challenge for the corporate world to commit to sustainable business practices and position themselves as business leaders to their competitive advantage. The last decade has witnessed unprecedented global regulatory pressures for change, worldwide force of corporate governance reform and international convergence of accounting standards; which provide greater impetus for disclosure change. Sophisticated investors require disclosures that go beyond minimum statutory requirement to help them make more informed economic decisions. Non-financial information disclosure of a voluntary nature is a significant concern in developing countries with emerging markets such as Malaysia where the development and sustainability of capital market relies heavily on reducing the information gap between management and investors. Malaysia is one of the countries in the South East Asia region that has experienced rapid growth in market capitalization. The key ingredients in the value proposition of the significant growth in the Malaysian capital market are investor's confidence and trust in the reliability, quality and timely of information disclosed. Thus, the study on the assessment of the disclosure behaviour on this market is likely to be insightful to a range of stakeholders.

This study focuses on two key periods of 2006 and 2009. The 2006 year is chosen to represent the phase of adjustment to the corporate governance reforms since the release of the Malaysian Code of Corporate Governance (MCCG) in 2001 as well as the initiative to harmonise accounting standards with IFRS in 2006. It is expected that there is a greater focus on continuous improvement to corporate governance practices to improve accountability and transparency through the release of corporate information in annual reports. The MCCG was reviewed in 2007 to strengthen corporate governance practices, in particular with the view to enhance the quality and effectiveness of the board and audit committee. Thus, the 2009 year is selected to represent the further adjustment to corporate governance practices and the IFRS alignment before the full IFRS convergence in year 2012. These two years selected are justifiable in view of the changing governance and accounting landscape in the midst of 2007 global economic crisis could possibly result in changing disclosure practices of Malaysian listed firms.

The study contributes to the literature in several ways. First, it evaluates voluntary disclosure practices over two key time periods when Asian and global economic upheavals have triggered higher interest in corporate governance issues to improve transparency and accountability. This study provides an opportunity to clearly examine the pattern of voluntary disclosure practices of

matched samples over two periods. Second, this study utilizes a novel and objective measure of strength of governance structure based on the best practice recommendations and principles released by the Malaysian Securities Commission as reflective of better or stronger governance. Currently, there is a lack of research that examines the association between the strength of governance structure and disclosure practices of firms. Reporting practices in Malaysia have evolved in line with changes in governance initiatives in Malaysia and also as a consequence of external shocks relating to economic crises and corporate collapses. Thus, it is important to gain an understanding of the key motivating factors and methods in the international context linking governance structure and management's disclosure incentives and practices. Finally, our findings should be of interest to economists, analysts, regulatory bodies, shareholders, creditors and accounting professionals. The findings will be of significance to Malaysian regulators and policy makers in assessing the disclosure practices and deliberating appropriate corporate governance requirement to improve corporate transparency. If these regulatory bodies and policy makers are well informed about actual practices at the corporate level, they will be better able to direct their policymaking and regulatory efforts. In view of the near similar governance structure, the findings will also be beneficial to the regulators and policy-makers from East Asian countries.

The empirical results of this study reveal that the strength of corporate governance structure is positively significantly associated with the extent of voluntary disclosures. Corporate governance structure plays an important role in influencing voluntary disclosure of Malaysian listed firms. Regression results also show a significantly positive association between the concentrated ownership structure and extent of voluntary disclosure in both periods. The findings support the notion that dominant shareholders' assist in monitoring management thereby providing the impetus to communicate greater information in annual reports.

The remainder of the paper is structured as follows. Section 2 reviews literature to develop hypotheses. Section 3 describes the research approach. The key findings of the study are highlighted in Section 4 then followed by concluding remarks in Section 5.

2. Literature Review and Hypotheses Development

Agency theory provides an ideal framework to assess firms' voluntary disclosure practices. Jensen and Meckling (1976) define an agency relationship as arising when there is a contract designed to motivate a rational agent to act on behalf of a

principal when the agent's interests would otherwise conflict with those of the principal. In the context of the firm, the agents such as board of directors and managers act on behalf of the principals such as shareholders and debtholders (Godfrey et al., 2006). The separation of company ownership and management provides management with the incentive to pursue self-serving utility-maximising behaviour at the expense of shareholders interests. Management are self-motivated and the goals of the shareholders and management conflict due to the non-alignment of their interests thus, giving rise to agency problems (Eisenhardt, 1989).

In the context of a firm, the crux of the matter is the possible information asymmetry between managers and shareholders. In the agency relationship, managers who have better access to firm's accounting and financial information can use their discretion in financial reporting to ameliorate agency problem and enhance the value of shareholders investments. Thus, the underlying economic and welfare considerations determine the disclosure patterns within annual reports (Godfrey et al. 2006). Extant literature (Ostberg, 2006; Healy and Palepu, 2001; Welker, 1995) cites agency theory to explain managerial disclosure decision making. Management's disclosure decisions affect firms' credibility with investors and other stakeholders (Mercer, 2005). The voluntary disclosure is thus seen as an effort of management to eliminate disparities that may exist between what investors and stakeholders expect and what management can deliver.

The adoption of corporate governance mechanisms has increased in recent years, and is largely due to changing expectations of capital markets; increased regulatory requirements; changes in accounting standards and the information needs of shareholders, capital market participants and an increasing array of other shareholders. Given the prominent attention to the role of corporate governance, there is a substantial body of evidence evaluating the influence of individual governance attributes on firms' disclosure policy. Prior studies have examined the association between corporate disclosure and specific governance attributes such as board composition, board committee formation and independence, CEO and board chairperson duality, audit committee (eg. Donnelly and Mulcahy, 2008; Cheng and Courtenay, 2006; Gul and Leung, 2004; Ho and Wong, 2001; Chen and Jaggi, 2000). Interestingly, these studies do not produce consistent evidence regarding the impact of these individual governance attributes on corporate disclosure.

Shleifer and Vishny (1997) and Core (2001) highlight that a well-designed governance structure can help ensure an optimal firm's disclosure policy.

More research is needed to investigate the relation of the overall corporate governance structure and corporate disclosures. However, the use of the index-based measure and its relation to corporate disclosure has started to gain researchers' attention in recent years (O' Sullivan et al., 2008; Beekes and Brown, 2006).

O'Sullivan et al. (2008) investigate the role played by a firm's corporate governance framework in the decision to voluntarily disclose forward-looking information in annual reports of Australian companies. Their results show that firms disclosing forward-looking information typically experience a higher standard of corporate governance than non-disclosing firms in year 2000, but not in year 2002. Their results also reveal that overall corporate governance is positively and significantly associated with the firm's decision to disclose forward-looking information in annual reports in year 2000 only.

Beekes and Brown (2006) examine the link between the quality of a firm's corporate governance and the degree of informativeness of disclosed information. Their findings reveal that better-governed firms make more price-sensitive disclosure, have a larger analyst following, less biased analyst forecasts and more timely value-relevant information. Overall, Beekes and Brown (2006) provide evidence that better-governed firms make more informative disclosure to the market. Byard et al. (2006) examine the association between corporate governance and the quality of information using a sample of analysts' forecasts. They find that better-governed firms have better quality information environment. Specifically, there is a statistically significant positive association between board independence and analysts' forecast accuracy, and significantly negatively associated with role duality. Karamanou and Vafeas (2005) document that the likelihood of making management earnings forecast, a proxy for voluntary financial disclosure practices, is positively associated with stronger corporate governance structure in the form of more outside directors on the board, a lower level of managerial share ownership, a higher level of institutional ownership and a smaller audit committee.

The aforementioned literature suggests the adoption of corporate governance structure is an important determinant in influencing management to make greater disclosure of information on voluntary basis. Following Taylor et al. (2008), this study constructs a composite governance index based on various characteristics of corporate governance structure enlisted in the MCCG. This approach allows the evaluation of the influence of firm's governance structure as a whole on the extent of voluntary disclosure. The MCCG sets out principles and best practices on structures and processes that firms may use in operations towards

achieving the optimal governance framework. The MCCG is embedded with the transparency and disclosure initiatives; which suggests that firms with effective governance structure are likely to provide extensive information to stakeholders. The enactment of corporate governance principles should contribute to the reduction of information asymmetries between the board and suppliers of capital. Extant literature has shown that the presence of governance mechanisms enhances corporate disclosures (Bassett et al., 2007; Patelli and Prencipe, 2007; Cheng and Courtenay, 2006). Thus, it is reasonable to expect that a stronger governance structure will be associated with a greater extent of voluntary disclosures. As market mechanisms for promoting good corporate governance develop, the enhancement of this relationship is expected to develop over time. To formally test the influence of a firm's overall corporate governance score on the extent of voluntary disclosure, the following hypothesis is proposed:

H1: All else being equal, a firm's corporate governance score is positively associated with the extent of voluntary disclosure.

Ownership structure is a related aspect of corporate governance and arguably, has its own influencing effect upon voluntary disclosure. Jensen and Meckling (1976) postulate that ownership structure has the potential of reducing information asymmetries and thereby, alleviating agency conflict between shareholders and managers. The degree of ownership structure measures the power of shareholders to influence managers which in turn determines the nature of the agency problem (Thomsen and Pedersen, 2000). High dispersion of ownership occurs when the majority of shareholding is held by a large number of individual shareholders. Agency theory argues that firms will disclose more information to reduce agency costs and information asymmetry in a diffused ownership environment (Jensen and Meckling 1976). A wide shareholder base is predicted to demand more information to be disclosed in the annual reports to reduce information asymmetry (Fama and Jensen, 1983). Thus, discretionary disclosure in annual reports is likely to be greater in widely held firms so that individual shareholders can effectively monitor that their economic interests are optimised and managers can signal that they act in the best interests of the owners.

Greater disclosure in firms with diffuse ownership is empirically documented. For instance, Haniffa and Cooke (2002) find a significant positive relationship between voluntary disclosure of Malaysian firms and ownership diffusion based on the proportion of shares held by top ten shareholders. Using outside equity as a proxy for

diffusion in Hong Kong firms, Chau and Gray (2002) reveal that the level of information disclosure is positively associated with wider ownership. The results of these studies of voluntary disclosure behaviour provide support for the agency theory argument that there is a positive association between wider ownership and the extent of voluntary disclosure.

On the other hand, the individual shareholders in a diffused ownership structure may lack monitoring capacity due to the low ownership stake of individual shareholders who may not be a formidable force to influence firm's disclosure choice (Zeckhauser and Pound, 1990). In this instance, managers may voluntarily disclose less information in the annual reports. This line of argument is empirically supported by Barako et al. (2006) who report a significant negative relationship between ownership diffusion and the extent of voluntary disclosure in Kenya, implying a lack of monitoring capacity due to low ownership stake of individual shareholders.

Notwithstanding the contrary empirical findings, the effect of ownership dispersion on the extent of voluntary disclosure lacks conclusive evidence. For instance, Alsaed (2005) examines the effect of ownership dispersion on the extent of voluntary disclosure by a sample of non-financial Saudi firms listed on the Saudi Stock Exchange. His study could not find supportive evidence on the association between ownership dispersion and voluntary disclosure. Similarly, Eng and Mak (2003) use blockholder ownership, defined as the proportion of shares held by substantial shareholders with shareholdings of 5% and more, as a proxy measure of ownership diffusion. They document that the level of disclosure is not significantly related to ownership diffusion (low blockholder ownership). The above previous studies did not support the claim that more monitoring via greater disclosure is required when ownership is diffused.

When ownership is concentrated, the majority of ownership is controlled by a small number of large, dominant shareholders who could play an important role in monitoring management. Shleifer and Vishny (1997) argue that large (outside) ownership can help reduce agency conflicts due to their dominant power and incentive to prevent expropriation by insiders. In this regard, the dominant shareholders play a monitoring role and can be expected to put more pressure on management to disclose additional information.

Empirically, Haji (2013) and Ghazali and Weetman (2006) find no significant association between the ownership concentration and the extent of voluntary disclosure of Malaysian listed firms. On the other hand, Hossain et al. (1994) reveal that ownership concentration is statistically negatively related to the level of information voluntarily

disclosed by Malaysian listed firms. In contrast, Birt et al. (2006) report that Australian firms having high level of shares owned by top 20 shareholders are more likely to disclose voluntary segment information. They provide the rationale that ownership concentration in the hands of large shareholders has the ability to mitigate the agency problems inherent in a firm by influencing the voluntary disclosures made by the firm.

The aforementioned literature on the influence of the degree of dispersion of ownership on the extent of voluntary disclosure does not reach a clear or consistent finding. The mixed empirical findings of ownership structure as a governance mechanism could be the result of the variations in firms' ownership structure internationally. These differences clearly demonstrate the importance of considering the effect of ownership structure as governance mechanism in influencing a firm's corporate disclosure practices.

The rapid growth of Malaysia's economy has not diluted the concentrated ownership structure in Malaysian firms. Zhuang et al. (2001) report that the largest shareholder still possesses an average 30.3% of outstanding shares among all listed firms in Malaysia in 1998, with top five shareholders owning 58.8%. Further, both Abdul Samad (2004) and World Bank (1999) measure ownership concentration in terms of shareholdings by the top five shareholders in Malaysia and document that, on average, the top five shareholders held about 60% of total equity in the corporate sectors. These surveys also document that the predominant shareholdings are held by family shareholders. This suggests that ownership and control of corporations in Malaysia typify the insider-dominated mould with concentrated shareholdings, a feature that is believed to have impaired the effectiveness of existing governance mechanisms in the corporate sector. Given the high insider ownership concentration that characterised the Malaysian firms and the proposition advanced in agency theory, the following hypothesis is put forward:

H2: All else being equal, a firm's concentrated ownership structure is negatively associated with the extent of voluntary disclosure.

3. Research Methodology

The annual reports of firms for years 2006 and 2009 are sourced from Bursa Malaysia. The criteria of selection of sample companies are: (i) the availability of annual reports of companies for all two periods, (ii) companies selected in 2006 must remain listed on the stock exchange for 2009, and (iii) all banks, unit trust, insurance and finance companies will be excluded from the study due to different and stringent regulatory requirements.

This study uses a self-constructed list of 75 items of information of discretionary nature to

derive a voluntary disclosure index, the proxy measure for the dependent variable. The list is developed based on the past disclosure studies conducted in developing countries (eg. Hossain et al., 1994; Haniffa and Cooke, 2002; Barako et al., 2006; Ghazali and Weetman, 2006). This list is subject to screening by a Chartered Accountant from a Big Four firm to ascertain the items remained voluntary over the two years period. The voluntary disclosure instrument examines communication made in relation to four major categories of information namely, (i) corporate and strategy; (ii) financial and capital market data; (iii) forward-looking; and (iv) corporate social responsibility. Although there is a certain degree of subjectivity in constructing a disclosure index, it has proved to be a valuable research tool in the areas of disclosure research (Beattie et al., 2004).

