CORPORATE OWNERSHIP & CONTROL

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EDITORIAL

Dear readers!

The recent issue of the journal Corporate Ownership and Control pays attention to issues of corporate ownership and control and board practices. Control rights, company performance, corporate governance in Australia and Brazil are also under the scope of researches. More detailed issues are given below.

H. C. Martins, C. A. Gonçalves, J. A. S Neto, M. A. Gonçalves, R. M. Muniz analyzes the constitution of the directors boards, based on their attributes, and the impact of this configuration on the roles and responsibilities of the board members in Brazilian Family Businesses. *BEN MOUSSA Fatma, CHICHTI Jameleddine* tests the efficiency of the ownership structure and the debt policy as mechanism of resolution of agency conflicts between shareholders and managers. *Harjinder Singh, Rick Newby, Inderpal Singh* states that prior research has linked audit quality with large audit firms. Consequently, a dichotomous variable, Big N/non-Big N has traditionally proxied for audit quality. Applying a different measure of audit quality than audit fee, their paper investigates whether a single dummy variable for Big N is an appropriate proxy for audit quality in explaining differences in the existence of clients' internal audit (IA) function. *Wan-Ying Lin* examines the impact of firm's listing status on the relationship between corporate governance and cost of bank loans. *Karima Dhaouadi* seeks to understand how the firm's ownership structure and the board of directors' composition influence the structural capital. The latter is apprehended by two main levers: innovation ("R&D") and firm's reputation. *Rodrigo Miguel de Oliveira, Ricardo Pereira Câmara Leal, Vinicio de Souza e Almeida* did not find any consistent evidence that the presence of the largest Brazilian pension funds as relevant shareholders is associated to higher corporate governance scores by public Brazilian companies.

HU Dan, ZHENG Haiyan investigates the relationship between control rights, cash flow rights, and firm performance across a sample of 276 China's private listed companies (CPC) from 2003 to 2008. The main purpose of the study of *Ioraver Nyenger Tsegba* and *John Iorpenda Sar* is to ascertain whether alternative corporate ownership and control structures give rise to significant differential firm performance in light of Nigeria's conflicting polices regarding the ownership structure of the state owned enterprises.

Tasadduq Imam, Abdullahi Ahmed, Kevin Tickle tries to relate company performance (in terms of different measures) to corporate governance characteristics (like board size, internal or external majority governance) for the publicly listed information technology (IT) companies in Australia. A sample of 55 such companies are considered. *Neil Hartnett* in the study considers the association between corporate governance attributes and IPO return behaviour in the Australian share market. *Ananda Samudhram, Jothee Sinnakkannu* introduces an SME development model, based on a case study of the Malaysian SME enabling environment. The model proposes a structure of institutions that specifically addresses the different challenges faced by SMEs (including a lack of technological know-how, market and trade intelligence, advice on quality and capacity enhancements and financing), encased within supporting regulatory policies and synergistically linked with small scale accounting and consulting firms.

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

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SECTION 2. CORPORATE CONTROL

This paper investigates the relationship between control rights, cash flow rights, and firm performance across a sample of 276 China's private listed companies (CPC) from 2003 to 2008. This paper finds that the performance of firms with pyramid ownership structures (POS) is lower than that of firms with direct controlling ownership structures (DOS). The separation of control rights and cash flow rights, which is the main characteristic of POS, is negatively related to the firm performance. Furthermore, in order to reduce the negative influence of control rights, this paper proposes the following countermeasures: cash flow rights should be increased because it has a positive effect on the firm performance; the supervisory powers of shareholders meeting (SM) should be strengthened because it helps improve firm performance and overrule invalid decisions taken by independent directors in China. This is proved by the findings that show a positive correlation between the attendance rate at shareholders' meetings and firm performance; moreover, there is no positive relationship between independent directors and firm performance.

The main purpose of this study is to ascertain whether alternative corporate ownership and control structures give rise to significant differential firm performance in light of Nigeria's conflicting polices regarding the ownership structure of the state owned enterprises. The data obtained from a sample of 73 companies listed on the Nigerian Stock Exchange is analyzed through the Wilcoxon ranks tests for two independent samples. The evidence obtained suggests that firms with foreign ownership and control outperform their indigenous counterparts. However, firms controlled by single shareholders do not perform better than those controlled by multiple shareholders. The study recommends that foreign ownership and control of Nigerian firms be encouraged due to their affirmative features, while single shareholder control of firms, embedded in the core investor mode of ownership, be reconsidered.

SECTION 3. CORPORATE GOVERNANCE IN AUSTRALIA

The objective of this research is to relate company performance (in terms of different measures) to corporate governance characteristics (like board size, internal or external majority governance) for the publicly listed information technology (IT) companies in Australia. A sample of 55 such companies are considered. Results reveal that, contrary to the popular belief in respect to positive influence of external board members, performance of the IT companies tend to worse with higher degree of board independence. We attribute the characteristics of these outcomes to the dynamic properties of the IT industrial sector in Australia. Linear regression models relating the performance measures to board characteristics along with other financial information have also been developed. The number of senior management members has been identified as the key board characteristic factor in these models, implying the importance of major internal control over highly independent board for the publicly listed Australian IT companies.

РАЗДЕЛ 1
НАУЧНЫЕ ИССЛЕДОВАНИЯ И КОНЦЕПЦИИ

SECTION 1
ACADEMIC INVESTIGATIONS & CONCEPTS

STRATEGIC CORPORATE GOVERNANCE IN FAMILY BUSINESS: A STUDY ON THE BOARD OF DIRECTORS' ROLES AND RESPONSIBILITIES

Martins H. C.*, Gonçalves C. A.**, Neto J. A. S, Gonçalves M. A.****, Muniz R. M.********

Abstract

The goal of this article is to analyze the constitution of the directors boards, based on their attributes, and the impact of this configuration on the roles and responsibilities of the board members in Brazilian Family Businesses. A research of a qualitative nature was carried out in 10 big family companies in Brazil. The results found point to the strategic roles as being the most relevant, but as a practical activity focused on the role of control. The Board has been more active at some moments, but is inactive at others, especially, when the concentration of capital is greater in some companies than in others.

Keywords: Corporate Governance, Board of Directors, Roles and Responsibilities

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1. Introduction

The strategic practices and definitions of the system of corporate governance are considered at present of great importance for organizations, due to the size and complexity of their structures and the diverse forms in which they are found: in networks, alliances, partnerships, mergers and acquisitions (Turnbull, 1997; Monks & Minow, 1995; Andrade & Rossetti, 2006; Silveira & Barros, 2008).

By corporate governance we understand the system, principles and processes, by which companies are controlled and administered, and that place the Board of Directors as the central reference of the system. In addition to the Board of Directors, the shareholders (majority and minority); the CEO (Chief Executive Officer); the independent auditors and the stakeholders - associations, creditors, trades unions, suppliers and public opinion that possess influence in the company management are part of the corporate governance structure (Brazilian Institute of Corporate Governance [IBGC],2009).

An efficient corporate governance structure proportions an important referential for organizations for the rapid responses of the Board of Directors and the executive directors in those situations that may affect the investments made by the shareholders, both majority, and minority.

Corporate Governance becomes an increasingly important factor in companies gaining access to foreign capital at competitive cost. It becomes, also, crucial in the private sector, faced with economic growth and the channelling of savings towards new investments. In addition, the recent ethical and financial scandals of American corporations, such as Enron, the Worldcom and the Imclone Systems, Parmalat, among others, have placed in check the roles of the Boards of Directors, company accounting and the external audits, motivating discussions on corporate governance in companies and its importance in the construction of the new international financial framework.