The complete annual report is scrutinized against the disclosure checklist. An item scores 1 if disclosed and 0 if it is not, subject to the applicability of the item concerned. The voluntary disclosure score for each company is additive and unweighted. The unweighted scoring approach assumes that each item of disclosure is equally important (Gray et al., 1995). Cooke (1989a, p.182) considers that unweighted indices are an appropriate research instrument in disclosure studies when the focus of the research is "directed at all users of corporate annual reports rather than the information needs of any specific user group." On the other hand, the weighted approach incorporates the subjectivity of assigning weights when users' preferences are unknown and likely to assign different weights to similar items (Chow and Wong-Boren, 1987). A screening process is applied to all selected companies' annual reports to ensure that judgment of relevance is not biased and not penalizing companies for not disclosing an item that is irrelevant. The disclosure instrument is scored and completed by one researcher to ensure consistency of scoring. A firm's voluntary disclosure index (VDI) is defined as the ratio of actual disclosures to the maximum possible score.

In relation to the measurement of corporate governance variable, the principles and best practices of the MCGG and the Chapter 15 of Bursa Malaysia Listing Requirement provide authoritative and objective sources for selection of corporate governance attributes. The focus is on the included governance attributes that can be operational and have been deemed in the literature to be relevant. This gives rise to thirteen attributes (as listed in Table 5) selected for the construction of a measure of the corporate governance structure of a firm.

Each of the attributes of corporate governance is measured as a dichotomous variable. A value of 1 is assigned for each corporate governance attribute that is presumed to reinforce the voluntary disclosure practice of a firm, and 0 otherwise. A

firm receives a score ranging from 0 to 13 depending on the number of attributes satisfied. This approach is deemed to be appropriate in view of the voluntary compliance with best practices of the MCCG. Firms in each period had the ‘opportunity’ to incorporate any or all of these attributes. Given this premise, the corporate governance score are not adjusted as ‘not-applicable’ items. This approach is consistent with Taylor et al. (2008). The strength of a firm’s corporate governance structure is captured by creating a composite proxy measure, defined as

corporate governance score (CGS). The CGS, measured as a percentage, is treated as a continuous variable.

Ownership structure variable is proxied by ownership concentration measured as the top five shareholders. This study includes firm-specific variables such as firm size, leverage, profitability, board size and audit firm size as control variables in the statistical analysis. The firms’ annual reports form the basis of sourcing for the data. Table 1 summarises the operationalisation and measurement of the independent and control variables.

Table 1. Variable Specification

Variables	Measurement
Independent variables: Corporate governance structure (CGS)	the composite measurement of thirteen corporate governance attributes
Ownership concentration (OCON)	Proportion of shares held by top five shareholders
Control variables: Firm size (FSIZE) Profitability (PROF) Leverage (LEV) Board size (BSIZE) Audit firm size (AUDIT)	Natural log of total assets Net profit divided by Shareholders’ Equity Total liabilities divided by total assets Number of directors on the board 1 if firms are audited by Big Four, and 0 otherwise

To test whether there are significant differences in the extent of voluntary disclosures, the parametric paired sample t-test is conducted. The use of same sample companies over the two periods facilitates the conduct of paired t-test. To assess the effect of each variable on the voluntary disclosure, a normal ordinary least square regression is conducted for each period. The regression model is defined as:

$$VDI_{jt} = \beta_0 + \beta_1 CGS_{jt} + \beta_2 OCON_{jt} + \beta_3 FSIZE_{jt} + \beta_4 PROF_{jt} + \beta_5 LEV_{jt} + \beta_6 BSIZE_{jt} + \beta_7 AUDIT_{jt} + \epsilon_{jt}$$

where

- VDI_{jt}=firm’s voluntary disclosure scores
- β=estimated coefficient for each item or category;
- CGS_{jt} = corporate governance composite score for firm j in year t
- OCON_{jt}=ownership concentration for firm j in year t
- FSIZE_{jt}= firm size for firm j in year t;

- PROF_{jt}= Profitability for firm j in year t;
- LEV_{jt}= Leverage for firm j in year t;
- BSIZE_{jt}= Board Size for firm j in year t;
- AUDIT_{jt}= Audit firm size for firm j in year t;
- ε_{jt} = error term

4. Results

Table 2 reports the descriptive statistics of firms’ voluntary disclosures index score (VDI). Malaysian firms have an average VDI of 31.7%, with minimum and maximum scores of 8.0% and 74.7% respectively in 2006. The average VDI in 2009 is 35.2% while the lowest and highest disclosure scores are virtually the same as in 2009. The extent of voluntary disclosure increases slightly between 2006 and 2009.

Table 2. Descriptive Statistics of Firms’ VDI

	2006	2009
Mean	31.679	35.160
Standard Deviation	15.798	17.504
Minimum	8.000	7.040
Maximum	74.680	74.670
Kurtosis	-0.380	-0.448
Skewness	0.575	0.108

Paired t-test is performed to examine the statistical significance of differences between the means of the VDI over the two periods. Table 3

shows there is a statistically significant (at the 1% level) increase in the mean VDI for sample firms.

Table 3. Paired Sample T-Test of VDI

	2006-2009
Mean of paired differences (%)	3.481
% change VDI ($VDI_t - VDI_{t-1}$)	10.988
Correlation	0.704*
t-Stat	2.365
P(T<=t) one-tail	0.001
t Critical one-tail	1.660

Legend: VDI = Voluntary Disclosure Index Score. Paired sample t-test result for mean VDI for sample firms is performed by comparing 2006 and 2009. The percentage change in mean VDI ($VDI_t - VDI_{t-1}$) between the two years is shown. The correlation between paired samples is significant at the 1% level. The one-tailed significance is reported because of the directional nature of the study. There is a statistically significant increase in the extent of voluntary disclosure over the periods 2006-2009.

Table 4 shows the trend of disclosures of the four major categories of information. Malaysian listed firms tend to disclose more corporate and strategy information (CSI) in both years. The average CSI disclosure is 42.2% in 2006 although it dipped to 38.9% in 2009. Business strategy information is a complex but increasingly important subject in the face of globalization and liberalisation. Strategy impacts many aspects of a firm and ultimately impact on a firm's performance. Thus,

strategy information becomes the fabric of a firm's disclosure in the annual reports. Information pertaining to corporate social responsibility (CSRI) is least communicated by Malaysian firms in 2006 (21.1%). However, the extent of CSRI disclosure increased to 35.9% (an increase by 70%) in 2009. Malaysian firms tend to disclose the same amount of financial and capital market data information (FCMI) and forward-looking information (FLI) over the two periods.

Table 4. Descriptive Statistics of VDI by Sub-Categories

	CSI	FCMI	FLI	CSRI
2006				
Mean	42.236	30.926	30.435	21.062
Minimum	0.000	0.000	0.000	0.000
Maximum	78.570	84.210	72.730	82.610
Standard Deviation	19.938	18.437	14.559	23.017
2009				
Mean	38.884	30.969	29.278	35.975
Minimum	3.770	0.000	0.000	0.000
Maximum	80.770	84.620	72.730	82.610
Standard Deviation	21.344	19.730	17.797	21.980

Legend: The descriptive statistics are expressed in percentage. VDI is categorised into four categories of discretionary information. These are: CSI = corporate and strategy information; FCMI = financial and capital market data information; FLI = forward-looking information; and SRI = corporate social responsibility information.

Further insight into firms' implementation of individual corporate governance mechanisms is revealed in Table 5. There is a notable decrease in firms adopting CG1 from 62% to 53%, a decrease by 14.5%, reflecting the situation that Malaysian firms opt for role duality in latter year. On the other hand, the adoption of the corporate governance attributes increased between 2006 and 2009 are seen in CG6 (increased by 42%), CG9 (26.5%), CG10 (27.3%) and CG12 (28.2%). Generally, Malaysian firms have increasingly become more aware of the adoption of recommended corporate governance attributes particularly the requirements of board sub-committees (audit committee, remuneration committee and nomination committees).

Table 6 reveals that the mean corporate governance score (CGS) is 69.0% in 2006. The lowest CGS is 38.5% while the highest CGS recorded is 92.3%. The mean CGS increased slightly to 72.9% in 2009 with the lowest CGS remains unchanged and the highest CGS attained is 100.0%. The average ownership shareholdings in 2006 is 57.4%, which reflects the fact that Malaysian sample firms have a high ownership concentration with the majority of shareholdings held by the top five shareholders. There is a wide variation in ownership structure which ranges from 22.1% to 85.1%. The ownership structure remains to be highly concentrated in 2009 as reflected by the average shareholdings of 59.0%. The ownership stake by the top five shareholders ranges from 16.5% to 87.9%.

Table 5. Proportion of Firms Incorporating the Attributes of Corporate Governance

	Attributes	2006	2009	Change
CG1	Chairman who is independent of Chief Executive Officer	62%	53%	-14.5%
CG2	Independent non-executive directors comprise at least one-third of the board membership	71%	70%	-1.0%
CG3	Board has defined policy of management responsibilities of the board and CEO	54%	54%	-
CG4	Audit committee chaired by independent non-executive directors	77%	75%	-3.0%
CG5	Audit committee comprises at least three directors, majority of whom are independent	74%	72%	-3.0%
CG6	At least two members of audit committee have accounting or related financial management expertise	36%	51%	42.0%
CG7	Remuneration committee chaired by independent non-executive director	51%	50%	-2.0%
CG8	Remuneration committee consists wholly of non-executive directors	40%	38%	-5.0%
CG9	Structured remuneration policy in place, where remuneration to directors is contingent of performance	34%	43%	26.5%
CG10	Disclosure requirement in the annual report of the details of remuneration to each director	11%	14%	27.3%
CG11	Nomination committee consists exclusively of non-executive directors, a majority of whom are independent	67%	66%	-1.5%
CG12	Does nomination committee adopt a formal procedure for appointments to the board?	39%	50%	28.2%
CG13	Maintain sound system of internal control - financial, operational, compliance and risk management - to safeguard shareholders' investment and company assets	75%	75%	-

Table 6. Descriptive Statistics of Explanatory Variables

	2006		2009	
	CGS	OCON	CGS	OCON
Mean	69.031	57.38	72.929	59.014
Standard Deviation	12.539	14.313	15.366	16.483
Minimum	38.460	22.100	38.460	16.540
Maximum	92.310	85.080	100.000	87.970
Kurtosis	-0.100	-0.267	-0.259	-0.138
Skewness	-0.045	-0.055	-0.089	-0.145

Pearson Product-moment correlation coefficients for the continuous explanatory variables as well as the dependent variable for both periods are shown in Table 7. There is a positive and statistically significant ($p < 0.05$) correlation between CGS and VDI in 2006 and 2009. Similarly, correlation between OCON and VDI is positive and statistically significant ($p < 0.01$) in these two

periods. For control variables, only FSIZE, PROF and BSIZE are positively and statistically significantly correlated with VDI in 2006 and 2009. Correlation coefficients among the continuous explanatory variables are below 0.7, which is below the benchmark level of 0.8 as indicated in Judge et al. (1980). Thus, multicollinearity is not a concern in this study.

Table 7. Pearson Correlation Matrix

2006	VDI	CGS	OCON	FSIZE	LEV	PROF	BSIZE
VDI	1.000						
CGS	0.242**	1.000					
OCON	0.221**	0.212**	1.000				
FSIZE	0.569*	-0.096	-0.039	1.000			
LEV	0.177	-0.228**	-0.245**	0.336*	1.000		
PROF	0.198**	0.016	0.071	0.044	-0.115	1.000	
BSIZE	0.224**	0.015	0.123	0.289*	-0.013	0.004	1.000
2009							
VDI	1.000						
CGS	0.254**	1.000					
OCON	0.292*	0.154	1.000				
FSIZE	0.650*	0.083	0.107	1.000			
LEV	0.090	-0.250**	-0.053	0.169	1.000		
PROF	0.308*	0.125	0.086	0.112	-0.232**	1.000	
BSIZE	0.306*	0.135	0.002	0.357*	-0.049	0.112	1.000

Legend: Pearson correlation matrix shows the correlation coefficients for all the continuous explanatory variables and the dependent variable. * Correlation is significant at the 0.01 level. ** Correlation is significant at the 0.05 level.

OLS regression results are presented in Table 8. The F-values (9.297 in 2006 and 9.482 in 2009) of the model is significant at the 0.001 level for both periods. The explanatory power of the model as indicated by the values of adjusted R-squared are

43.3% and 52.7% in 2006 and 2009 respectively. Both of these values suggest that the model explains a substantial percentage of the variation in the level of corporate disclosure.

Table 8. Regression Analysis of Determinants of Voluntary Disclosures

		2006				2009			
Adjusted R ²		0.433				0.527			
Durbin-Watson		1.986				2.187			
F statistic		9.297				9.482			
Significance		0.000*				0.000*			
	Predicted sign	Coeff.	t Stat	P-value	VIF	Coeff.	t Stat	P-value	VIF
Intercept		-58.243	-5.814	0.000*		-69.076	-3.897	0.000*	
CGS	+	0.271	2.258	0.001*	1.157	0.394	3.901	0.000*	1.340
OCON	-	0.225	2.198	0.015**	1.124	0.293	2.769	0.020**	1.068
FSIZE	+	14.717	5.543	0.000*	1.319	12.872	4.828	0.000*	1.657
LEV	+	8.204	1.213	0.114	1.307	5.176	1.015	0.152	1.216
PROF	+	13.082	1.983	0.025**	1.053	6.215	1.846	0.033#	1.230
BSIZE	+/-	0.344	0.445	0.324	1.124	0.628	0.801	0.213	1.192
AUDIT	+	-1.338	-0.389	0.349	1.237	2.550	0.707	0.241	1.237

*Legend: The table shows the results of regression for all sample firms against the independent and control variables. Associations *, **, # are statistically significant at the 1%, 5% and 10% levels respectively. One-tailed probabilities are used for the tests. The table reveals a positive and statistically highly significant association between sample firms' VDI and CGS in 2006 and 2009, which is consistent with the predictions as hypothesized in H1. OCON is positively and significantly associated with VDI thus, H2 is not supported by such result.*

The OLS regression coefficients for CGS (2006: 0.271 and 2009: 0.394) are positive and statistically significant ($p < 0.01$), suggesting that the enhanced corporate governance structure is associated with greater extent of voluntary disclosure for both periods. The result is consistent with the predictions of a positive association between voluntary disclosure and the strength of corporate governance structure of all sample firms. Thus, H1 is supported in both periods. This result is similar to that of Beeks and Brown (2006), who reported a positive and significant association between corporate governance structure and information disclosure by Australian listed firms.

Although a significant predictor, the result for ownership concentration is not in the direction predicted and thus, H2 is not supported. There is a consistently positive and statistically significant ($p < 0.05$) association between voluntary disclosure and ownership concentration in 2006 and 2009. The results suggest that the higher the proportion owned by the top five shareholders, the higher the disclosure. This positive relationship is consistent with the results of Haniffa and Cooke (2002) and Birt et al. (2006), suggesting that firms with concentrated ownership in the hands of large shareholders implies greater monitoring capacity to influence the management to provide more disclosures of voluntary type.