The corporate governance movement arose, at first, because of the privatizations, mergers and acquisitions and of the international dependence of the investment funds. But the importance of corporate governance really became evident with the professionalization of family companies, as well as the dismissal of chairmen of large American corporations such as General Motors, IBM and Kodak, in the 1990s.

In Brazil, following on the economic and social reforms which were started at the beginning of the 1990s by the Federal Government, provoking changes in the national context – such as the removal of market restrictions and structural transformations in Brazil - foreign institutional investors started to apply more in Brazil, and a movement of change in company share control and in the professionalization of Brazilian companies and their governance structures became evident.

In the 1960s and 1970s, the people who had the power of strategic decision-making in Brazilian organizations were the executive directors. Regarding the Board it was merely required to meet to fulfill legal requirements and confirm the decisions taken by the executive directors. The decade of the 1980s was impacted by the reflection of the big alterations in the Brazilian economy, such as the removal of trade restrictions, which, in the 1990s, led to a good part of the structural transformations in the country's economy, in which groups of companies suffered and have continued to suffer significant transformations in terms of their share control structure. It was at this time, also, that economic transactions started to become associated with governance structures and institutions (IBGC, 2009; Andrade & Rossetti, 2006; Martins, 2005).

The Boards of Directors then started to exercise a new strategic role in the face of the internationalized markets, to maximize gain for the shareholders and arbitrate conflicts existing among those that were related to the organization such as shareholders, external auditors, administrators and the statutory audit committee (Martins, Gonçalves & Pardini, 2010). The question that guides this research is: how the configuration of the boards of directors impact their performance in family businesses in terms of their roles and responsibilities?

Accordingly, the objective of this work is to analyze the constitution of the boards of directors, based on their attributes, and the impact of this configuration on the roles and responsibilities of the members of boards in Brazilian Family Business. To this end, research of a qualitative nature was carried out in 10 big family companies of the state of Minas Gerais, through the perception of the board members and/or executive directors that, in the organization, interrelate, influence or condition the board's attributes, roles and responsibilities.

This research becomes important for the (re) configuration of the boards, through the choice of members, who satisfy a certain profile, so that the board, as a whole, can have a better performance in strategic or control or institutional roles, in accordance with the prerogatives of the shareholders of the family business.

2. Corporate Governance and the Board of Directors

The central characteristic of the present corporate governance structure is the combination of the power of control of the Board of Directors, with the power to remove directors, as also the right of deciding certain strategic questions in the general body of the shareholders.

One of the functions of the systems of corporate governance is that of resolving conflicts between the various agents who are interested parties in the company (suppliers, staff and customers) and even among society in general (Neto & Famá, 2003). Rabelo (1999), however, raises the possibility that closer relationships among the investors in the model of internal control would encourage a more active monitoring. Strictly speaking, the Board of Directors "should not only choose the indicators and control the data bank, but also remain on the alert for the various signs of debility" (Donaldson, 2001, p. 74).

The Board of Directors and the group of directors, including the CEO, make up the most discussed CG units in the literature, principally because of the direct performance of these two units in the definition of the company's policy, strategies and management. The attributions of the Board of Directors in companies, in a general way and in family companies in particular, can be defined from the theoretical point of view and these activities are well accepted by the majority of specialists in the subject (Conger et al, 2001; Hamilton, 2001; Lima, Araújo & Amaral, 2008). The main responsibilities of the Board of Directors are development of the business strategy; monitoring the implementation of initiatives related to the current strategy; be certain that the organization has processable information,

control and audit systems available, capable of informing the Board itself and senior management if the company is fulfilling its business objectives; ensure that the company observes the standards imposed by risk management.

In Brazil the Law of Corporations (S.A.) nº 6.404, of 15 December 1976, established the parameters for the activities of business corporations and the competencies of the Board of Directors as a deliberative level of open corporations. On the other hand, both the role of the Boards of Directors, and the principle company executives, has been reproduced from the Codes of Best Practices (CBP) of various countries in the world. In Brazil, the CBP was developed by the Brazilian Institute of Corporate Governance (IBGC) and described the main competencies of the Board of Directors (IBGC, 2009).

But, a company possesses a strengthened Board when its members originate from outside the company; when it is sufficiently small and, because of this, can act as a cohesive group; when it is represented by sector leaders; when its members communicate freely with each other and receive adequate information that helps them to understand the company in comparison with their principle competitors (Lorsch, 2001; Silveira & Barros, 2008; Andrade & Rossetti, 2006).

Different board structures can be found in the governance models of various countries in the world, resulting in different degrees and types of responsibilities (Demb & Neubauer, 1992):

a) Structure in levels: found principally in Germany, the Low Countries and Finland. The Board possesses two levels: a Board of Directors – consisting usually of the CEO and senior company managers and; a Supervisory Board, consisting of personnel from outside the company. The great difference of countries utilizing one or two-layer boards concerns the specification of responsibilities. The double structure of boards clearly presupposes the separation of the Supervisor from the functions of manager.

b) Executive and non-executive Membership. England and the United States use the Board model that brings together internal and external executives to the company in the same group - in different proportions - as a provision to determine the nature of the interactions with the managers.

c) Work participation: Germany and the Netherlands have established systems that bring the workforce onto the Board, but in different ways. Germany created the model of the Supervisor in which half of the members represent the shareholders and the other half are workers representatives. The Netherlands created the work councillors, a system that does not require the systematic involvement on the Board, but calls for the work members to approve certain key decisions.

d) Committees: the simplest type of board uses the model of the committee. The use of committee is related to the role of monitoring, selection of strategies and finances and has been used, principally, by some companies in Canada and other smaller ones, in the United States.

In functional terms, that is, of the effective performance within the company, the Board of Directors was grouped into four categories by the NACD - The National Association of Corporate Directors- (The Advisory Board Minutes of The National Association of Corporate Directors Meeting, AMA Headquarters, New York, April, 5, 1981) (Vance, 1983):

- **Minimum Board:** that meets only to satisfy the Articles of Association of the organization;
- **Cosmetic Board:** serves as a rubber stamp for management prerogatives;
- **Supervisory Board:** that has the primary function of reviewing programmes, policies, reports and performance of the managers;
- **Decision-making Board:** are involved in the definitions of the corporate policies, determination of the management objectives and authorization for their implementation.

From the characteristics and models of boards of directors three archetypes of boards' roles were defined based on their activities in companies: 1) The Watchdog Board: in this role the Board serves as the monitor of the processes and corporate activities in all the spheres. The term suggests a passive role. The role of watchdog implies a post-facto evaluation, primarily in terms of the success of the corporation in conducting business; 2) the Board of Trustees: this role suggests that the Board serves as guardian of the property. The guardian is responsible for ensuring that the corporate activities improve, for avoiding exhaustion and evaluating company employees. It implies that the role of trustee is to be responsible for the evolution of what is defined as business by the corporation, as well as seeing that this has been well conducted. 3) Pilot Board: the pilot has the active role of conducting the business. The Pilot Board is active, has a large amount of information and has the role of taking the decisions that the other archetypes leave to the manager (Demb & Neubauer, 1992; Martins 2005; Alvares, Giacometti & Gusso, 2008).

Of all these configurations, characteristics and archetypes, the question remains of who it is that has the final responsibility for the corporation and who is genuinely responsible for the company. From the legal point of view, the Board of Directors in many countries such as the USA and UK has the responsibility for the company and, because of this, the last source of power. In other countries, such as Brazil, it is the company chairman who has the authority and the responsibility for the decisions taken. In reality, it is in practice and not in the law that the problem increases. Managers have the

expertise, infrastructure and time to make operational company activities and control them. But the paradox is how to enable both bodies of the system of governance to be able to retain effective control without diminishing the initiative and motivation of the other. The paradox creates tensions that are visible in some companies, causing friction at the top of the company and considerable loss of energy. In the context of the governance accumulated power starts to coexist with the ability to exercise authority of different types and at different moments (Demb & Neubauer, 1992; Martins 2005; Alvares et al, 2008; Andrade & Rossetti, 2006; Hamilton, 2001).

3. Attributes, Roles and Responsibilities of the Board of Directors

The roles and behavioural patterns of the company CG result from the manner in which the strategic decisions are analyzed, taken, implemented and rated by the executive directors and by the Boards of Directors (Pound, 2001; Martins 2005; Martins et al, 2010; Alvares et al, 2008; Andrade & Rossetti, 2006). Accordingly, the function of the executive is to facilitate "the synthesis of contradictory forces in concrete action, to reconcile forces, instincts, interests, positions and conflicting ideas" (Barnard, 1971, p.51) and that of the Board of Directors is to encourage, counsel, and evaluate the actions proposed and executed by the organization (Bowen, 1994; Andrade & Rossetti, 2006).

Specifically, the Boards of Directors possess three key roles: strategic - responsibilities for monitoring and influencing strategy; control - maintaining control of the manager and of company resources; service or institutional - advising the managers and providing an institutional face for the organization in its community (Mintzberg, 1983; Zahra & Pearce, 1989; Johnson, Daily & Ellstrand, 1996; Forbes, 1999; Stiles & Taylor, 2001).

The literature points out four principle attributes that affect the roles and performance of boards of directors and that contribute indirectly to company performance. They are: composition, characteristics, structure and process (Zahra & Pearce, 1989; Pearce & Zahra, 1992). **Composition** refers specifically to the size of, and the types of members that comprise the company Board of Directors (Pfeffer, 1972; Castaldi & Wortman, 1984). Size refers to the number of members and type to the recognized dichotomy existing between members internal to the organization (that possess some executive role in the company) or external to it (that do not possess an executive role, nor company shares or shares of subsidiaries and have not worked directly with the principal executive in other companies) (Cochran, Wood & Jones, 1985). Another distinction related to the type of the Board refers to the participation and representation of ethnic minorities and women as members. According to Zahra and Pearce (1989), this configuration represents amply the values of the whole of society and not only that of the shareholders. The **characteristics** of the Board refer to the experience and background of the members, independence for work on the boards, possessing or not company shares and other variables that influence the interests and the performance of the members in their activities and tasks (Cochran et al, 1985).

The attribute **structure** refers to the organization of the Board, division of the work, formation of committees and efficiency of their operations. Specifically these attributes materialize in the number and types of committee that the boards form in the companies, how the flow of information occurs between the members, committee, executive directors, shareholders and environment and, principally, how the leadership of the Board is configured (Zahra & Pearce, 1989; Vance, 1983; Pearce & Zahra, 1992).

Finally, **process** refers principally to the decision-making activities, considering five elements: the frequency and the duration of the meetings; the interface of the Board with the principal company executive; the level of consensus among the members; formalities of the procedures and the extent to which the Board is involved in its self evaluation (Vance, 1983; Zahra & Pearce, 1989).

The theoretical perspectives that deal with the roles of the Board relate the principal attributes to these roles, strengthening some to the detriment of others, or emphasizing all or none of them. In a general way, it can be affirmed that a strategic role of the Board is not to formulate strategy, but to help in the context of strategy, which can be done in four principle ways: 1) via definition and review of corporate activities - which is the business of the company; 2) through the function of gatekeeping - evaluating and revising the strategic proposals, and frequently changing them by means of comments and advice; 3) via building of trust - encouraging managers with good ideas for carrying out the strategic objective and 4) through the selection of directors - the result through which signals are sent to the rest of the organization regarding the type of person who is succeeding to the previous one and the standards that the other has to attain (Demb & Neubauer, 1992).

But, in practice, the involvement of the Board of Directors in company strategy is difficult to evaluate. Research has shown a greater involvement in the initial phases of preparation and in the evaluation of the strategy (Mcnulty & Pettigrew, 1999). Even in the phases of preparation and evaluation there are levels of involvement of the Board (Zahra & Pearce, 1989). In the

preparation phase either the Board is involved with the direct formulation of strategy together with the manager or merely ratifies the proposals of the executive. In the evaluation phase on the other hand, the boards can be classified as effective evaluators of the proposals of allocation of managers' resources or as simple accepters of management operations. Empirical research therefore classifies the boards as passive or active, in relation to the strategic definitions of the organization (Stiles & Taylor, 2001). In the case of the passive type, the Board merely contributes to compliance with the legislation, working as a legal fiction, ratifying the decisions and actions of the manager. The active type however is involved effectively in the problems of the organization, participating in the development of specific strategies and of final decision making (Stiles & Taylor, 2001).

As regards control, it is correct to affirm that, in a strict sense, this role designates the structural relationship in which private individuals or groups have capacity in fact for mobilizing the resources that are legally invested in the company. This constitutes power potential. According to Berle and Means (1932, p.69) control consists "in the power to determine the fundamental elements of corporate behavior and the power centre is in determining the composition of the governing body of leaders".

The control and the rules occur in two levels within the organization: at the strategic level - taking the structural decision; and at the operational level - level of day-to-day management. Strategic control is the capacity to determine the long-term goals and objectives of the undertaking, the adoption of courses of action and the allocation of resources necessary to carry out and reach the targets. Operational control involves budget decisions and management of the tasks at the work level (Scott, 1997; Demb & Neubauer, 1992; Stiles & Taylor, 2001; Staub, Martins & Rodrigues, 2002; Andrade & Rossetti, 2006).

The function of the Board, starting from the institutional role, places the members at the highest level of the organization from the external perspective, not only monitoring and advising the principal executive, but also relating with company shareholders and ensuring the rights of the company's internal and external constituents, vis-à-vis the environmental contingencies (Provan, 1980). Mintzberg (1983) defines the Board of Directors as the mediator between the internal and external coalitions of the organization.

The Board of Directors maintains contact with investors and other constituents for two principle reasons. The first is that such contacts allow the construction of the legitimacy of the corporate work and maintains the people informed on the company. The second is that these contacts facilitate access to the scarce resources of the environment, through the transparency and nature of the information supplied to the market. From this aspect, the companies utilize also the Annual Management Report, which should be approved by the company boards and reduces the assymetry of the information supplied by the managers to the shareholders and institutional investors (Monks & Minow, 2001; Stiles & Taylor, 2001).

4. Corporate Governance and Board in Family Business

In order to understand the family-society-corporate system, the main issue is to comprehend the interpersonal relationships existing within this system. These relationships are so complex that when we seek to structure them, they refer us both to the foundations of the organizational culture, and to the foundations of family companies' governance, considered, in these companies, as two faces of one same coin (Bornholdt, 2005; Casillas, Sanchez & Fernandez,2007).