The control variables that are included in this study are firm size, leverage, profitability, board size and audit firm size. Firm size is a very important corporate attribute associated with voluntary disclosure in the annual reports. Table 8 reports that firm size is positively and statistically significantly ($p < 0.01$) associated with voluntary disclosure in 2006 and 2009. Similarly, a company's profitability level is found to be positive and statistically significantly ($p < 0.05$) associated with voluntary disclosure in 2006 although it shows marginal statistical significance ($p < 0.10$) in 2009. Hence, companies that are large in size and are profitable voluntarily provide more information in annual reports. Leverage, board size and audit firm size lacks statistical significance to show their impact on the extent of voluntary disclosure in our multivariate analysis in both periods.

4.1 Tests on Robustness of the Model

A problem encountered in disclosure studies is that disclosure indexes are an empirical proxy for the underlying theoretical construct (Beattie et al., 2004). Cooke (1998) suggests multiple approaches are helpful to ensure the empirical results are robust across methods. The first approach used as a robustness measure is the rank regression analysis. The rank regression model is estimated with rank transformation of the VDI of the sample companies

and four corporate attributes measured on a continuous scale (i.e., corporate governance structure, ownership concentration, firm size, leverage and profitability). The OLS regression test is run on these ranked values plus the auditor type variable measured on categorical scale. The second approach involves transforming actual observations into normal scores using Van der Waerden's approach (Camfferman and Cooke, 2002, Cooke, 1998). The VDI and continuous independent variables are transformed into normal scores. This approach offers an advantage whereby a normally distributed dependent variable implies that the errors are also normally distributed by the assumptions of OLS.

Although not reported in this paper, the results of both approaches for both periods support the main findings about the significant influence of the strength of corporate governance structure and concentrated ownership structure on voluntary disclosure practices. The control variables found to have a significant relationship with disclosures are firm size and profitability.

The multivariate analysis undertaken assumes the exogenous determination of both corporate governance and ownership structure variables. Concern arises of the possibility of the endogenous determination of corporate governance and ownership structure. A potential correlated omitted variable problem may occur where there are factors that may potentially affect corporate governance and ownership structure, and that may affect voluntary disclosure of information simultaneously (Karamanou and Vafeas, 2005). The endogeneity will adversely bias the OLS model used in this study thus, it would be difficult to interpret the association between corporate governance and ownership structure and voluntary disclosure. Karamanou and Vafeas (2005) recommend the examination of the association between changes in level of governance as a way to address potential endogeneity. This approach is appropriate since there is less likely to be a corresponding change in any potential omitted variable that is correlated with both the dependent and independent variables. Hence, the multiple regression analysis is conducted to ascertain the association between the change in voluntary disclosure and the change in the independent and control variables between the two periods. The results (not shown for brevity) indicate that there is no significant association between the change in VDI and the change in CGS and the change in OCON. This change analysis lessens any possible concern of the endogeneity in the determination of corporate governance and ownership structure.

Conclusion

The study examines the association between voluntary disclosure and corporate governance

structure and ownership structure. The extent of voluntary disclosure is investigated and compared over two periods when there was a revision to the code of corporate governance and the onset of global economic crisis. These changes are expected to have an influence on the corporate disclosure practices. The empirical results of this study provide credence to previous research findings as well as valuable insights regarding the extent of voluntary information disclosure among listed firms in this emerging country – Malaysia.

The results show that the extent of voluntary disclosures is, on average, low although there is a statistically significant increase over the two years covered in this study. The significant increase could be attributed to the companies' responses to the changes in the business environment as a result of the revised Malaysian Code of Corporate Governance, global economic crisis, mandatory corporate social responsibility (CSR) disclosure requirement and increasing awareness of CSR in the Malaysian environment. Subsequently, the results reveal the extent of CSR information disclosed by Malaysian listed firms increased over the two years. Forward looking and corporate strategy information disclosed have taken a dip while the disclosure on financial and capital market data information remains largely the same over the two periods.

The extent of voluntary disclosures in the annual report is related to a company's corporate governance structure, ownership structure and firm characteristics. The results suggest that corporate governance structure is positively and statistically significant in determining the extent of voluntary disclosures in 2006 and 2009 periods. Ownership structure is statistically and positively associated with voluntary disclosure in both periods although it is in the opposite direction to our expectation, suggesting that firms with concentrated ownership structure could influence management to voluntarily disclose information. Firm-specific control variables remained significant are firm size and profitability.

The findings offer both theoretical and practical implications. These results provide evidence that firms may voluntarily disclose more information in enhanced governance structure, and imply that when external regulatory bodies emphasize corporate governance, boards align their monitoring objectives accordingly. The strength of corporate governance structure would thus prove to be useful for monitoring board's activities and mitigating agency-principal conflict which could result in greater communication. The ownership structure as characterized by large, dominant shareholders play an important role in monitoring management and reducing agency conflicts. Thus, the significant increase in the extent of voluntary disclosures in the annual reports by Malaysian listed firms could be considered as the managerial disclosure decision to enhance firms' credibility

with stakeholders and thereby, reducing information asymmetry.

In terms of practical implication, the extent of voluntary disclosure as documented in this study should send a signal to Malaysian regulators to strengthen its regulatory framework in encouraging listed firms to disclose information on voluntary basis. In an increasingly volatile and interdependent global economy, both regulators and policy makers play important roles in advocating voluntary disclosures which may demonstrate the potential value of sustainability reporting as a management and investors relations tool. Another important practical implication arises from the study is the involvement of large shareholders in the ownership structure who can serve as good monitors in corporate disclosure decision-making process. Given a relatively similar corporate governance environment, the findings may be of interest to policy makers and regulators in East Asian countries.

This study has its limitations. Although it is not the intention of the study to establish the causality between the corporate governance and ownership structure and voluntary disclosure, the endogeneity issue may be further and deeper investigated by undertaken different methodologies. More governance variables could be incorporated in creating a composite proxy measure - corporate governance score. The dimension of the sample could be increased by analysing more listed firms. Also, the disclosure index can be object of criticism, as the dichotomous measurement can only ascertain the existence of items disclosed and not the informativeness of the disclosed items. Finally, the background and culture of top management team may affect the disclosure policies emanating from the board are excluded from the study. Future research will certainly shed light on these important areas.

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GROWTH OPPORTUNITIES AND DIVIDEND POLICY: SOME EVIDENCE ON THE ROLE OF ETHNICITY IN AN EMERGING ECONOMY'

Ravichandran K. Subramaniam*, Mohammed Shaiban**, Susela Devi K. Suppiah***

Abstract

This paper examines the association between growth opportunities and dividend payouts and moderates the relationship between growth opportunities and dividend payouts. Our sample consisted of the Malaysian top 300 public listed companies (in terms of market capitalization) for a period from 2004 to 2011. Based on a specified selection process, the sample contained 1330 firm-year observations, after excluding firms with missing data. This paper finds that growth opportunities is associated with less dividends payouts and that this relationship is weaker for Bumiputera ethnic controlled firms. Furthermore, the results show that this negative association exists only for non-Government Linked Controlled firms.

Keywords: Growth Opportunities, Dividend Payout, Ethnicity, Free Cash Flow Theory

* School of Business, Monash University Malaysia, Jalan Lagoon Selatan, 47500 Bandar Sunway, Selangor Darul Ehsan, Malaysia.

Contacted for correspondence: 603-55145684

Fax 603-55146001

Email: ravichandran.subramaniam@monash.edu

** School of Business, Monash University Malaysia, Malaysia

Contact: 603-55144906; Fax 603-55146001

Email: mohammed.shaiban@monash.edu

*** Faculty of Business and Information Technology, UNITAR International University, Malaysia

Contact: 603-76277200; Fax 603-76277472

Email: susela@um.edu.my

1. Introduction

The issues of dividends and dividend policy have always been a subject of much debate and research in extant literature. A number of prior studies have visited the dividend puzzle and concluded that there were many questions still to be answered (i.e., Lintner, 1956; Miller and Modigliani 1961; Al-Twajry, 2007; Aivazain et al., 2003; Adjaoud and Ben-Amar, 2010). Recent consensus also argues that there are many ways of an explanation towards a dividend policy (i.e., Denis and Osobov, 2008; Rashid, 2008 and McKnight and Weir, 2009). Thus, setting corporate dividend policy is very subjective and controversial. This paper investigates whether ethnicity has a role in dividend payout.

In Malaysia the three distinct ethnic groups, the Malays/Bumiputeras, Chinese and Indians, have maintained separate identities, preserved separate cultures as evidenced in the languages they speak, codes of dress, customs, value systems, and all the outer manifestations of the differences in background and tradition (Sendut et al. 1990) as cited in Jamil and Abdul Razak, 2010). Each

Malaysian belongs to an ethnic group with his or her own culture, belief and value system. Through the process of socialisation, these culture, belief and values are reinforced within the family, religious bodies, social institution and workplace. Over the years, each ethnic group has adopted these ethnic identities as part of its cultural markers (Jamil and Abdul Razak, 2010). However, in the economic/business sphere, the Malay-Chinese (hereafter Bumiputera-non-Bumiputera) culture has been shown to be aligned (Storz, 1999).

Whilst, Malaysia shares a broad range of accounting and regulatory practices with developed countries, the post British colonialism social structure is still marked by ethnic pluralism and economic activities are segmented along ethnic lines. Since independence in 1957, the indigenous Malays/Bumiputeras continued to be marginalised in an economy dominated by Europeans (mainly British) and, to a lesser extent, the large Chinese migrants (Jesudason, 1989).

Nevertheless, the effects of cultural differences and business practices (in terms of ethnicity) have been seen to influence business,

organisational structures, accounting disclosures, accounting conservatism and audit practices (Haniffa and Cooke, 2002; Yatim et al., 2006; Rahimah et al., 2012; Nazri et al., 2012). One main factor that has shaped Malaysia's capital market is the close identification between ethnicity and economic functions (Gomez and Jomo, 1997). Demographically, Malaysia's population consists of 66% Bumiputera (comprising 54.5% Malays and 11.8% Indigenous), 25% Chinese, 8% Indians and 1% others. Prior to 1970, the Bumiputera were economically disadvantaged compared to the non-Bumiputeras and there was dissatisfaction among the population and this resulted in racial riots in 1969 (Jesudason, 1989). Thereafter, the Malaysian government launched the New Economic Policy (NEP), with one of its objectives being to restructure society by increasing the participation of the Bumiputera in the economy. The target was for the Bumiputera to hold at least a 30 per cent share of ownership equity in businesses. Various agencies have been established since the 1970s to provide training and help to develop Bumiputera entrepreneurs, both in the establishment of government linked companies (GLCs), and also to increase Bumiputera business ownership. Various ties are frequently and informally established between business people of various ethnicities, and key Bumiputera state and political leaders (Chan, 2012). These personal ties among business groups, also known as social networks, are commonly perceived as a mechanism for big business to achieve growth. In fact, personal ties in big business organisations in the 1990s generally led to some state intervention in big business and economic development, especially between the 1970s and the mid-1990s (Chan, 2012).

Furthermore, there are no precise rules governing dividend payouts in Malaysia (Chan and Devi, 2009), and companies are generally free to decide on the distribution of dividends. While the Companies Act 1965 (section 365) only stipulates that dividends should be distributed from profits, it does not indicate whether distributions should be made from current profits or accumulated profits. This has led to the inconsistent administration of dividend policies (Ling et al., 2008). The situation provides an opportunity to examine whether dividend payouts occur when they are less strictly linked to current year profits and therefore, performance and cash flows. Hence, the question arises whether Jensen's Free Cash Flow (FCF) hypothesis applies in this setting i.e ethnicity in terms of Bumiputera controlled versus non Bumiputera controlled boards. This provides a unique setting to examine whether investment opportunity, as a proxy for growth opportunities, is associated with dividend payouts, and whether this relationship is moderated by board ethnicity.

Prior literature offers copious studies, primarily on developed countries, that examined the relationship between growth opportunities, debt, performance and dividend policy decisions (i.e., Smith and Watts, 1992; Gaver and Gaver, 1993; Gul and Kealey, 1999; D' Souza and Saxena, 1999; Mitton, 2004 and Amidu and Abor, 2006). Studies on the situation in developing countries, however, have been limited to China, Korea and Ghana. Three prior studies (Smith and Watts, 1992; Gaver and Gaver, 1993 and Gul and Kealey, 1999) were of particular interest, as these studies focused more on the contracting and free cash flow relationship between (i) growth opportunities, (ii) debt and (iii) dividend policy decisions. Nevertheless, over 100 proxies have been used in the literature to measure growth opportunities. This proliferation may explain why evidence of the role of growth opportunities (also known as the investment opportunity set, or IOS) has varied from one study to another (Burton, 2003).

Ethnicity in Malaysia has, to a considerable extent, shaped how the country and its businesses are managed externally (through political intervention), and internally (via cultural values) (Haniffa and Hudaib, 2006; Yatim, 2006). Throughout the 1970s and until the 1980s, the state directly intervened in business by being actively involved in business development through public corporations. To meet the NEP's objectives, the state has retained some shareholdings in the corporate sector and in key public enterprises such as the National Equity Corporation, the National Unit Trust Scheme and the Bumiputera Trust Scheme (Gomez and Jomo, 1997). Nonetheless, there is limited evidence as to whether board of directors' ethnicity affects the relationship between investment opportunity set (IOS) and dividend payouts.

Agency and contracting theories offer a platform to explain variations in corporate policy decisions (Jensen and Meckling, 1976; Smith and Watts, 1992; Skinner, 1993 and Gul, 1999). The theoretical aspects of dividend policy, agency and contracting theory, informational asymmetry, signalling models and free cash flow are well established in the extant literature. However, evidence offered by different theories to support the relationship between IOS and dividend policy are mixed. Additionally, while there are many studies that support the contracting explanation based on the Jensen's FCF hypothesis, these studies have generally been conducted in developed markets and there is limited evidence to support the applicability of Jensen's FCF hypothesis in the institutional context of emerging markets. The existence of ethnicity concerns provides an opportunity to evidence the applicability of Jensen's FCF hypothesis that posits that there is a negative relationship between growth opportunities and

dividend payouts. There are primarily two strands of research with respect to dividend payouts. One focuses on external drivers and the other on internal drivers. This paper focuses on the second strand and, specifically, on the association between growth opportunities and dividend payouts. Further, it addresses the question as to whether firms controlled by Malaysia's two main ethnic groups, the Malay/Bumiputera and Chinese (non-Bumiputera), moderate the relationship between growth opportunities and dividend payouts.

Using a panel sample of 1330 firm-year observations of Malaysian firms during the period 2004-2011, we show that firstly, Jensen's FCF hypothesis applies in the Malaysian context. That is, high growth firms pay lower dividend and vice versa. However, this finding applies only to non-Bumiputera firms. Secondly, we find that the negative relationship between dividend payouts and firm growth, as stipulated by Jensen's FCF hypothesis, is weaker for Bumiputera-dominant boards, where majority of the directors are Bumiputera.

This study contributes to the existing literature in three ways. First, while most prior studies have focused on dividend payout policies in developed countries (i.e., Smith and Watts, 1992; Gul and Kealey, 1999; D'Souza and Saxena, 1999; Amidu and Abor, 2006), this study provides evidence from an emerging market context. Second, it shows that Jensen's FCF hypothesis' applicability in an emerging market context needs to be considered with caution. Ethnicity has a role in determining dividend payouts, suggesting the socio economic environment influences corporate dividend decisions as well. Thirdly, this study provides insights for capital market regulators and policymakers on the importance of understanding prevalent board ethnicity when predicting the effects of corporate governance reforms.

The remainder of this paper is organised as follows. Section 2 discusses the extant dividend payout literature and sets the stage for hypotheses development. Section 3 describes the research methodology and the empirical results are presented and discussed in Section 4, while Section 5 summarises the findings and the implications, addresses the limitations and provides suggestions for future research.

2. Study Background and Hypothesis Development

Growth, dividend policy and ethnicity

Smith and Watts (1992) documented a negative relationship between investment growth opportunities and dividend payouts using industry level data. They argued that firms with growth opportunities tend to have high debt and low

dividend payouts to signal that they have better earnings prospects. Further, they argued that under the contracting theory, firms with more growth or a higher IOS are likely to issue more debt or pay lower dividends. Gaver and Gaver (1993) affirmed the results of Smith and Watts (1992) using a more rigorous firm level study methodology, and found that growth firms have lower debt/equity ratios and significantly lower dividend yields than non-growth firms. Subsequently, Gul (1999), examined investment opportunity set and corporate policy choices in China, and showed that consistent with prior studies, IOS was negatively associated with debt financing and dividend payouts. However, Kumar (2006) posit that past investment opportunities exert a positive impact in dividends.

Similarly, in another Asian context, Gul and Kealey (1999) evidenced that growth options were negatively associated with dividends in Korea. D'Souza and Saxena (1999), and Fama and French (2001), documented that newly listed firms with high growth opportunities refrained from making dividend payments. Jensen (1986) also made a similar point by suggesting that low growth firms pay out dividends in order to overcome some free cash flow problems (Lang et al., 1989). Although evidence on the relationship between high growth firms and dividend payouts exists, it is unclear to what extent it is applicable in an emerging market context. We expect that Jensen's FCF hypothesis may be applicable in the Malaysian context. Thus, we expect that high growth firms will pay lower dividends, and vice versa. Therefore, the first hypothesis is stated in its alternative form:

H1. Firms with lower level of growth opportunities pay higher dividends, ceteris paribus.

Ethnicity and dividend policy

Both Haniffa and Hudaib (2006) and Yatim (2006) argued that ethnicity in Malaysia has, to a considerable extent, shaped how the country and businesses are managed externally through political intervention, and internally via cultural values. The issue of ethnicity in Malaysia can be traced back to 1957 and is deemed to be unique in nature with respect to its effect on government public policy adoption. The New Economy Policy (NEP) established in 1970 uses Malaysia's institutional investors as a tool to reduce equity ownership imbalances between the various ethnic groups by increasing Bumiputera equity ownership in the capital market (Tan, 2004). The Malaysian capital market offers clearly identifiable capital segments segregated along ethnic lines (Jesudason, 1989). However, it is unclear whether board ethnicity affects corporate decisions, including dividend policies. Deegan and Rankin (1996) demonstrate that firm operations and financial reporting are influenced by the social values prevailing. In the

Malaysian context, it has been evidenced, that Malaysian managers are influenced by ethnicity, education and type of organisation (Chuah, 1995).

We draw from the social capital theory, to argue that the directors' career networks and personal connections with other resources form their social capital (Burt, 1992). Further, the board of directors constitutes a mechanism that the organisation can use to draw on external resources for survival and growth (through non-executive directors), in addition to the internal resources provided by those in the executive director posts (Pfeffer and Salancik (1978). Further, the political economy of Malaysia where critical government support of government linked companies in Malaysia has fostered the emergence of a new class of indigenous capitalists whose position in society is in tension with structures of class and ethnicity (Larson and Zalanga, 2004). However, ethnicity of board of directors was found to be negatively insignificantly correlated to dividend payout in a

Malaysian study (Bolbol, 2012). The study has limited sample size.

Given the social embeddedness of Bumiputera firms, we expect the negative relationship between growth firms and dividend payouts to be weaker for Bumiputera firms compared to non-Bumiputera dominated firms. Thus, the second hypothesis is postulated as follows:

H2. The relationship between high growth firms and dividend payout is weaker for Bumiputera firms, ceteris paribus.

3. Methodology

Our sample consisted of the Malaysian top 300 public listed companies (in terms of market capitalisation) for a period of 8 years (i.e., from 2004 to 2011). A summary of the selection process is provided in Table 1. The sample contained 1330 firm-year observations, after excluding firms with missing data.

Table 1. Sample descriptions of Malaysian firms for the years 2004 to 2011

Original sample size	2390
Less: observations with missing information including sample firms without dividend payout	1060
Final sample size used for analysis	1330

Gaver and Gaver (1993) and Gul and Tsui (1998) used the dividend payout ratio to measure the dividend policy. The Dividend Payout Ratio was measured as cash dividend paid divided by net income (profit after tax). Similarly, other studies (e.g., Smith and Watts, 1992; Gaver and Gaver, 1993; Gul, 1999; Adam and Goyal, 2008; Abor and Bokpin, 2010) also used this measure. The Market to Book Equity (MBE) ratio was chosen as the proxy for IOS (growth opportunities), as it allows an assessment to be made on the robustness and sensitivity of the analysis (Adam and Goyal, 2008). MBE is measured using the formula [(shares outstanding x share closing price)/total common equity]. MBE measures the present value of all future cash flows to equity holders from both assets in place, and future investment opportunities. Further, it does not require information on the market value of debt and the estimation of replacement values. This measure has also been used extensively in prior studies (i.e., Anderson et al., 1993; Gaver and Gaver, 1993; Gul, 1999; Hossain et al., 2000; and Skinner, 1993).

The experimental variable of interest in this study is ethnicity (ETHNIC). A dummy variable was used to measure the two ethnic shareholder groups in Malaysia: Bumiputera (Malays) and Non-Bumiputera (Chinese, Indians, other citizens and foreigners). Firms were scored "1" if Bumiputera-owned, and "0" otherwise. Several variables were controlled for in the regression models used in the

current study. The most common of these variables were: firm size, ownership structure, corporate governance constructs (such as board size, board composition and duality), return on assets as a proxy for profitability, family control and leverage. Firm size was included as a control variable, as prior studies found it to be associated with firm characteristics. According to Smith and Watts (1992), firm size was positively associated to various types of corporate governance variables, such as debt covenants, dividend policy and management compensation. Market capitalisation (was used as a proxy for firm size, since high growth firms are expected to be large with a high market capitalisation).

Under ownership structure, government linked companies (GLCs) are defined as companies whose major ownership and control are held by a main shareholder that is either a government agency (such as Khazanah, Ministry of Finance (MOF) Incorporated, Bank Negara Malaysia, Kumpulan Wang Amanah Pencen (KWAP), or by a government related agency in which the government has an interest by virtue of a financial or legal exposure (contingent or otherwise). Control is defined as the ability to appoint members to the board of directors, or senior management who make major decisions (contract decisions, strategic decisions on restructuring, investment and divestments, and financing). A dummy variable was used to measure this construct, and companies were

scored “1” if they were considered GLCs under the above definition and “0” otherwise. High growth GLCs are expected to pay higher dividends, with the inverse being true of low growth GLCs.

ROA is measured as the ratio of earnings before interest and taxes, over total assets (Wang et al. 1993; Ling et al., 2008 and Imm Song et al., 2008). It is a profitability proxy used to measure how efficiently company assets are used to generate returns and earnings for the firm and its shareholders. Leverage is defined as the debt to assets ratio, and is operationalised as a ratio of the book value of long term debt divided by the book value of total assets. It measures the extent to which the firm finances its assets by taking on liabilities. Leverage assumes a double and active role. First, it helps to create value by disciplining managers in companies with no or very scarce growth opportunities. Second, it has a negative effect on firms with the best opportunities due to the propensity to forgo profitable projects (Alonso et al., 2005; How et al., 2008; McKnight and Weir, 2009). Based on prior studies, there is a positive association between leverage and GLCs.

Board composition refers to the proportion of non-executive directors (NEDs) on the board of directors. The ratio gives an indication of the board’s independence, and the extent to which the board is represented by insiders or outsiders. Prior studies (i.e., Conyon and Peck, 1998; Weir, 1997; Nordin et al., 2005; Ponnu, 2008; Guest, 2008) identified external board members as non-executive

directors. Board size refers to the total number of executive and non-executive directors on the board, and is deemed to have an effect on the quantum of dividend payouts (Ajay, 2007; Yermack, 1986; Huther, 1997; Conyon and Peck, 1998; Postma et al., 2003; Loderer and Peyer 2002; Nordin et al., 2005; Guest, 2008). CEO duality has been extensively argued in the literature and has been widely operationalised as a dummy variable (Daily and Dalton, 1997; Abdullah, 2007; Ponnu, 2008). Duality is defined as a board structure control mechanism that comprises a chief operating officer (CEO) who serves as chairman of the board at the same time. This construct is a dummy variable in the current study, with firms scoring “1” if their board chairman was also the CEO and “0” otherwise. Data was Winsorised to the 1st and 99th percentiles to mitigate any outlier effects. All the t-tests reported in this study are White’s (1980) corrected t-tests. All tests performed in this study were controlled for industry and year.

Regression model

The regression model used to test the hypotheses is presented as follows (definitions of all the variables are shown in Figure 1):

$$DPP = \beta_0 + \beta_1 MBE + \beta_2 ETHNIC + \beta_3 BSIZE + \beta_4 BCOM + \beta_5 DUAL + \beta_6 GLC + \beta_7 LOGMKTC + \beta_8 LEV + \beta_9 ROA + \beta_{10} YR + \beta_{11} SECTOR \text{ dummies} + \alpha$$

Figure 1. The definitions of all the variables including the experimental and control variables follow

<i>DPP</i>	dividend payout ratio is the Cash dividend paid divided by the Net income (Profit after tax).
<i>MBE</i>	market to book value of equity at the end of year t [Shares outstanding x shares closing price] / total common equity
<i>ETHNIC</i>	dichotomous with 1 if BUMI and 0 other wise
<i>BSIZE</i>	total number of directors on the board of the company
<i>BCOM</i>	the proportion of non-executive directors (NEDs) to total number of directors on the board of the company
<i>DUAL</i>	dichotomous with 1 if the chairman is also the chief executive officer (CEO) of the company and 0 other wise
<i>GLC</i>	shares held by the 10 largest shareholders as a measure of ownership concentration 1 – GLCs; 0 – Otherwise
<i>LOGMKTC</i>	natural logarithm of Market capitalization of the companies
<i>LEV</i>	book value of long term debt divided by the book value of total assets
<i>ROA</i>	earnings before interest and tax divided by total assets

4. Findings

Descriptive statistics

Table 2 shows the breakdown of the sample firms by industry type. The descriptive statistics for both the dependent and independent variables are provided in Table 3 for both the BUMI and non-BUMI firms. The mean dividend payout ratio for BUMI firms was 10.961 while the ratio for non-

BUMI firms was 11.407. This indicates that non-BUMI firms are, on average, paying higher dividends. Interestingly, the mean MBE of 6.047 for BUMI firms was also relatively lower compared to the mean of 7.461 recorded for non-BUMI firms. Thus, the non-BUMI sample firms appeared to have higher growth opportunities. Further, BUMI firms were considered to have higher risk, as they had a higher mean leverage of 0.342 as compared to non-BUMI firms with a mean leverage of 0.304. In

terms of board size, the boards of both BUMI and non-BUMI firms had an average of 10 directors. The percentage of independent directors on the boards of BUMI firms was 38.1 percent, as compared to non-BUMI firms where independent

directors made up 39.1 percent of total board members. BUMI firms had a return on assets of 6.3 percent, as compared to 9.6 per cent for non-BUMI firms.

Table 2. Number of observations by industry for the years 2004 to 2011

Industry	Bumi-firms	Non-Bumi firms	Total
Consumer products	96	128	224
Industrial products	120	384	504
Properties	88	312	400
Construction	48	104	152
Plantations & Mining	96	160	256
Trading	371	483	854
Total	819	1571	2390

Table 3. Descriptive statistics of BUMI and non-BUMI firms for the years 2004 to 2011

Variable	BUMI (N=819)			Non-BUMI (N=1571)			t-test
	Mean	Std Dev	Median	Mean	Std Dev	Median	
DPP	10.961	20.210	0.601	11.407	18.925	0.610	0.433
BCOM	0.381	0.160	0.375	0.391	0.156	0.364	1.379
BSIZE	9.97	2.186	10	9.72	2.116	10	2.682***
LOGMKTC	6.934	1.726	6.680	6.647	1.544	6.370	3.799***
LEV	0.342	0.603	0.233	0.304	0.476	0.185	1.430
ROA	0.063	0.325	0.063	0.096	0.097	0.080	2.686***
MBE	6.047	13.895	2.734	7.461	12.138	3.171	2.110**

Variable definitions: DPP (dividend payout ratio) is dividend per share; BCOM is the proportion of non-executive directors (NEDs) to total number of directors on the board of the company; BSIZE is total number of directors on the board of the company; LOGMKTC is natural logarithm of Market capitalization of the companies; LEV is Book value of long term debt divided by the book value of total assets; ROA is Earnings before interest and tax divided by total assets; MBE is market to book value of equity at the end of year t [Shares outstanding x shares closing price] / total common equity];

Correlations

Table 4 reports the bivariate statistical correlations for both BUMI and non-BUMI firms. Leverage was positively correlated with dividend payouts for both BUMI and non-BUMI firms, pointing to the fact that both types of firms had a narrow range of leverage associated to dividend payouts. Return on assets was negatively correlated with dividend payouts for non-BUMI firms only, indicating that the non-BUMI growth firms seemed to produce a higher return on assets. Board size (BSIZE) and duality for both BUMI and non-BUMI subsample firms showed a negative correlation, indicating that the larger the size of the board the lower the presence of CEO duality. Overall, there was no serious multicollinearity, as the correlation coefficients for all variables scored under 0.70.