The governance process in family companies may be comprehended by thinking of dangers and opportunities. To define the norms and rules among the individual interests on behalf of the collective (company) is essentially a process of relinquishing (a danger from the family's perspective). Despite these latent difficulties, especially in family companies, it is necessary to integrate the family, society and company systems (opportunities). For these three dimensions to be integrated, it is first necessary to put some distance between them. This distinction allows for a more appropriate understanding of the structure and content of the subject, as well as of the systemic structure of family governance. It encompasses the three axis and the relationship between the three systems – the corporate system and the administration board (management); the societary system and the shareholders and partners committee (partners); and the family system and the family council (families) (Bornholdt,2005; Casillas et al.,2007; Tondo et al, 2008).

Floriani (2008) believes that family-type companies already demonstrate some concern about giving privilege to a management model supported by social responsibility and corporate governance. In this model, competence is the main word, inside a broadened comprehension which makes it a synonym of attitudes and behaviors which are adequate to a modern management standard.

However, the resistances to the installing of the best practices of corporate governance are still very strong (Bornholdt, 2005; Ricca, 2007). The main argument is that these instruments are not fit to this organization and also that "these practices in companies are like 'custom-made outfits', in that, if they fit, they are used; if not, they are hanged in the wardrobe" (Bornholdt, 2005, p. 77). Such a

phenomenon also happens with the administration board, family council, or consultant committee. If they are considered as being appropriate to the organization's context, they are installed. If not, they are "kept away" in the organizational structure and in the company's contracts and statutes.

In light of the complex relationship between these three systems and axis of the family companies, the corporate governance installation process, in these companies, is the creation of various organs correlated to the company management and its inter-relation to the families. These organs need to be comprehended in each company-family context, because some of them may be fit and others may not, depending on the size of the company, the complexity of the family and societary systems, of how many generations are active and the organization's history. These organs are the following: 1 – family council; 2 – administration board; 3 – superior council; 4 – executive management; 5 – consultant committee; 6 – fiscal board; 7 – independent auditing; 8 – board of partners (properties) and shareholder committees (Silva,2006).

It is of interest, particularly to this paper, the administration board in family companies. The observation of the administration board in different companies is comprised of elements which indicate a higher or lower degree of involvement with the administration. We may identify the influence level by the administration boards in scale levels; the more acting in the company the board is, the higher is the acting scale (Bornholdt, 2005; Tondo et al, 2008). The board, according to its mission, has an inadequate responsibility when it takes on a passive role or an executive one. However, these situations may happen in practice, since the board members are often old executives or family partners.

Álvares et al. (2003) are more incisive and define the administration board as the most important governance organ in a family company, despite some families relegating this instrument to a secondary role: some do not want any board at all, while others prefer a purely symbolic board. The authors believe that this instrument is fundamental for the well-being of the family and its company. But, in order for the administration board to work effectively, it is necessary that there is a commitment towards the creation of a professional group of members, active and highly competent, that work based on parameters which are set out by the family. Some aspects are related to important tasks of the administration board, according to Álvares et al. (2003): - evaluation and management succession; - administration board structure; - interactivity (of the administration board with all those involved in the business); - evaluation of the administration board.

In this direction, the board may be used as a valuable instrument for conducting the professionalization process of the family company (Andrade & Rossetti, 2004). However, the absence of efficient acting mechanisms for the board, as well as of formal corporate governance structures may cause and/or explain the problems related to the family company in this case. Corporate governance acts through the shareholders committee and the administration board, and it is structured by the commercial contracts and family protocol. With this in mind, the fact of a lower or higher efficiency by the administration board is established from the configuration and attributes of the board members which are not from the family and of external members (Casillas et al, 2007).

5. Research Path Methodology

A research of a qualitative nature was carried out, through the perception of the members and/or directors that, in the organization, interrelate influence or condition the attributes, roles and responsibilities of the Board.

This study adopted the approach of multiple cases, analyzing the boards of 10 big family companies of Minas Gerais, chosen randomly, but, principally, using the criterion of access to the interviews, granted by these companies.

For the qualitative data, the semi-structured interview was used (Thiollent, 1985). This technique was used in the interviews with the representatives of the boards and/or executive directors belonging to the companies' corporate governance.

The analysis of the data was carried out through the analysis of content. The great advantage of the analysis of content is the possibility of reduction in the material researched (Flick, 1998).

The results of the interviews were grouped, for the purposes of synthesis and analysis, into three groups of subjects: the first relatively to the attributes of the Board, subdivided into composition and characteristics, structure and process; the second on the roles and the responsibilities of the Board; and the third on the notion of creation of value in the companies researched.

Table 1 presents the identification of the respondents of the research, indicating, principally, their share relationship with the company, their background and, specifically, whom the interviewees represent in the positions that occupy. The companies and the members/executives were identified by E1, E2..., E10, to conceal their identities.

Table 1. Identification of the respondents

Company	Position Occupied	Possesses Company Shares	Professional experience (as executive)	Represents Interests	Sector to which the company belongs
E1	Chairman of the Board of Directors	Yes	34 years	"I represent the interests of the my wife, who is one of the controlling shareholders"	Textile
E2	Executive Director	No	28 years	"I represent the interest of the whole company"	Iron and steel
E3	Vice-President of the Board	Yes	+ 30 years	"The company has five majority shareholders (family) and I am one of them"	Energy
E4	Member	Yes, via the employees club	+ 26 years	"I represent the employees, that detain today 3% of the ordinary nominal shares with voting rights within the control group".	Iron and steel
E5	Chairman of the Board	No	+ 30 years	"I represent the majority shareholder".	Financial
E6	Chairman of the Board of Directors	Yes	+ 20 years	"I represent the interests of the controlling family"	Technology
E7	Chairman	No	+ 30 years	"I represent the interests of the majority"	Biotechnology
E8	Vice-President of the Board	Yes	40 years	"I represent no interests, but the company"	Iron and steel
E9	Chairman	No	+ 30 years	"of the shareholder."	Mining
E10	Member	Yes	+ 30 years	"Of no-one, I am a professional counsellor"	Technology

Source: Research Data

6. Board of Directors of Family Companies

The attributes of the Boards of Directors were subdivided into composition and characteristics, structure and process with the intention of characterizing the form, the relationships, the exchanges of information and, above all, the day-to-day work of a board member, as a mechanism to justify, as far as possible, the emphasis placed on the roles and responsibilities of this power level in family companies.

6.1. Composition and characteristics

The importance and the objective of this topic is to identify how family companies choose their internal and external members. The discussion of the composition of the boards is important because the companies that have more external or internal members can alter the specific relevance of roles and responsibilities of the boards, from a more external or more internal view of the company.
During the interviews, it became evident that the raison d'être of the company are the shareholders, singling out the majority family that, due to the high concentration of capital of Brazilian organizations, is confirmed as the greatest director of the companies' actions.

In relation to the manner of choice of the members, it should be stressed that, for the most part, the members are indicated by the controlling shareholders, through, principally, an agreement within the family. From this results the fact that, in these companies, there is no independence of the Board in relation to the majority shareholder, or group of shareholders, as is brought out by some extracts from the interviews:

> *"Each large shareholder indicates the people that it wants to represent us on the Board. Then, we are thirteen members - a Board too big even - but we attach much importance to "shareholder peace" (E1).*

Only in two cases, E5 and E10, are the members chosen in a shareholders general meeting, but the interviewees make it clear that there is always prior agreement.

With the exception of company (E3), whose members are all internal, members of the controlling family itself, the other companies researched seek external members, professionals, but that have sufficient experience to help in conducting the company business.