Regression

Table 5 Column A reports the multiple regression results for the first hypothesis. The coefficient of MBE (the proxy for growth opportunities) was negative and significant (-0.093, $p < 0.01$, 2 tailed),

supporting the first hypothesis (H1) that higher growth firms pay lower dividends. The results support the contracting theory based on Jensen's Free Cash Flow (FCF) hypothesis suggesting that high growth firms pay lower dividends due to their heavy investments and shareholder expectations of a better return in the near future. These findings are also consistent with prior studies in developed countries and emerging markets (e.g., Amidu and Abor, 2006; Mitton, 2004; La Porta et al. 2000). Several other studies in the developed countries posited similar results (i.e., Smith and Watts, 1992; Gaver and Gaver, 1993; Gul and Kealey, 1999; D'Souza and Saxena, 1999 and Jensen, 1986).

Furthermore, Table 5 Column B illustrates the association between dividend payouts and the interaction between ethnicity (i.e., BUMI and non-BUMI) and growth opportunities (MBE). The coefficient of the interaction between BUMI*MBE was positive and significant (0.092, $p < 0.05$, 2 tailed). Interestingly, this supports the second hypothesis (H2) that the negative relationship between high growth firms and dividend payout is weaker for BUMI firms. Dividend payout was also significantly and negatively associated with return

on assets and board size. In terms of industry dummies, consumer products were positively and significantly related to dividend payout. Generally, these results point to the fact that firms with smaller boards and lower returns on assets tend to pay lower dividends. In terms of industry segments, the consumer products industry segment seemed to be

paying comparatively higher dividends than other industry segments. The adjusted R2 for the regression analyses ranged from 72.5 percent to 72.6 percent. The variance inflation factor (VIF) was used to test for multicollinearity, and the VIF values were generally less than 5.

Table 4. Correlations among dividend payout, MBE and control variables

Variable	DPP	BCOM	BSIZE	DUAL	LEV	LOGMKTC	ROA	MBE	GLC
BUMI firms (N = 819)									
DPP	1.000								
BCOM	-0.028	1.000							
BSIZE	-0.041	-0.029	1.000						
DUAL	0.037	0.090***	-0.139**	1.000					
LEV	0.301**	-0.004	0.002	-0.018	1.000				
LOGMKTC	-0.024	0.124**	0.042	0.230**	-0.02	1.000			
ROA	-0.018	0.001	0.037	0.042	-0.069*	0.111**	1.000		
MBE	0.211**	-0.035	0.039	0.062	0.092*	0.120**	0.052	1.000	
GLC	0.107**	0.114**	-0.121**	0.196**	-0.008	0.344**	0.044	0.030	1.000
Non-BUMI firms (N = 1571)									
DPP	1.000								
BCOM	-0.023	1.000							
BSIZE	-0.057*	-0.022	1.000						
DUAL	0.011	0.033	-0.108**	1.000					
LEV	0.402**	0.018	-0.007	0.050*	1.000				
LOGMKTC	-0.114**	0.058*	0.001	-0.028	-0.044	1.000			
ROA	-0.112**	0.031	-0.013	0.014	-0.044	0.230**	1.000		
MBE	0.258**	0.009	0.017	-0.022	0.168**	0.119**	0.296**	1.000	
GLC	-0.061*	0.030	-0.034	0.009	-0.030	0.230**	0.062*	0.011	1.000

Variable definitions: DPP (dividend payout ratio) is dividend per share; BCOM is the proportion of non-executive directors (NEDs) to total number of directors on the board of the company; BSIZE is total number of directors on the board of the company; DUAL is dichotomous with 1 if the chairman is also the chief executive officer (CEO) of the company and 0 otherwise; LEV is Book value of long term debt divided by the book value of total assets; LOGMKTC is natural logarithm of Market capitalization of the companies; ROA is Earnings before interest and tax divided by total assets; MBE is market to book value of equity at the end of year t [Shares outstanding x shares closing price] / total common equity; GLC is shares held by the 10 largest shareholders as a measure of ownership concentration 1 – GLCs; 0 – Otherwise;

*Significance at 0.10; ** Significance at 0.05; ***Significance at 0.01

Table 5. OLS Regression analysis of Malaysian Firms for the years 2004 to 2011 with interaction (N=1330)

	Column A		Column B	
	Coefficient	t-Values	Coefficient	t-Values
Intercept	39.623	14.428	39.945	14.502
<i>Control variables</i>				
GLC	-0.508	-0.355	-0.573	-0.399
LOGMKTC	0.406	1.494	0.392	1.444
LEV	0.932	1.588	0.911	1.554
ROA	-10.359	-2.799***	-9.292	-2.482***
BSIZE	-0.349	-1.979**	-0.345	-1.950**
BCOM	-3.819	-1.554	-3.621	-1.470
DUAL	-0.799	-0.893	-0.853	-0.951
<i>Sector effects</i>				
Consumer	3.481	2.394***	3.599	2.469***
Construction	-1.112	-0.708	-1.103	-0.701
Industrial	-1.109	-0.983	-1.139	-1.025
Plantation	1.682	1.290	1.619	1.239
Properties	-0.015	-0.013	-0.107	-0.095
<i>EXPERIMENTAL VARIABLES</i>				
MBE	-0.093	-3.537***	-0.137	-3.930***
ETHNIC	-0.084	-0.091	-0.664	-0.681
MBE*ETHNIC			0.092	1.913*
Adj.R2		0.725		0.726

Variable definitions: DPP (dividend payout ratio) is dividend per share; GLC is shares held by the 10 largest shareholders as a measure of ownership concentration 1 – GLCs; 0 – Otherwise; LOGMKTC is natural logarithm of Market capitalization of the companies; LEV is Book value of long term debt divided by the book value of total assets; ROA is Earnings before interest and tax divided by total assets; BSIZE is total number of directors on the board of the company; BCOM is the proportion of non-executive directors (NEDs) to total number of directors on the board of the company; DUAL is dichotomous with 1 if the chairman is also the chief executive officer (CEO) of the company and 0 otherwise; Sector effects: Cons – Consumer products; Indus – Industrial products; Plant – Plantation products; Prop – Properties; MBE is market to book value of equity at the end of year t [Shares outstanding \times shares closing price] / total common equity; ETHNIC is 1 for Bumiputera and 0 for otherwise; MBE*ETHNIC is the interaction between MBE and ethnicity; *Significance at 0.10; ** Significance at 0.05; *** Significance at 0.01.

Further analysis

Table 6 reports further analysis conducted for the full sample by segregating the firms into GLC and non-GLC categories. The purpose of the analysis was to determine whether MBE affects dividend payout differently for GLCs and non-GLCs. MBE was found to be negatively and significantly associated with dividend payout for non-GLCs. One reason for the non-significance of the GLC results might be the influence of the ethnicity

dimension, since these firms are dominated by Bumiputera. Finally and interestingly, the results also point to the fact that non-GLCs with smaller boards and lower returns on assets tended to pay lower dividends. This result is consistent with prior studies (i.e., Nordin et al., 2005; Guest, 2008). Table 7 and Diagram 1 present additional robustness checks for the difference in dividend policies between GLCs and non-GLCs.

Table 6. OLS Regression analysis of Malaysian firms for the years 2004 to 2011 (N = 1330)

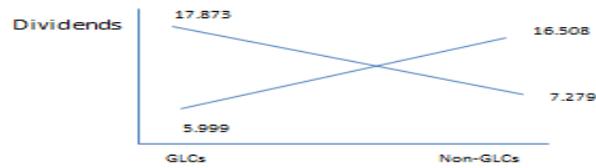
	GLCs (N = 135)		Non-GLCs (N= 1195)	
	Coefficient	t-Values	Coefficient	t-Values
Intercept	35.938	4.585***	40.404	13.895***
<i>Control variables</i>				
LOGMKTC	0.690	0.948	0.362	1.247
LEV	-3.668	-1511	1.244	2.046*
ROA	-3.781	-0.237	-9.467	-2.488***
BSIZE	0.427	0.901	-0.429	-2.319**
BCOM	-5.634	-0.846	-3.545	-1.356
DUAL	-2.836	-1.122	-0.698	-0.738
<i>Sector effects</i>				
Consumer	5.460	1.208	3.148	2.042**
Construction	-3.090	-0.832	0.028	0.016
Industrial	3.863	1.293	-1.478	-1.256
Plantation	2.065	0.594	1.528	1.099
Properties			-0.148	-0.123
<i>EXPERIMENTAL VARIABLES</i>				
MBE	-0.091	-0.686	-0.093	-3.452***
ETHNIC			-0.479	-0.501
Adj R ²		0.708		0.725

Please see Table 5 for variable definitions. *Significance at 0.10; ** Significance at 0.05; *** Significance at 0.01

Table 7. Mean Dividend Payout average of the Top 30 percent of the MBE

Dividend Payout (DPP)	Non-GLCs	GLCs
High Market to Book Equity	7.279	17.873
Low Market to Book Equity	16.508	5.999
t-test (Differences between high and low)	7.606	3.759***

Figure 1. Diagram from of the Mean Dividend Payout average of the Top 30 percent of the MBE



Endogeneity

In order to rule out factors which might have biased the study’s conclusions, two sets of supplementary tests were conducted, namely, endogeneity and an alternative measure for dividend payouts. The potential endogeneity problem between dividend payouts and the investment opportunity set was the primary concern. As the causality effect could run from dividend payouts to the investment opportunity set (i.e., ignored firm characteristics could also jointly determine dividend payouts and the investment opportunity set). Hence, both approaches were followed to mitigate concerns with endogeneity, similar to Ferreira and Laux (2007) and Yu (2008).

We first tested whether the change in firm investment opportunity set (IOS) taken from last year leads to a change in the dividend measure, controlling for other firm characteristics. The overall results in Table 8, column A, corroborate previous findings. For example, the coefficient of change IOS was -0.079 and was statistically significant at the 5% level (t-value = -2.580). Secondly, we also assumed that dividends held (announced) in year one (1) due to investment opportunities were incorporated in the growth for the following year and therefore we used IOS lead-lag1 and obtained similar results. The results in Table 8, column B, show that the coefficient of Lag IOS was -0.119 and statistically significant at any conventional level (t-value = -3.860).

Table 8. Diagnostic Test

	Column A		Column B		Column C		Column D		Column E	
	Coef	t-Values	Coef	t-Values	Coef	t-Values	Coef	t-Values	Coef	t-Values
Intercept	-0.251	-0.11	36.939	12.990***	37.502	13.510***	-1.119	-0.790	4.910	11.730***
<i>Control variables</i>										
GLC	0.425	0.390	-0.290	-0.200	-0.262	-0.190	-0.834	-1.115	1.406	5.810***
RTA	-0.029	-0.400	0.088	1.100	0.096	1.180	-	-	0.007	1.570
CR	-0.236	-1.680*	0.386	2.260**	0.392	2.32***	0.357	9.600***	0.007	1.120
ROCE	0.015	0.630	-0.026	-0.950	-0.026	-0.970	0.253	46.73***	0.000	-0.330
LEV	-0.100	-0.110	-1.792	-2.400***	-1.953	-2.610***	-0.175	-0.580	0.035	0.730
BFSIZE	0.038	0.260	-0.103	-0.520	-0.127	-0.670	0.047	0.500	0.041	1.270
BCOM	2.023	0.980	-1.523	-0.550	-1.529	-0.570	1.418	1.080	1.174	2.590***
DUAL	0.078	0.010	-1.233	-1.200	-1.300	-1.340	1.090	2.34***	0.260	1.620
<i>Sector effects</i>										
Consumer	-1.117	1.195	4.693	2.870***	4.551	2.920***	1.789	2.29***	0.702	2.660***
Construction	0.810	1.318	0.541	0.030	0.929	0.540	-0.348	-0.041	-0.198	-0.660
Trading	-0.150	0.918	1.324	1.090	1.436	1.240	0.613	1.090	0.244	1.260
Plantation	-1.022	1.107	2.795	1.840**	3.096	2.120**	2.021	2.770***	0.065	0.250
Properties	0.186	0.190	2.120	1.620	2.141	1.710*	-0.389	-0.630	0.152	0.700
<i>EXPERIMENTAL VARIABLES</i>										
MBE	-0.079	-2.580***	-0.119	-3.860***	-0.095	-2.830***	0.023	2.310***	0.003	1.660*
ETHNIC	0.528	0.760	-0.688	-0.730	0.041	0.040	0.479	1.080	-0.242	-1.590
Year Control		YES		YES		YES		YES		YES
R ²		0.626		0.310		0.709		0.701		7.000
N		951		1784		1148		1387		1387

Finally, an instrumental variable was used to test for the endogeneity problem. It was argued that if dividends were held and alternatively invested in a firm's projects with positive net present values (NPV), the market would react and share prices would increase reflecting higher firm value. This argument is supported by prior empirical evidence (Friend and Puckett, 1964; Diamond, 1967; Barker et al., 2002; Litzenberger and Ramaswamy, 1979). It is also consistent with the dividend policy and firm growth hypothesis introduced by Miller and Modigliani (1961) which posited that dividends, if not paid, could be reflected in the capital gain. Table 8, column C, uses market capitalisation (MKTC lead lag-1) for the second year as an instrumental variable. Results show a coefficient of -0.095 significant at a 5% level (t-value = -2.830). Further results show that leverage has a negative relationship with dividend payout. This is consistent with the Jensen's FCF hypothesis that suggests that firms pay dividends when they have less growth opportunities. Similarly they will require less external financing which decreases their leverage.

Alternative measures of dividend payouts

Two additional measures of dividend payouts were used namely: return on total assets (ROA), and market capitalisation (LOGMKTC). Miller and Rock (1985) argued that managers, unlike investors, are aware of the deviation of current period earnings from the expected value. Miller and Rock (1985) stated that the announcement of the net dividend perfectly reveals earnings because it is assumed that the market has complete knowledge of the firm's production opportunities and is thus able to perfectly forecast investment. Therefore, ROA was used as an alternative measure. Table 8, column D, show, the coefficient for MBE 0.023 is significant at the 5% level (t-value = 2.310). Another measure used was LOGMKTC and we expected to see a positive relationship between share market capitalisation (share prices) and growth opportunities. Results from Table 8, column E, results show that the coefficient for MBE significant at the 10% level (t-value = 1.660).

Conclusions

The objectives of this paper were to investigate the validity of Jensen's FCF theory in explaining the association between growth opportunities (also known as the investment opportunity set) and dividend policy, and to examine whether the ethnicity of firms moderated the relationship between market to book equity (used as a proxy for growth opportunities) and dividend policy in the Malaysian context. This study was driven by a gap

in the extant literature suggesting that board ethnicity does have an effect on firm dividend policies, especially in emerging economies.

Given the different institutional setting, the application of contracting theory based on Jensen's FCF theory ought to be perceived within an emerging economy perspective. This study has broadened the extant dividend policy literature by providing evidence from an emerging economy with an institutional structure different from that of a developed economy. Importantly, this study has documented that the negative relationship between high growth firms and dividend payout is weaker for Bumiputera firms. The rationale for this is twofold: first, Bumiputera firms are interconnected with the government's New Economy Policy (NEP), and hence tend to pay dividends irrespective of their growth and performance. Second, Bumiputera firms are highly leveraged and politically interconnected and tend to pay dividends irrespective of their performance.

As for this study's limitations, the study was based on the top 300 highest capitalised Malaysian public listed companies, meaning that the study's conclusions might only be valid and applicable to large companies. The research was situated in the positivist paradigm and relied mainly on a quantitative research approach. Future research might consider a follow up study using an interpretative or critical perspective to delve into issues such as concrete measurement of the investment opportunity set and dividend payout.

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AN EMPIRICAL STUDY OF IPO UNDERPRICING: EVIDENCE FROM CHINESE STOCK MARKET

Tianxiang Xu*, Yujie Zhao**

Abstract

Initial public offerings, as one of the most important activities for firms, have raising massive amount of researches. Regarding China, the stock markets are experiencing a massive level of IPO underpricing, which leads to trillions of dollars leaved on the table. This study is conducted for the question why Chinese IPO are so heavily underpriced and the determinants of IPO underpricing, also the possibility of IPO be underpriced in China. We confirm again that Chinese IPOs are heavily underpriced and the average underpricing level is about 110%. Further, Chinese IPO will experience a negative short term return starting from 10 days after listing, and there are significantly different characteristics for state owned IPOs and private IPOs. This study finds that information asymmetry, proportion of state owned share and risk are the mainly determinants of IPO underpricing in China. Additionally, one of the biggest reason that Chinese initial public offering is underpriced so much is because of government participation, since we find that firms with larger proportion of government state owned shares will be more underpriced.

Keywords: IPO, Underpricing, State-Owned, Aftermarket Performance

* Department of Business School, University of Hull, Hull, United Kingdom. HU6 7RX
Email: xutianxiang69@163.com

** Department of Business School, University of Hull, Hull, United Kingdom. HU6 7RX

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1. Introduction

ShaHe Ltd, a reputable wine company established in 19th October 1991, went public on 21st April 1992 with an opening price of ¥ 14 and a closing price of ¥ 25 (underpriced by 78.57%), which leaves value of ¥ 121 million capital on the table for investors. Furthermore, another famous example of Chinese firms underpricing is GeLi electronic, a leader company in electronic industry, went public on 18th of November 1996, with an opening price of ¥ 17.5 and a closing price of ¥ 50 (underpriced by 185.71%). Comparing with ShaHe Ltd, GeLi Electronic is more serials in underpricing, which leaves ¥ 682.5 million worth of capital on the table for investors. This leads to further concern: why these Chinese IPOs are so heavily underpriced? Since the objectives of firm is maximize its capital instant of leaving such a huge amount of money for investors, and Chinese IPO firms show significantly different real life story with the normal firms' objective. An IPO puzzle is existing.

Reviewing IPO literature in Chinese case indicates the high level of IPO underpricing is very common in this country. For instance, Su (2004) reports the underpricing level in China is 128.20 %, and Li (2006) finds similar result that the price

premium in Chinese stock market is 134.62 %, Datar and Mao (1997) even discover the underpricing level is 388.00%. Although IPOs are normally underpriced worldwide (Ritter, 1998), (see as Table 1 for worldwide IPO underpricing phenomenon), however, this situation in other countries is not as noticeable as in China. This highly underpriced phenomenon could raise a series attention: what is happening in Chinese stock market and why these IPOs are underpriced so much.

Regarding China, it has becoming the second largest economy in the world and attracting more and more international capital and investments. A health financial market will benefit for not just Chinese investors, but also the worlds'. Therefore, conducting a research about Chinese stock market and why this country's IPO market is so outstanding and noticeable from worldwide will be crucial and necessarily. Further, current research in Chinese stock market normally use smaller sample size, none of them covers the entire history of Chinese stock market development. Therefore, the results might be misleading and out of date. We aim to provide a comprehensive analysis about why Chinese IPO underpriced so much and the possibility of IPO underpriced.

Table 1. IPO underpricing level of main countries in the world

This table present the IPO underpricing phenomenon for the main counties in the world

Country	Studies conducted by	IPO underpricing level
Australia	Lee, Taylor and Walter	11.9%
Canada	Jog and Srivastava	5.4%
China	Datar and Mao	338.0%
Germany	Ljungqvist	10.9%
India	Krishnamurti and Kumar	35.3%
United Kingdom	Dimson	12.0%
United States	Ibbotson	15.8%

This study discovers a very high level of IPO underpricing, which is 110.33 %, and the results are consistent with other researches have done in Chinese case, such as *Su and Fleisher (1999)*. Another findings is that, IPOs are heavily underpriced and issuers leave large amount of money on the table for investors on the first trading day, firms in China normally experience a negative short term return. Further, we also get supporting evidence to prove that there are several significant difference between state owned IPOs and private IPOs, for instance, private IPOs are normally smaller and older than state owned IPOs. Regarding determinations of IPO underpricing in China, results indicate that larger firms will be less underpriced; older firms are less underpriced; firms with larger time gap will be more underpriced; firms with larger proportion of state owned shares will be more underpriced. The possibility of firms being underpriced analysis also provides similar results. Furthermore, this study shows that there is no difference for the determinations of IPO underpricing between states owned IPOs and private IPOs. More interesting findings is that larger firms will experience less short term return when we focusing on 10 day, 20 day and 30 day period.

2. Literature reviews

Western scholars have begun to explore the reason why IPO is under-priced during the 1970s, and then they have developed a number of related theories and hypotheses about IPO under-pricing. So far there are six theories are widely recognized as following:

“Winner Curse” hypothesis

There has been a lot of research conducted on IPOs, documenting short-run underpricing and long run underperformance. *Capen, Clappand Campbell (1971)* first proposed “Winner Curse” hypothesis, they stated that in any kind of auction, because the value of auction is uncertain, the winner is usually overvalue it, therefore the benefits are regular low or even returns are negative. *Rock (1986)* developed the winner’s Curse model and stated that

underpricing is necessary because of asymmetric information between investors and issuers. He reported that there are two kinds of investors in the market, one is better informed investors and another one is less informed investors. Regarding these better informed investors, since they held more information about value of the firms they are going to invest, they will normally subscript these underpriced IPO shares. While for these investors uninformed, they subscribe new shares of every IPO. If the IPO is overvalued, uninformed investors will receive only a part of the attractive IPOs. Therefore these investors with limited information about IPOs gets unexpected lower return or even a negative income (*Ritter and Welch, 2002*). With negative return and unexpected low profit, the demand of new issuing shares from these uninformed investor will decrease, also the successful chance of IPO issuing will be dramatically cut down. *Ljungqvist (2007)* argues that the only way to make uninformed investors to subscript new issuing shares is give them positive investment returns (or at least break even). From underwriters or issuers perspectives, they cater to the demand of uninformed investors, set a relatively lower price in order to attract uninformed investors, and this will increase the successful chance of issuing.

In fact, Rock’s model has limited empirical proof. *Beatty and Ritter (1986)* developed Rock’s model. They bring in the concept of ex-ante uncertainty to show the level of underpricing increases. Firms with more ex-ante uncertainty, will have higher level of underpricing (*Ritter, 1984*). *Betty and Ritter (1986)* select some variables like issuing scale, firms’ age, retained interest to test the relationship with uncertainty, and the results confirm Rock’s hypothesis. It is now widely accepted in the literature that ex-ante uncertainty is at the heart of the IPO process and that higher uncertainty leads to higher underpricing (*Ljungqvist, 2007*).

The Investment Banker Monopsony-Power Hypothesis

Baron(1982) assumed that Investment Banker as underwriter possess more information on the

demand of security and the true value of firms than issuers, therefore issuers will ask underwriter to evaluate the market information and set price for new issuing shares. However, since the issuers cannot effectively monitor underwriters, these underwriters may underprice new issuing shares to increase the possibility of success issuing. Further, underwriters will allocate these underpriced shares to their own clients (such as funding companies, investment group) to enhance business relationship with them. Therefore, this theory argue that reason of IPO underpricing is mainly decided by underwriters instant of issuers. *Baron's (1982)* model illustrates the more uncertainty on market demand.

Signalling hypothesis

This theory began to 1980s. *Allen and Faulhaber (1989)*, *Grinblatt and Hang(1989)* and *Welch (1989)* interpreted a signalling hypothesis in which they claimed that there are two kinds of firms in investment market -- "high-quality" firms and "low-quality" firms. For investors' perspectives, it is difficult to distinguish these two types of firms, which leads to the asymmetric information produce. The better performance firms under-price their IPOs to credibly separate themselves from relative poor performance firms and then recoup benefits from seasoned equity offerings (SEOs) thereafter. While the "low-quality" firm cannot issue a higher price in the future because of their poor performance, thus they will lose their compensation. *Welch (1989)* model listed the important underlying assumptions, which means that issuing firms have superior information to investors and/or underwriters. These firms are so wealth-constrained that they explicitly consider the possibility of future equity offerings in deciding on the prices of their IPOs. Therefore, firms are low-quality, generally have less under-priced. In the signalling hypothesis, high quality firms will underprice their IPOs on purpose, and recoup these lost during IPO underpricing through issuing SEOs (Seasonal Equity Offers) with higher price and larger total proceeds. Therefore, the signalling hypothesis assumes that a SEO issuing will be followed for these underpriced IPO firms.

In China, the signaling theory may not suitable and the explanation power is also limited. As signaling theory stated, firms will underpriced their IPO in order to promote their future equity share issuing. However, the case in China is that the share price is mainly decided by Chinese government instant of firms themselves. The underpricing phenomenon is forced by political regulations. A statistic example would be that 76.52% of Chinese IPOs are underpriced, but only 29.83% firms did future seasonal equity offering till 2011. These

numbers show how limited explaining power would be for signaling theory in Chinese stock market.

Costly information acquisition hypothesis, Dynamic Information Acquisition Hypothesis et. al. are also used to explain IPO underpricing.

3. Characteristics of the Chinese IPO market

After the economic reforms which began in 1978, these are still several difficulties faced by Chinese government. One of the most noticeable one is lack of capital support for state owned firms. Also government and banks can support certain amount of capital for state owned firms, the bad debt ratio is very high due to the un-experienced management. Therefore, in order to overcome these difficulties and provide fresh capital resource for state owned enterprises, the Chinese stock market was finally established in the early 1990s. The reason of establishment of stock exchange market makes this market is unavoidably from government participation and intervention. One unique character of Chinese IPO market is its "five types" of shares.

(1) Government shares. These shares are not able to be traded in secondary stock market since Chinese government want still keep controls of these firms even after they going public. However, since 2005, Chinese government remove the restrictions that government shares cannot be traded in order to improve the liquid of shares.

(2) Legal entity shares, also called C shares. This kind of shares are held by other state-owned enterprises. Also, Legal entity shares are not allowed to be traded in secondary stock market.

(3) Employee shares, which are held by managers and employees;

(4) Ordinary domestic individual shares, also called A shares. Only Chinese citizens of the PRC can purchase A shares on the Shanghai Securities or the Shenzhen Stock Exchange. This is also the kind of shares this study focus on.

(5) Foreign shares, which include B share, H shares (for these firms listed on Hong Kong stock exchange market), or N share (for these firms listed on the New York stock exchange market).

The unique shareholding system of China shows that government is not willing to give up their political control over enterprises (*Su and Fleisher, 1999*). The retention of equity by the government has two opposing implications for IPO underpricing. In international market, a high percentage of equity retention by original owners indicates a signal that owner's faith in the business, which reduce the investors' uncertainty and marketability (*Keasey and Short, 1992*). In China, domestic investors believe that the state-owned shares because the ex- ante uncertainty will be controlled by government. A high percentage of shares which hold by the state may be equated with

inefficiency and low productivity, so fewer investors buying the new shares on the first day of trading and the IPO underpricing would be lower. This point is also be proved in our study since we find that investors would ask for a higher rate of return for firms with higher proportion of state owned shares. *Beatty and Ritter (1986)* postulate that lower ex-ante uncertainty and relative lower IPO underpricing.

4. Research Methodology

4.1 Data selection

This research collected all the firms listed in Shanghai and Shenzhen Stock exchange market from 1990 till 2010. The data range almost covers the entire history of Chinese stock market development, since China just officially established its stock exchange market in 1990. These Chinese firms listed in Hong Kong (which called H share), New York (which called N share) and B shares (for international investors) are excluded in this study. The data is collected from Data Stream and GTA (Guo Tai An) database which is always used by researches about Chinese stock market, such as *Cheung, Ouyang and Tan (2009)*, *Su and Brookfield (2013)*. The final sample is comprised of 2031 IPOs, with 1305 state owned IPOs and 726 private IPOs. In order to prevent influence from outliers, following *Golubov, Petmezas and Travlos (2012)*, this study changes the top 5% and bottom 5% of each variable into their mean value.

4.2 Descriptive analysis

We discover that the average underpricing level of Chinese IPO from 1990 to 2010 is 110.33% (see as Panel A of Table 2), which is very high level when comparing with other countries, such as Australia (*Lee et al, 1993*, report the average IPO underpricing in Australia is 11.9%), Canada (underpricing level is 10.1% reported by *Jog and Riding, 1987*; and *Jog and Srivastava, 1993*), France (underpricing level is 4.2% reported by *Palliard and Belletante, 1992*; and *Leleux and Muzyka, 1993*), Germany (underpricing level is 10.9% report by *Ljungqvist, 1993*), United Kingdoms (underpricing level is 12.0% reported by *Dimson, 1979*) and United States (underpricing level is 15.3% reported by *Ibbotson et al, 1994*). However, underpricing level in China reported in this study is similar with other researches did by *Su (2004)* which finds the underpricing in China is 128.20% during the period 1994 to 1999, and *Li (2006)* which presents the price premium is 134.62% from 1999 to 2001. Another interesting finding is that IPO return is significantly reduced to 1.98% after 5 days and then become negative return for 10 day, 20 day and 30 day term. This presents a

fact that the Chinese IPO normally experiences a relatively high level of return on IPO day, and then the return dramatically reduced with time going.

The average capitalization raised from IPO market is 428.05 million RMB with a minimal value of 49.5 million RMB and a maximal value of 1990.6 million RMB. Chinese firms experienced an average 0.052 of ROA, which is profitable. Another important information Panel A reported is the proportion of state owned shares, which the average value is 28.24% with a minimal value of 0% and a maximal of 100%. The existed of state-owned shares is one unique characteristics in Chinese stock market. The government want still keep control for the most important firms (such as emerging industry firms, telecommunication firms and logistic firms) after them going public. Some firms ever got 100% state owned shares, for the firms with 100% state owned shares, the shares are subscribed by government or government controlled organizations.

Panel A of table 2 also indicates that average history of firms when going public is 1476.10 days in China. The time gap in China need to be paid attention to since the average value is 115.66 days, which is very high when comparing with other developed countries, such as United States only has an average time gap of 10.63 days. The longer time gap stands for larger risk, and this is also the main reason that why Chinese IPOs are underpriced so much. 29.1% of IPOs going public in China are through top five underwriters and the average sale growth rate before going public is 27.9%.