In principle, this composition of external members is positive for the organizations, to the extent that there is a view from the outside, but the relationship with the shareholders is so close that, frequently, the external view is obscured by the vision that the shareholder himself has of running the business, in accordance with E1's declaration:

> *"Normally the external members are very close relations or people of trust. At times, it is the shareholder himself: we have a case in which the member is the shareholder himself. We must have there some seven or eight family*

groups and they are all represented on the Board by people from the actual groups" (E1).

It should also be considered that, with respect to representation on the boards, for the most part, the members are representing the majority families and "there are no representatives of others involved" (E1, E3, E5, E8, E9).

In E6's company, the interviewee affirms that there are effective representatives not only of the majority shareholders, but also of the minority. But in the firm of E8, the minority was cited with representation not on the Board of Directors, but on the Statutory Audit Committee, which is not the same thing. The Statutory Audit Committee, among others attributions, realizes the principal task of examining the financial statements of the accounting year and giving its opinion regarding them, but without interfering in the strategic direction of the company. It should be emphasized that in E10 the interviewee calls himself a professional member and says he represents the interests of no-one specifically. He considers himself totally independent and does not owe explanations to any one specific shareholder, but, to all.

As regards the fact of the members possessing or not shares, several situations were found in which all the members retain shares, as in EI, but also, other companies in which the Board does not have shares (E2, E7).

In fact, Brazilian legislation - through the Law of Corporations, article 146, determines that the members should have shares: "individuals, resident in the country may be elected members of the administrative bodies, the members of the Board of Directors should be shareholders and the directors may or may not be shareholders" (Manuais de Legislação, 2004, p.64). This being so, some companies have established mechanisms to meet this exigency, but others have merely ignored it.

The interviews relative to the attribute composition and characteristics of the Boards of Directors of the companies researched leads, above all, to the question of the independence of the boards in Brazilian companies. In the first place, the composition of the boards presented for the companies researched (with few external members, members and shareholders from the family, and the shareholder himself as Member of the Board) does not permit independent work of the members, in view of the strong influence that the shareholders and the company's internal members exercise over the decisions taken at this level. In the second place, the obligatory possession of shares by the members, required by the legislation in force, does not contribute to the dissociation of roles of family/shareholder/member/executive directors.

From this aspect, the literature has argued that the members should seek the maximum independence in the execution of their work in relation to any group of shareholder, other stakeholders or even of the company's executive directors (Monks & Minow, 2001; Demb & Neubauer, 1992; Vance, 1983; Andrade & Rossetti, 2006; Silveira & Barros, 2008). The Code of Best Practices of the IBGC also recommends that the board member should be the most independent possible and work for the good of the company and, consequently, of all the shareholders" (IBGC, 2009, p.20).

6.2. Structure

On the structure of the boards, we tried to analyze the organization and division of the work in the boards' meetings, the interchange of information between board members and executives, including the limits between these two levels of the organization and, finally, if there is any polarization in the meetings and why it happens.

In all the cases, the only structure existing between the boards is that of the presence of the Chairman and of one Vice-President, this latter, with the exclusive objective of substituting the first in his absence. The remaining members are considered Members of the Board.

In E1, E6, E7 and E10, there is a division of labour in the form of commissions or the formation of committees, principally, for some specific questions, as in the case of a merger or expansion of the business.

Although only four of the ten companies researched present a division of labour in the form of committees or commissions, this is the crucial point in the performance of the members, in view of their background and professional experience. Given that it is very difficult to find complete members, with abilities in all the areas, principally through their education, these committees or commissions would have the fundamental role of seeking information, analyzing details, proposing alternatives so that all the Board could take an effective, conscious decision, and attend to the interests of all. However, the majority of companies do not work in this way and, when necessary, have recourse to outside consultancies.

The information is, in all cases, passed over exclusively by the Chairman, but in none of the companies is it checked. The answer to this is in the great confidence deposited in the principal company executive, who was chosen by the members themselves, or by the controlling family. And even if they are asked if the financial scandals in companies such as Parmalat, Enron, WorldCom were not due the an excess of trust in the principal executive and to the fact that the Board did not supervise adequately, the respondents affirm that, in these cases, the problems were in the external audits. And that these should be linked directly to

the Board "to give security and tranquility in their decision making" (E6). Furthermore, according to E6, with a correct and competent external audit, the Board does not need to verify information transmitted by the companies' chairmen.

In the companies in which polarization of some member appears in the discussions, this happens, according to the interviewees, due the better preparation of some in some questions to the detriment of others (E1, E2, E3, E4, E9). In other companies, this polarization is done naturally by the chairman of the board, due to the nature of the position itself (E5, E6, E8). In only one firm was the strategic partner found as polarizer of the discussions because of the simple fact of having more shares and business know how (E7).

The limits of the responsibilities among the boards and the executives are clear for the interviewees, principally, through the legal structure. For them, the roles "are defined by the requirements of the law" (E6, E10), or in the Articles themselves or internal resolutions of the companies, in accordance with what can be seen in part of the interviews as follows:

> *"They are defined by legal obligation, statutory requirements. The companies' Articles of Association require this separation of functions" (E6).*

> *"They are and follow the recommendations of the codes of good governance practice" (E10).*

In E5, a decided predominance of the boards over the directors was found: "the Board states what the directors have to do" (E5), in a clear allusion that the member shareholder cannot lose the tone of absolute master of the company" (E4). Company E10 was the sole case in which the principal executive director does not make up part of the Board of Directors.

In general, the structures of the company boards of those researched are organized in a formal way, through the figures of the chairman and vice-president of the Board of Directors. This fact characterizes the boards of these companies with a quite simplified structure, with little formation of committees and much utilization of outside consultancies.

The information that the members receive is always passed on by the company directors and is not checked. A variety of information received by the members can be observed, but in large part, these data are controlled by the Company Chairman. In addition, an excess of trust in the figure of the principal executive can be noted.

Already the limits between the attributions of the Board and the Executive Directors are defined by the internal statutes or according to the code of best corporate governance practices, defined by the IBGC (2009). Little is observed of conflict between the board members and the company directors, the board having a more formalistic role in the performance of its responsibilities.

6.3. Process

The importance of this topic is in understanding the processes that occur in board meetings, through the definition of the agenda, the decision-making and the interpretation and evaluation of its members.
In most of the companies researched, the agenda is defined by the boards, but, in all of them, the chairman is consulted for suggestions on subjects. In the interviews, the fact of consultation with the principal executive by the chairman of the board for the definition of the agenda was evident.

The most frequent themes in the agendas of the meetings are the financial results, through the accompanying of the company budget and the general performance of the business. The interviewees could not point to meetings having been convoked for the discussion of the evaluation of executives, business risks and specific strategic definitions. In any case, most of the codes of best practices of corporate governance require that the agenda really should be prepared by the chairman of the board, via consultations with the directors.

The decisions making in the meetings, in their turn, are by consensus or shareholders' agreement and, in only two companies, via vote (E5, E9). This fact occurs simply because of the statutes of these companies, that is, there always has to be a vote, even if it is consensual, which is what most often happens.

From this it results that the members have disagreed very little with the company executives and vice-versa. According to the E5 interviewee, when there is disagreement between members and directors, "the Board states what the directors have to do" (E5). It is clear, also, in some companies that the executive, because it is chosen directly by the Board, is slightly submissive [to the members], in the sense of not going counter to the desires of the Board" (E4, E8).

It is worthwhile stressing, that neither the members nor the executives are evaluated thoroughly and completely. The executives are monitored by the members exclusively by the financial results generated by the company, by the reaching of the targets, independently of the form in which such results were attained. No evaluation of a board member was found, but there was unanimity that such a procedure should occur and that it would even be important for the growth of the board members themselves, as can be observed in the following testimonies:

In general, it can be affirmed that the proceedings on the Boards of Directors have been conducted in a unilateral way, sometimes tending to

the company executive and sometimes to the Board, without a more effective integration of these two levels in the company. The decisions are generally by consensus, or foreseen in the actual shareholders' agreement. With this the discussions, disagreements and alterations of opinions are relegated to second place. Evaluation of the work of the directors is exclusively through the company's financial results, by means of established performance indicators and supplied by them. There is no mechanism of systematic evaluation of the conduct, processes and procedures of the directors nor of the performance of the board members.

6.4. Roles and responsibilities

This topic sought to understand the vision of the interviewees on the principle roles of the Board, through the identification of the priority questions for the involvement of board members, the form of activity in the strategy and control of the organization. In addition, it tried to clarify the main measures for control that are evaluated by its members and, finally, verify if the role of the Board of Directors, in general, has been distinctive for Brazilian companies in the present day.

On the priority questions that require the involvement of the Board, the interviews make it quite clear that there is no uniformity among the boards of these companies researched on the questions that always require their intervention. With the exception of the financial indicators, that are normally analyzed, in most of the companies, no specific theme appeared but only contingent questions, depending on the situation and epoch through which the company is passing (E3, E4, E5, E6, E7, E8, E9). E1 and E2 could not even point out specifically an important priority subject, going back to the Articles of Association of the companies that define the attributions of the Board and others as " watching over the interests of the shareholders" (E1). E10, because it is made up of professional members, was the most specific, indicating quality of management and the future of the company, referring to the strategies.

But, on being questioned on the involvement in company strategy, E3, E5 and E10 affirm that the Board "defines the strategy". However, the approval of the strategy, that is normally defined by the directors, appears as the most common form of involvement of this level in organizations, in accordance with that brought out by the following testimonies:

> *"The Board questions and approves the strategies"(E2).*
> *"In mergers and acquisitions, the Board traces out the strategies that it wants. Then, it gives the strategic definition" (E3).*
> *"In all levels, monitoring, approving, adjusting together with the directors and listening to the directors, in some cases" (E4).*
> *"Approving the strategic plans presented by the directors"(E8).*

Still regarding this question of involvement in the strategy, for company E1 the Board "is involved in the whole process", but the member interviewee could not explain what "the whole process" means in the company.

Control is effected by means of the financial results, "comparing the planning with the goals proposed" (E2). In some cases, such as in E7, non-financial indicators appear such as indexes of work safety, means of management and industrial operation and indexes of service for customers. Such a fact occurs because of the nature itself of the company –an industrial company and one which has rigorous legislation at least in terms of occupational work safety. The directors, as already mentioned, appear once again as the supplier of the data. The veracity of these indicators is checked exclusively by the audit, when requested by the Board, in accordance with extracts of the interviews:

The financial indicators placed at the disposal of the Board are classical, going from cash flow, statements of results, net worth, stocks and indebtedness, up to some more sophisticated steps that evaluate the creation of value by the company such as technical management with added value, present in company E2.

For all the interviewees, the Board has been more active in the present day and has added value for companies. However, E8 considers that this is not permanent, that is, the Board is more active at some times and less at others, but the interviewee could not say why this occurs, revealing merely that "at present the Board has been much less active" (E8).

However, the interviews make it clear that the controlling shareholder has interfered directly in the company, which perhaps explains the subdued activity of the Board. It should be stressed, also, that, in E3, in spite of the interviewee finding that the Board adds value, he considers that it "still falls very much short of what it could do for the company" (E3).

This specific datum from E3 can be explained because of the fact that the company is passing through a process of transition, organizational restructuring and that "today in the company Board and shareholders are confused". We are going through a very specific situation at this time" (E3).

Unlike the company cited previously, the E4 interviewee considers that the Board has been quite active and that the work of the Board members has prevailed over the executive directors. From another perspective, the interviewees have

considered that the Board adds value more because of the vision of their institutional work, of the perception of the external environment, rather than really because of their day-to-day tasks and formal attributions.

In general, the Board of the companies researched has not become involved in the definition of the company's strategic issues, relegating this to the directors. However, the members have been more active in the revision and approval of the strategic targets.

On the other hand, the role of control has been exercised based on in the classical financial results of the company, due, principally, to the difficulties of the board members in understanding and accepting more sophisticated tools and mechanisms of performance analysis and that, consequently, proportion a better and more objective interpretation of the work of the directors, of the members themselves and of the performance of the company as regards creation of value for the shareholder in the company. The data supplied by the directors are not checked and, once again, an excess of confidence in the work and reports of the executives is seen.

The institutional role is very little cited in the interviews and is seen as of less relevance in the context of the attributions of the Board and of company performance.

7. Final considerations

From this research it is evident that, in the family companies in the research, regarding the attribute composition and characteristics, the members are chosen by the controllers through a shareholders agreement. In many companies, each controller indicates one member and most of the time this is a member of the controlling family itself. We would further point out that with respect to representation on the boards, for the most part, the members are representing exclusively the majority shareholders and there are no representatives of others involved.

Regarding the attribute structure, the data shows that in the companies in the research the existing formal structure, for the most part, is of chairman and Vice-President and that there is no systematic division of work among them. The flow of information occurs only via the Executive Directors and, primarily, at the Board meetings; and the member that most polarizes the discussions is the chairman, because of the nature of the position itself.

In most of the companies, the attribute process is influenced by the definition of the agenda of the meetings, which is always defined by the Board, but the executive Director is consulted as to suggestions on subjects. The decision-making occurs for the most part via consensus, or consensual vote arising out of a simple statutory obligation. That is, decisions are taken to the vote only after obtaining prior agreement or consensus. From which it results that the members have disagreed very little with the executives of the companies and vice-versa in some cases. In others, the executive is constantly subject to the decisions of the Board, as this represents the majority shareholder or is a member of the controlling family itself.

On the roles and responsibilities of the Board, the interviews make clear that the involvement with strategy occurs, especially, through its approval, which normally is defined by the directors. The role of control is made via financial results, but always compared to the planning/budgeting or with the proposed goals. This was considered to be more important, as it has been the most valued and focused by the work of boards in the companies in the research. The institutional role was hardly mentioned in the interviews and it has not been given the importance it deserves. In all of them, however, a decided predominance of the role of control is observed, to the detriment of the strategic and the institutional.

It can be concluded, from these observations, that the Board of Directors in the family companies in the research has been more active at some moments, but is inactive at others, mainly, when the concentration of capital is greater in some companies than in others. The trend in the interviews, of boards to give prominence to the role of control, to the detriment of the strategic and the institutional is clear.

From this, the conclusions reached are that the relative power of the boards of family companies and their pending to the role of control comes from the evaluation of the following factors: (1) the personal influence of board members, in this case, of how they were chosen and by whom; 2) effective participation in the selection of the main administrator and, based on this, of the capacity to monitor the progress obtained in management through proposed objectives.