Panel B and Panel C in Table 2 further divided the sample into two group, Panel B is about statistic descriptive about state owned IPOs and Panel C is about statistic descriptive about private IPOs. The reason for doing this is because many researchers argue that there are differences between state owned IPOs and private IPOs, our results further confirm that there are do existed significantly differences between state owned IPOs and private IPOs. A noticeable finding is that state owned IPOs having an average of 109.52% underpricing and private IPOs having an average of 117.78% underpricing. The return will be significantly reduced with time development for both state owned IPOs and private IPOs, this can be seem from the fact that the initial return is 109.52% (117.78%) at the first day and then the return significantly reduced to 2.34% (1.34%) on the 5 day for state owned IPOs (private IPOs). Average size of state owned IPOs is 511.50 million RMB, this number is larger than private IPOs, which having an average value of 429.12 million RMB. The reason for that is state owned firms can enjoy policy benefit, such as tax, place for manufactory, priority of getting financial support from banks or financial institutions, this makes state owned firms easier to expand their business. Another reason is

that state owned firms are normally manufacturing firms, oil firms, electronic firms, telecommunication firms et all which require large total assets, this is also the reason why the average capitalization size is much bigger for state owned IPOs. However, state owned firms are less

profitable than private firms, this can be seen from the point that the average return on asset (ROA) is 0.049 for state owned IPOs and 0.058 for private IPOs.. Also, private firms having higher sale growth rate (0.337) than state owned enterprises (0.246).

Table 2. Descriptive Analysis

This table provides descriptive results of Chinese IPO between the time periods 1990-2010. The data is collected from Data Stream and GTA database. The data is further divided into three group. In Panel A, it presents the descriptive for the entire sample. Panel B and Panel C further divided

the sample into state-owned IPO, which are these IPOs has government untradeable shares, and private IPOs, which are these IPOs without government shares involved. See appendix for the definition of each variable

Panel A: Descriptive analysis for entire sample					
Variable	Mean	Std. Dev	Min	Max	Obs
Underpricing	110.33%	87.28%	-78%	469%	2031
5 day return	1.98%	41.16%	-92.93%	941.49%	2031
10 day return	-11.99%	52.61%	-94.48%	590.85%	2031
20 day return	-27.40%	50.20%	-98.38%	513.85%	2031
30 day return	-18.61%	53.48%	-98.50%	545.00%	2031
Size (Million)	482.05	370.71	49.5	1990.6	2031
P State share	28.24%	27.59%	0	100%	2031
ROA	0.052	0.040	-0.032	0.558	2031
EXC	0.433	0.496	0	1	2031
History (days)	1476.10	1370.77	199	9604	2031
Time gap(days)	115.66	423.76	6	4046	2031
Underwriter	0.291	0.495	0	1	2031
Growth	0.279	0.198	-0.985	1.89	2031
Panel B: Descriptive for State-owned IPOs					
Variable	Mean	Std. Dev	Min	Max	Obs
Underpricing	109.52%	97.07%	-78%	460%	1305
5 day return	2.34%	45.11%	90.15%	941.49%	1305
10 day return	-12.43%	52.14%	-94.48%	532.66%	1305
20 day return	-27.72%	51.90%	-97.61%	513.85%	1305
30 day return	-19.19%	53.50%	-92.76%	469.94%	1305
Size (Million)	511.50	394.42	49.50	1990.6	1305
ROA	0.049	0.037	-0.032	0.558	1305
EXC	0.527	0.499	0	1	1305
History (days)	1233.11	1241.27	199	9604	1305
Time gap(days)	127.79	435.99	6	3561	1305
Underwriter	0.401	0.158	0	1	1305
Growth	0.246	0.631	-0.985	1.89	1305
Panel C: Descriptive for private owned IPOs					
Variable	Mean	Std. Dev	Min	Max	Obs
Underpricing	117.78%	66.2%	-0.68	469%	726
5 day return	1.34%	33.03%	-92.93%	733.66%	726
10 day return	-11.21%	53.46%	-94.37%	590.85%	726
20 day return	-26.84%	47.06%	-98.38%	253.53%	726
30 day return	-17.59%	53.47%	-98.50%	545.00%	726
Size (Million)	429.12	317.73	49.74	1980.00	726
ROA	0.058	0.046	-0.015	0.373	726
EXC	0.247	0.431	0	1	726
History (days)	1912.88	1480.77	200	7406	726
Time gap(days)	93.87	93.87	8	4046	726
Underwriter	0.094	0.381	0	1	726
Growth	0.337	0.96	-0.938	1.801	726

To sum it up, there are significantly different characteristics between states-owned firms and private firms when going public. This leads further

concern: will the determinants of underpricing also different between states-owned enterprises and private enterprises? Therefore, we conduct further

research on the determination difference of IPO underpricing for state owned IPOs.

4.3 Hypotheses development

Information asymmetry theory argue that the reason firms underprice their initial public offerings is because there is unbalanced information for investors and issuers. In order to compensate uninformed investors, firms will underprice their IPO. This means, the underpricing level will be less if information asymmetry level is low. For these firms with larger total capitalization, they are normally well known and reputable in their belonging industry. Therefore, investors is able to obtain more information about these larger firms, thus, reducing the level of information asymmetry (see as *Su and Fleisher, 1999; Ma and Faff, 2007*). Also, there will be professional institution evaluation of larger, well-known and reputable firms, some institution even predict performance of well-known firms, such as Moody, Fitch, S&P. This further reduce information asymmetry level. Additionally, larger firms are normally less risky, therefore, investors would ask small price premium for IPO shares. This leads to the first hypothesis:

H1: Firms with larger size are less underpricing in the process of initial public offering.

Old firms can provides better chance for public to get information about them than youths, therefore, this can reduce level of information asymmetry significantly (See as *Wu, 2004; Ma, 2007*). Additionally, older firms are expected to have more knowledge and advantage in the industry they operating, thus, less risky for them. *Su and Fleisher (1999)* get a negative relationship between history of firm and IPO underpricing. Following *Wu (2004)* and *Ma (2007)*, our next hypothesis is:

H2: Older firms are less underpricing in the process of initial public offering.

The time gap between IPO announcement and IPO listing means for uncertainty and risk. The larger the time gap, the higher the possibility that market condition will deteriorate and the initial public offering will fail (see as *Ritter, 2003*). *Ma (2007)* uses the time gap as a control variable and gets a positive relationship with IPO underpricing. Therefore, our third hypothesis is:

H3: Firms with larger time gap during initial public offering are more underpriced.

State owned share is one unique situation in Chinese stock market. Majority of state owned

shares are converted from assets owned by government before conducting initial public offerings, which can be represented as retained ownership (see as *Ma, 2007*). *Keasey and Short (1992)* argue that the high proportion of equity retention by original owner can be traded as a sign of high level of ex-ante uncertainty and low marketability of shares. However, a different point stated by *Beatty (1989)* shows that the level of equity retention can also indicates the original owner has faith of the enterprises and future development. Consequently, higher proportion of state-owned share could stands for better development in the future, and the uncertainty of firm will be lower. Following *Beatty (1989)* and *Ma (2007)*, this study argue that higher proportion of state owned shares imply less ex-ante information asymmetry and uncertainty. Therefore, the next hypothesis is:

H4: Firms with higher proportion of state owned shares are less underpriced.

Firms with higher sale growth rate are normally traded as less risky in IPO studies (see as *Hahn, Ligon and Rhodes, 2013*). Investors will ask less price premium for less risky firm in initial public offering since the risk is always associating with return. Therefore, the next hypothesis this study presents is:

H5: Firms with higher ratio of sale growth rate will be less underpriced.

Underwriter, a crucial player in IPO market, is believed to have significantly influence on initial return. As *Chua (2014)* argued, top underwriters have more professional knowledge about firms' value and market condition, therefore, the price of new issuing shares will be more reasonable and closer to true value. Further, investors would concern firms going public through reputable underwriter as less risky, therefore, investors will require less initial return. The final hypothesis this study present is:

H6: Firms going public though top underwriters would experience less initial return.

4.4 Methodology

There are several ways to measure underpricing level, the two ways that most commonly used are IPO underpricing without market adjusted return, and IPO underpricing with market adjusted return. For the first method, it calculated as the opening price minus opening price, and then divided by opening price. This is showed as following:

$$\text{Model (1) IPO underpricing} = \frac{(\text{IPO Closing price} - \text{IPO Opening price})}{\text{IPO Opening price}} * 100\%$$

However, this method does not concern about market influence and has been Criticism by many other scholars, such as *Aggarwal, Leal and*

Hernandes (1993). For the other measure of IPO underpricing, the market adjusted initial return, is showed as:

Model (2) IPO underpricing

$$= \frac{(\text{IPO Closing price} - \text{IPO Open price})}{\text{IPO Opening price}} * \frac{(\text{Closing price of market index on IPO day} - \text{Open price of market index on IPO day})}{\text{Opening price of market index on IPO day}} * 100\%$$

This method is more commonly used comparing with the first method, such as Aggarwal, Leal and Hernandez (1993), Lin and Tian (2012), Su and Brookfield (2013), et al. Following above literatures, this research also used market adjusted method to show IPO underpricing.

Following Su and Fleisher (1999) Cheung, Ouyang and Tan (2009), classical OLS regression will be adopted in this study. The regression model is shown as:

$$\text{IPO underpricing} = a + \beta_1 \text{Ln Size} + \beta_2 P \text{ state share} + \beta_3 \text{ROA} + \beta_4 \text{EXC} + \beta_5 \text{Time Gap} + \beta_6 \text{History} + \beta_7 \text{Time Gap} + \beta_8 \text{Growth} + \varepsilon_i$$

Model (3)

Where a is constant value and ε_i is the error term. IPO underpricing is the level of underpriced for issuing firms, which calculated as $(\text{Closing price} - \text{Opening price}) / \text{Opening Price} * (\text{Market Closing price on IPO day} - \text{Market Opening price on IPO day}) / \text{Market Opening price on IPO day}$; Ln size is Natural logarithm of total IPO proceeds, which calculated as $\text{Ln}(\text{IPO opening price} * \text{Total shares outstanding})$; P state is the Percentage of state-owned shares, which calculated as $\text{total shares holding by government} / \text{total shares outstanding}$; ROA is Return on Asset; EXC is a dummy variable, which takes value of 1 if IPO is listed on Shanghai stock market, otherwise, 0; Ln History is Natural logarithm of the day between firm established and going public; Time gap is the day between IPO announcement day and listing day; Underwriter is Dummy variable, takes value of 1 if firm going public through top 5 underwriters, otherwise, 0; Growth is Past sales growth, which calculated as $(\text{Sales}_1 - \text{Sales}_0) / \text{Sales}_0$.

Further, this study also evaluate the possibility of firm be underpriced. Based on the nature of research question, Logit or Probit analysis is suitable. In our paper, Probit analysis is adopted. The dependent variable will be Underpricedummy, where takes value of 1 if firm underpriced, otherwise, 0. The regression model is similar with model 3, shown as:

$$\text{Underpricingdummy} = a + \beta_1 \text{Ln Size} + \beta_2 P \text{ state share} + \beta_3 \text{ROA} + \beta_4 \text{EXC} + \beta_5 \text{Time Gap} + \beta_6 \text{History} + \beta_7 \text{Time Gap} + \beta_8 \text{Growth} + \varepsilon_i$$

Model (4)

Where a is constant value and ε_i is the error term. Underpricing is a dummy variable, which takes value of 1 if firm underpriced, otherwise, 0;

To the best of my knowledge, this is the very first study conduct analysis about possibility of firm be underpriced, and for this point, it can be concerned as contribution for literature.

Table 3 is about correlation matrix for all variables used in this study. One can see that underpricing is significantly related with our independent variables, such as size, proportion of state owned shares, ROA, history, and time gap. Some significant relationships between certain independent variables used in this research are existed. In order to prevent the multicollinearity issue that may misleading our regression results, this research conduct VIF test to evaluate whether multicollinearity existed in each regression test. Luckily, no VIF value is bigger than 10 (actually, maximal value of VIF in all OLS regression is 8.31).

Table 3. Correlation matrix

This table provides correlation between each variables used in this research. The data is collected from Data stream and GTA database for Chinese firms listing in Shanghai and Shenzhen stock exchange market from 1990 to 2010. *** means the statistic significant level of 1%, ** means the statistic significant level of 5%, and * means the statistic significant level of 10%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Underpricingrate (1)	1.000													
Underpricingdummy (2)	0.302***	1.000												
5 day return (3)	0.001	-0.002	1.000											
10 day return (4)	-0.113***	0.013	0.126***	1.000										
20 day return (5)	-0.012	0.040*	0.090***	0.525***	1.000									
30 day return (6)	-0.129***	-0.014	0.012	0.364***	0.590***	1.000								
Ln Size (7)	-0.414***	-0.155***	0.025	-0.059**	-0.202***	-0.182***	1.000							
P stateshare (8)	-0.099***	-0.188***	0.040*	0.002	-0.010	-0.008	0.102	1.000						
ROA (9)	0.056**	0.001	0.013	-0.027	0.027	-0.029	0.011	-0.086**	1.000					
EXC (10)	-0.736***	-0.227***	0.007	0.072**	-0.023	0.100***	0.384	0.337***	-0.099***	1.000				
Ln history (11)	-0.071**	-0.064**	-0.021	0.020	-0.024	-0.007	-0.045**	-0.313***	-0.103***	-0.165***	1.000			
Time gap (12)	0.049**	0.047**	0.017	-0.005	-0.022	-0.029	0.021	-0.014	-0.027	0.062**	0.111***	1.000		
Underwriter (13)	0.114***	0.320***	0.004	0.012	0.020	0.019	-0.051	-0.058**	0.021	-0.037	-0.056**	0.035	1.000	
Growth (14)	-0.078**	-0.003	0.082	-0.004	-0.002	-0.006	0.043*	-0.043*	0.022	0.067**	-0.025	-0.047**	0.003	1.000

5. Results and Findings

5.1 Determination of IPO underpricing

The regression results in table 4 indicate very significant and interesting results. Underpricing in China is largely decided by total proceeds raised from IPO process. Firms with large proceeds (Lnsize) will experience significantly lower level of underpricing comparing with firms with small proceeds raised in IPO process. This result is same as this study expected and is also consistent with information asymmetry theory (see as Beatty and Ritter, 1986; Rock, 1986; and Zhang, 2012), since large firms are more reputable and better known, therefore, the information asymmetry level will be lower and investors would ask less return for these kind of firms. Further, larger firms are concerned as less risky than small firms, this is also the reason

why firms with larger capitalization are less underpriced. We should accept the first hypothesis. In addition to that, another interesting findings is that firms with larger proportion of state-owned shares will be significantly more underpriced, which is the same with Chen, Firth and Kim (2004) and Chi and Padgett (2005), but different from our hypothesis. This results is surprising and presenting the fact that Chinese investors do concern that firms with government background are more risky and, thus, require higher level of initial return. One noticeable characteristic of state-owned enterprises is un-effective producing and wasting of money on some personal benefit, this may also be the reason that investors ask higher price premium on firms with government background. The results is consistent with Cheung, Ouyang and Tan (2009).