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INTERACTIONS BETWEEN FREE CASH FLOW, DEBT POLICY AND STRUCTURE OF GOVERNANCE: THREE STAGE LEAST SQUARE SIMULTANEOUS MODEL APPROACH: EVIDENCE FROM THE TUNISIAN STOCK EXCHANGE

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Abstract

This research tests the efficiency of the ownership structure and the debt policy as mechanism of resolution of agency conflicts between shareholders and managers due to the problem of overinvestment, in the limitation of the problem of the free cash flow, by estimating three stage least square simultaneous model and on the basis of a sample of 35 non financial Tunisian listed companies selected for the period 1999–2008. Our results are in favour of the theory of free cash flows of Jensen (1986) that stipulates that the debt policy represents the principal governance mechanism that can limit the risk of free cash flow. However, the ownership concentration and managerial ownership increase the risk of the free cash flow.

Keywords: Corporate Governance, Free Cash Flow, Debt Policy, Ownership Structure

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1. Introduction

The debate on the convergence-of-interest hypothesis, relief of the agency theory (Fama and Miller 1972, Jensen and Meckling 1976) as well as of the signalling theory. The main concerned actors are managers, shareholders and creditors. The basic idea of agency theory is that every agent looks for the maximization of his self interest, from where the apparition of conflicts (Ross, 1977). In these conditions the idea that the financial markets are perfected is rejected. Indeed, these will be determined by asymmetries of information and conflicts of interest.

Several works tempted to estimate agency costs and to test their effect on the cost of capital and also on the firm value. Moreover, an abundant literature is interested in the possible relations between the choice of the level of leverage and agency problem. Two main cases have been exposed. First, debt may reduce agency conflicts resulting from opportunistic behavior of managers. We essentially mention the overinvestment problem (Jensen, 1986). Secondly, the debt aggravates Shareholder-creditor agency conflicts. The most studied examples are the asset substitution problem, the problem of transferring wealth from the firm's bondholders to the stockholders and the under investment problem (Smith and Warner (1979), Jensen and Meckling (1976) and Myers (1977)).

In this study we are going to define the role of debt and ownership structure like control's mechanism of the manager's behavior for the firms generating free cash flows.

The concept of free cash flow has been introduced by Jensen (1986), it is cash flow in excess of that required to fund all projects that have positive net present values. The problem is how to encourage managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies. Therefore, the affectation of the free cash flow is to the core of the problematic of agency relations.

Indeed, the distribution of these abundant free cash flow appears nor constraint by the engagement to use them in the profitable investments, nor by the one to contribute them to operating expenses or to the repayment of the debt. From where the temptation for managers to affect these free cash flow to non profit investments or to destine them to other finalities as the inefficient restructuring plans or the increase of the size of the firm in the only objective to increase their remuneration (Dorff, 2007).

In the context of the agency theory, leverage is considered like an efficient solution to conflicts of interests that can appear between shareholders and managers, contrary to the thesis of Modigliani and Miller (1958), where the capital structure is associated solely to a model of cash - flows, his

importance is related to the capacity of creditors to exercise the control.

Thus In case of debt issuing the manager is obliged to face remittances of annuities (Jensen and Meckling (1976), to stop the current operations of the firm and to opt for its liquidation (Harris and Raviv (1990)), to be more competitive (Grossman and Hart (1982)) and to limit his discretionary behavior on free cash flow (Jensen (1986), Stulz (1990) and Pindado and De La Torre (2005)).

Also, the development of the relative theory to the corporate governance came to specify other mechanism in order to control managers and to reduce these conflicts. Among these control mechanisms we distinguish the ownership structure. Indeed, the composition of the shareholding of a firm as well as its degree of dispersion influence its strategic and financial orientations. In this case, several authors (Leland and Pyle 1977, Hermalin and Weisbach, 1991,; Himmelberg and al., 1999) consider managerial ownership as evident solution to agency conflicts that permits to align interests of managers on those of shareholders.

Also, the majority of studies related to the effect of ownership concentration confirm the hypothesis of their positive role in the corporate governance. Berle and Means (1932) affirm that a diffuse ownership structure decreases the relationship between the ownership and the control and minimize, therefore, the role of value maximization. To this effect, Jensen and Meckling (1976) affirm that agency costs decrease with the ownership since the ownership change lead to the alignment with interests of managers and shareholders.

Besides, theories on the corporate governance developed in parallel with the financial market development and the rise in power of the institutional investors and numerous reforms have been take place in many countries in order to reinforce the power of shareholders. The institutional investors play an important role in these transformations while requiring new norms favorable to shareholders and while exercising an important pressure on managers (Pound, 1988,; Duggal and Millar, 1999).

This research intends to test the efficiency of the ownership structure and the debt policy as mechanism of resolution of agency conflicts between shareholders and managers du to the problem of overinvestment, in the limitation of the problem of the free cash flow. So we estimate three stage least square simultaneous model. For the financial policy we are going to test the role of the long term debt in the reduction of investments in excess in firms that have strong agency problems. For the ownership structure we take account of the managerial ownership, the institutional ownership and the ownership concentration.

Tests using a sample of 206 observations for 35 non financial Tunisian listed firms from 1999 to 2008 period indicate that the debt policy represents the principal governance mechanism which can limit the level of free cash flow. However, the ownership concentration and managerial ownership increase the risk of the free cash flow. Finally, the level of the free cash flow is not affected by the institutional ownership.

The rest of the paper is organized as follows. Section 2 reviews the previous theoretical and empirical research. Section 3 describes the empirical framework. The empirical results are presented in Section 4 and Section 5 concludes.

2. Literature Review and hypotheses

2.1. Debt policy and agency costs of free cash flow

The role of debt monitoring in reducing the agency costs of free cash flow is well emphasized in the theoretical and empirical literature.

Jensen [1986, page 323] defines the free cash flow, as the "cash flow in excess of that required to fun all projects that have positive NPV". He says that managers may use free cash flow to invest in negative NPV projects rather than return the free cash flow to the shareholders, for example as dividends. This problem is especially bad in firms who are mature and with low growth opportunities, as they have low profitable investments. However, by increasing debt with its required interest payments, managers are "bonding their promise to pay out future cash flows". Jensen indicates that firms with excess cash flows and low growth opportunities will use more debt financing for monitoring purposes. Stulz (1990) also suggested positive relation between leverage and free cash flow. But their theories find no support from empirical research of Chaplinsky and Niehaus (1990).

Also, Hart and Moore (1995) suggest that the debt doesn't resolve the overinvestment problem by the reduction of the free cash flow but rather it is its priority statute that limits the external amount can be collected by the firm.

Empirically, Lang and al. (1996) find a negative relationship between the leverage and the growth opportunities in firms with low growth opportunities in accordance with the free cash flow theory and find that changes in free cash flow lead to positive changes in leverage in the 142 American listed firms from 1970 to1989.

Gul and Jaggi (1999) develop a composite IOS measure by conducting a common factor analysis on six growth variables in order to classify firms with growth opportunities. The authors use data from 1989 to 1993 to non-regulated industrial firms. Results indicate that the debt has a positive

effect on free cash flow firms with low growth opportunities in terms of the bottom quartile of IOS.

Vilasuso and Minkler (2001) develop a dynamic model that incorporates the issues of agency cost and asset specificity. Results based on an unbalanced panel of 28 publicly-held firms show that these two factors are significant determinants of the optimal capital structure of firms. Moreover, results show that agency costs increase with degree of assets specificity.

De Jong and van Dijk (2007) empirically examine the determinants of leverage and agency problems, and they test the relations between leverage and four agency problems i.e. direct wealth transfer, asset substitution, underinvestment and overinvestment. Based on a sample of Dutch firms from 1992 to 1997, the results prove that the trade-off between tax advantages and bankruptcy costs determines leverage. Moreover, free cash flow and corporate-governance characteristics appear to be determinants of overinvestment. Despite findings that agency problems are present, there is no evidence for any relationship between agency problems and leverage.