Table 4. The Determinations of IPO underpricing (OLS)

This table provides classical OLS regression analysis results for the determinations of IPO underpricing for all firms listed in Shanghai and Shenzhen Stock Exchange market using data from 1990 to 2010 in China. The data is collected from Data stream and GTA Database. Standard errors in parentheses. *** means the statistic significant level is 1%, ** means the statistic significant level is 5%, and * means the statistic significant level is at 10%.

VARIABLES	
Ln Size	-0.151*** (0.0157)
P state share	0.375*** (0.0478)
ROA	-0.499* (0.299)
EXC	-1.333*** (0.0276)
Ln History	-0.0834*** (0.00688)
Time Gap	0.000239*** (2.82e-05)
Underwriter	0.450*** (0.0845)
Growth	-0.0143 (0.0136)
Constant	3.602*** (0.225)
Observations	2,031
F	430.22***
Adj R-squared	0.629

Furthermore, results from regression analysis present a fact that more profitable firms (ROA) experience less underpricing in their IPO processes. This is because these profitable firms are considered as less risky by both investors and market (see as Chen, Firth and Kim 2004). Cheung et al. (2009)'s results also support this findings. Besides, firms listing in Shanghai stock market are statistically less underpriced than these listing in Shenzhen stock market, the explanation for this result is firms listed in Shenzhen stock market are normally high technology firms and these firms are concerned as unstable and more risky (see as Ti,

2002). Other finding this research would like to report is that history has a significantly negative relationship with level of underpricing, the older the firm, the less underpriced will be. This results is also consistent with information asymmetry theory that older firms are better known, and investors can get more information about older firms to reduce level of information asymmetry, and leads to lower level of underpricing (see as Hahn, Ligon and Rhodes, 2013). Furthermore, Time gap also can influences IPO underpricing significantly. Time gap is related with risk level as uncertainty increasing with the waiting time becoming longer (see as Yu

and Tse, 2006). Therefore, and investors would require higher price premium which leads to higher IPO underpricing level. Luckily, the results support conjunction as regression results present a significant positive relationship between time gap and IPO underpricing. Also, we should accept the hypothesis 3. Finally, the results indicate that firm going public through reputable underwriters would experience more underpricing, this finding is the same with Hanley (1993). The F value is significantly at 1% level, and Adjusted R squared is 0.629, which shows the model is jointly significant, and the explanation power is acceptable.

5.2 The Determinations of IPO underpricing for State owned IPOs and Private IPOs

Since there are still debates about state-owned IPOs and private IPOs in academic area (see as Chen, Firth and Kim 2004), researchers argue that the characteristics of state owned IPOs and private IPOs are significantly different. For example, state owned IPOs are normally larger, which means they are less risky than private IPOs. Therefore, this study conducts analysis for the determinants of IPO underpricing for state owned IPOs and private IPOs separately to evaluate whether there is any difference for this two groups. The Table below (Table 5) shows the determinants of IPO underpricing with further classification of state owned IPOs and private IPOs. The results are

similar with before when this study conduct analysis for entire sample. This table proves that total proceeds (Ln Size) is negatively related with IPO underpricing level for both models (model 1 and model 2), which means that more total proceeds firms raised from IPO, the less price premium firms will experience (both state-owned IPOs and private IPOs). Interestingly, the influence from ROA disappear when we conduct analysis for state-owned IPOs and private IPOs (although its significantly level is only 90% in Table 4). The results for variables "EXC" and "Ln History" stay the same with Table 4 which presents a statistic significant negative relationship with IPO underpricing level, which indicates that firms listed on Shanghai stock exchange market will be less underpriced, and older firms will experience smaller price premium no matter the firm is state owned or private owned. "Time Gap" and "Underwriter" shows positive relationship with dependent variable for model 1 and model 2 in Table 5, this result is the same as we expected. Finally, F value and Adj R square value indicate a good fitted and acceptable explaining power of the model. To sum up, although there is debate between state-owned IPOs and private IPOs, there are seems no differences for the determinants of IPO underpricing for the two groups. Further, information asymmetry theory and risk level is associated with level of underpriced are confirmed again here.

Table 5. The Determinations of IPO underpricing for State owned IPOs and Private IPOs (OLS)

This table provides classical OLS regression analysis results for the determinations of IPO underpricing for all firms listed in Shanghai and Shenzhen Stock Exchange market using data from 1990 to 2010 in China. The data is collected from Data stream and GTA Database. Standard errors in parentheses. Model 1 is about firms with state owned untradeable share; Model 2 is about private firms' IPO. *** means the statistic significant level is 1%, ** means the statistic significant level is 5%, and * means the statistic significant level is at 10%.

VARIABLES	State Owned IPOs (1)	Private IPOs (2)
Ln Size	-0.148*** (0.0191)	-0.131*** (0.0248)
ROA	-0.250 (0.410)	-0.385 (0.388)
EXC	-1.480*** (0.0327)	-1.041*** (0.0451)
Ln History	-0.0684*** (0.00779)	-0.108*** (0.0123)
Time Gap	0.000179*** (3.44e-05)	0.000257*** (4.44e-05)
Underwriter	0.435*** (0.0995)	0.302** (0.143)
Growth	-0.0263 (0.0236)	-0.0112 (0.0147)
Constant	3.785*** (0.273)	3.496*** (0.345)
Observations	1,305	726
F	431.72 ***	103.45 ***
Adj R-squared	0.698	0.469

5.3 The possibility of IPO underpricing

Being different from Table 4 and Table 5 using OLS regression analyse the level of IPO underpricing, Table 6 conducts a more robustness analysis and applies Probit analysis to evaluate the possibility of firm being underpricing for Chinese firms. This is also an important contribution for literature since there is no research conducted research about the possibility of IPO underpricing before. The dependent variable is Underpricing Dummy, which takes value of 1 if firm underpriced, otherwise, 0. Table 6 shows that firms with larger total proceeds from IPOs are less likely underpriced, and the statistic level is very significant, which is at 1%. This result is consistent with information asymmetry theory as well, since firm with larger proceeds are normally well known and less risk, and investors are easier to obtain information about larger firms, therefore, the

possibility of larger firm being underpriced will be reduced significantly. The most concerned variable “P state shares” shows a quite interesting and concerned result, firms with higher proportion of state owned shares are less like to be underpriced. Furthermore, older firms are less likely to be underpriced, which is the same as this study expected at the beginning since public has more chances and sources to obtain information about older firms and this will reduce level of information asymmetry significantly, thus, less likely to be underpriced for them. The sign of “Time gap” prove the conjunction once again that time gap is related with risk and uncertainty, firms with longer time gap are more likely to be underpriced. Finally, Table 6 shows that firms going public through top five underwriters are more likely to be underpriced. Pseudo R2 proves a good fit of the model used in Table 6.

Table 6. The possibility of IPO underpricing (Probit)

This table provides Probit regression analysis results for possibility of IPO underpricing for all firms listed in Shanghai and Shenzhen Stock Exchange market using data from 1990 to 2010 in China. The data is collected from Data stream and GTA Database. Standard errors in parentheses. *** means the statistic significant level is 1%, ** means the statistic significant level is 5%, and * means the statistic significant level is at 10%.

VARIABLES	
Ln Size	-0.437***
	(0.0864)
P state share	-1.789***
	(0.245)
ROA	-1.206
	(1.385)
EXC	Omitted
Ln History	-0.163***
	(0.0519)
Time Gap	0.0134***
	(0.00465)
Underwriter	1.485***
	(0.243)
Growth	-0.0225
	(0.0649)
Constant	7.607***
	(1.233)
Observations	2,031
LR chi2	211.16
Pseudo R2	0.322

5.4. Short term performance of IPOs

In Table 7, this study conducts analysis for IPO short term performance in China with classification of 5 day (model 1), 10 day (model 2), 20 day (model 3) and 30 day return (model 4). The results indicate that firms with higher proportion of state owned shares will experience higher five day return at 10% significant level. In addition to that, another factor can influence firms' five day short term performance would be the growth, and firm with higher growth rate would enjoy higher five day return, this is because firms with higher sale growth

are normally more profitable, therefore, higher short term return. Other variables seem have no influence on dependent variable in model 1. When this paper focusing on 10 day short term performance, model 2 indicates that firms raised larger proceeds during IPOs will have less 10 day short term return. This situation remain the same when we extend the time period for 20 days (model 3) and 30 days (model 4) and the result is consistent with *Chi and Padgett (2005)* who conduct analysis about IPO short term performance and discover a negative relationship between total capitalization and short term return. Another common factor can

influence both short term returns for 10 day, 20 day and 30 day would be *EXC*, model 2, model 3 and model 3 all shows that firms listed in Shanghai stock market experience higher return. In model 4, this study finds that firms with higher proportion of state owned shares will have less short term return (the same result with *Chi and Padgett, 2005*), which is opposite with model 1, and this result is quite interesting since the relationship between

proportion of state owned and short term performance is significantly positive when we focusing on 5 day return and changing to significantly negative when this study concentrate on 30 day return. Other noticeable finding needs to report in model 4 is that firm with long time gap during IPO processes are less likely to have higher 30 day short term return.

Table 7. Short term performance of IPOs (OLS)

This table provides classical OLS regression analysis results for short term performance for all firms listed in Shanghai and Shenzhen Stock Exchange market using data from 1990 to 2010 in China. Model 1 is for 5 day short term performance, model 2 is for 10 day short term performance, model 3 is for 20 day short term performance, and model 4 is for 30 day short term performance. The data is collected from Data stream and GTA Database. Standard errors in parentheses. *** means the statistic significant level is 1%, ** means the statistic significant level is 5%, and * means the statistic significant level is at 10%.

	5 day Short term return	10 day Short term return	20 day Short term return	30 day Short term return
VARIABLES	(1)	(2)	(3)	(4)
Ln Size	0.0129 (0.0125)	-0.0665*** (0.0159)	-0.142*** (0.0149)	-0.172*** (0.0157)
P state share	0.0735* (0.0376)	-0.0399 (0.0479)	-0.0235 (0.0450)	-0.109** (0.0473)
ROA	0.119 (0.233)	-0.172 (0.296)	0.399 (0.278)	-0.130 (0.292)
EXC	-0.0222 (0.0217)	0.132*** (0.0277)	0.0718*** (0.0260)	0.241*** (0.0273)
Ln History	-0.00169 (0.00544)	0.00920 (0.00693)	-0.00517 (0.00651)	0.00211 (0.00684)
Time Gap	2.32e-05 (2.20e-05)	-1.88e-05 (2.81e-05)	-2.20e-05 (2.64e-05)	-5.01e-05* (2.77e-05)
Underwriter	0.0135 (0.0668)	0.0479 (0.0851)	0.0362 (0.0800)	0.0508 (0.0840)
Growth	0.0396*** (0.0105)	-0.00501 (0.0134)	0.000190 (0.0126)	-0.00827 (0.0132)
Constant	-0.178 (0.177)	0.590*** (0.226)	1.496*** (0.212)	1.893*** (0.223)
Observations	2,031	2,031	2,031	2,031
F	2.94**	14.03***	21.94***	38.96***
Adj R-squared	0.010	0.016	0.047	0.072

6. Conclusion

6.1. Findings

This study conducts analysis about IPO underpricing in Chinese stock market and presents the average underpricing is 110.33%, which is really high when comparing with other developed countries in the world. The results is consistent with other studies about Chinese case, such as *Su and Fleisher (2007)*. Additionally, the time gap between IPO announcement and IPO listing days is very long. Longer time gap means higher level of uncertainty, this can be explained as one main reason that why Chinese initial public offering is underpriced so much. Further, we report that there are significantly different between state owned IPOs and private IPOs, for instance, state owned IPOs are normally have larger size, and they are normally youth.

Further, this study prove that firms with larger total capitalization will experience less underpricing in Chinese stock market, which is the same with our expectation and the information asymmetry theory. Additionally, proportion of state owned share has negative relationship with IPO underpricing. This present the fact that investors does not concern government participation can reduce the risk level, also the higher proportion of original ownership does not necessarily stands for faith in business operation and future development. Regarding the time gap, the results is the same with our expected that larger time gap will increase uncertainly and leads to higher underpricing level. Also, the older firms will enjoy less price premium in IPO market. Profitable firms, as we expected, are less underpriced.

Although there are many debates about the difference between state owned IPOs and private IPOs, and how government may benefit from these

state owned firms through initial public offering, this study did not find any evidence that there are any difference in the determinations of IPO underpricing. Further, we proves that although IPOs experiencing a dramatically level of initial return, however, the return will be significantly reduced with time development and became negative.

Additionally, this research also evaluates the possibility of firm be underpriced, and there are several noticeable findings. We report that firms with larger total proceeds are less likely to be underpriced. Also, the proportion of state owned shares can influence the possibility of underpricing significantly. Firms with higher proportion of state owned shares are less likely to be underpriced. One possible explanation would be that government does not allow leave too much money on the table because that will leads to loss of capital sources. Further, old firms are less likely to be underpriced, which is consistent with information asymmetry theory. Other finds are firms going public through top underwriters have higher possibility to be underpriced.

Regarding IPO short term performance, we report that proportion of state owned shares and growth are the only two factors can influence 5 day short term return. When this study extend the time period to 10 day, 20 day and 30 day return, one noticeable finding is that firms with larger size will be have less short term return. This effect is opposite with the one when we just focusing on IPO day. Additionally, firms listed in Shanghai stock exchange market will experience higher short term return (such as 10 day, 20 day and 30 day). Overall, majority of hypotheses are confirmed, and there are several noticeable findings in this study.

6.2 Suggestions and Application of results

The findings in this research have important means in real life. First of all, investors should know that even underpricing in initial public offering are commonly existed, but investing in IPO shares are not easy money since the return will be dramatically reduced with time development and return will become negative starting after 10 days of initial public offering. Secondly, government should know that investors do not concern government participation as low risk, instant, investors will ask higher price premium for IPOs with higher proportion of state owned shares. Therefore, government should reduce the level of intervention and participation in stock market. What government need to do is just effectively supervising stock market activities. Thirdly, firms can go for reputable underwriters when they want maximize total proceeds from IPO activities. Since reputable underwriters have more knowledge of

what is true value of the firm and how market would react for new shares issuing. Fourthly, investors requiring higher level of return could choose smaller firms since there are more risky but will have higher level of price premium. Finally, government should be more effective in reducing time gap between IPO announcement day and IPO listing day, because longer time gap leads massive loss in capital market for issuers.

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