Li and cui (2003) test the effect of capital structure on agency costs in 211 non-financial Chinese listed firms for the period from 1999 to 2001. Based on a system of simultaneous equations, results prove that firms with high debt to asset ratio have high ratio of annual sales to total assets and high ratio of return-on-equity. In this case, creditors are more concerned about the payment of interest and of principal and will have incentives to monitor the firm. Consequently, a capital structure with high debt decreases agency costs. Results also show a Positive relationship between ownership concentration and the return-on-equity ratio. This is because the blockholders have a strong interest in firm performance and therefore a high capability to monitor manager in order to reduce agency costs.

Wu (2004), using 833 observations of listed Japanese firms for the period 1992-2000 tests the disciplinary role of ownership structure in corporate capital structure policy. Estimating OLS regression with leverage ratio as the dependent variable and several independents variables which are ownership structure, free cash flow, and growth opportunities, the results confirm that the leverage has a positive effect on free cash flow greater for firms with low growth opportunities than firms with high growth opportunities.

Zhang and Li (2008) employ multivariate tests and univariate tests to analyze the hypothesis which suggests that increase of leverage may reduce agency costs. Based on a sample of 323 UK companies, the results confirm that the increase of leverage does reduce agency costs. Nevertheless, when the leverage is sufficiently high, the effect additional increase in leverage has a positive and non significant effect on agency costs. Finally, no significant evidence is found when testing whether the effect of leverage on agency costs becomes stronger when the differences of leverages of firms at different leveraged stages getting larger.

Nekhili and al (2009) test the capacity of governance mechanisms, in the limitation of the problem of the free cash flow in case of French firms. By estimating three stage least square simultaneous model, results prove that distribution of dividends – rather than debt level – that leads to reduction of free cash flow risk.

Recently, D'Mello and Miranda (2010) present a direct test of the overinvestment control hypothesis that states that long-term debt influences the degree to which firms overinvest. They do so by examining the pattern of overinvestment in cash and capital expenditure around new debt issues by unlevered firms. Based on a sample of 366 debt issues between the year 1968 and the year 2001 by firms that have been unlevered for at least three years, the results confirm that issuing debt leads to a reduction of overinvestment. Also, these relation is more significant for firms with poor investment opportunities confirming that debt plays an important role in reducing excess investments in firms that have the highest agency problems.

Agostinho et Prudencio (2010) analyze the capacity of the capital structure policy, the dividend policy, the board and the ownership structure and the practices of social responsibility in the limitation of the free cash flow risk. Using a sample of 298 firms of the NYSE Euronext of the year 2007, the results show that corporate governance mechanisms limit the arbitrariness of the management. In particular, the results confirm the role of leverage in reducing agency costs of free cash flow

Based on these theoretical and empirical works, the following hypotheses apply:

Hypothesis 1: Leverage is positively related to free cash flow in the firms with low growth opportunities and generating free cash flows.

2.2. The previous empirical studies testing capital structure determinants

Harris and Raviv (1991) imply that the leverage of firms may be affected by many factors as investment opportunities, advertising expenditures, fixed assets, and the possibility of bankruptcy, profitability and uniqueness of product. For our empirical purposes, we focus on size, tangibility, tax, growth opportunities, profitability, risk and industry classification.

2.2.1. Firm size

Theoretically, the effect of size on leverage is ambiguous. On the one hand, some authors find a positive relationship between size and leverage, for example Rajan and Zingales (1995), Huang and Song (2002), Delcoure (2007) and Pao (2008). Larger firms are much more diversified than smaller one and so have lower variance of earnings, making them able to accept high debt ratios. On the other hand, some studies report a negative relationship, for example Kim and Sorensen, (1986), Titman and Wessels, (1988), Fluck et al. (2000) and Chen (2004). Due to asymmetry information, small firms are more likely to be underpriced by investors than large firms and could not get favorable price when financing through equity (Halov et Heider, 2005). While using debt with a fixed interest rate, small firms could suffer less loss from mispricing. Thus small firms should tend to consider using more debt, compared to large firms.

Hypothesis2(a): According to the static trade off theory (agency theory), the size has a positive impact on the leverage

Hypothesis2(b): According to the asymmetric information theory and the pecking order theory , the size has a negative impact on the leverage

2.2.2. Tangibility

Booth et al. (2001) state: "The more tangible the firm's assets, the greater its ability to issue secured debt." Consequently, a positive relationship between tangibility and leverage is presumed since tangible assets can be used as collateral. Also, in the case of conflict of interest between shareholders and creditors, Jensen and Mecklings (1976) demonstrated that the problem of overinvestment is less serious with more tangible assets.

Several empirical studies confirm this suggestion (Rajan and Zingales (1995), Kremp et al., (1999), Hovakimian et al., (2001), Chen (2004), Drobetz and Fix (2005), Fattouh et al.,(2005), Huang and Song (2006), Delcoure (2007) Pao (2008), De Jong et al., (2008)). On the other hand, Booth et al. (2001) suggest that the relationship between tangible fixed assets and debt financing is related to the maturity structure of the debt. In such a situation, the level of tangible fixed assets may facilitate to the firms to get more long-term debt, but the agency problems may become more severe with the further tangible fixed assets, because the information revealed about future earnings is less in these firms. In this case, a negative relationship between tangible fixed assets and debt ratio is presumed.

H3 (a): according to the agency theory, there is a positive relationship between leverage tangibility

H3 (b): according to the pecking order theory, there is a negative relationship between leverage and tangibility.

2.2.3. Taxation

Numerous empirical studies have explored the impact of taxation on corporate financing decisions. According to the trade-off theory, a firm with a higher tax rate should issue more debt since it has more income to shield from taxes. However, for example Fama and French (1998) declare that debt has no net tax benefits. MacKie-Mason (1990) also stipulates: "Nearly everyone believes taxes must be important to financing decision, but little support has been found in empirical analysis."

Empirically, Graham and Tucker (2006) use a sample of 44 tax shelter cases to examine the degree of tax shelter activity and whether participating in a shelter is associated to debt policy. The results show that the firms use less debt when they engage in tax sheltering. The tax shelter firms appear underlevered if shelters are ignored but do not appear underlevered once shelters are considered.

Buettner et al. (2009), test the impact of taxes on the capital structure of German firms. The empirical analysis confirms that the local tax burden exerts important effects on an affiliate's leverage. This refers not only to external debt; the results show that a higher local tax has a positive impact on internal debt. This confirms that multinationals have access to another instrument which can be used to exploit the tax savings opportunities of debt finance.

Hypothesis 4: According to the trade-off theory, there is positive relationship between leverage and tax rate

2.2.4. Growth opportunities

Jensen (1986) suggests that in case of low growth opportunities agency costs of free cash flow augment, so, debt should be issued. In doing so, probability of overinvestment by managers is reduced as firms commit to utilize future free cash flows for paying out investors. Consequently, a negative relationship between growth opportunities and debt ratios can be predicted.

Myers (1977) indicates that high leverage reduces the incentives of the managers and shareholders to invest in profitable investment opportunities, since the benefits return to the bondholders rather than to the shareholders. Thus, highly levered firm are less likely to exploit

valuable growth opportunities as compared to firm with low levels of leverage. So the values of stocks diminish when there is information that the firm will issue stocks according to the asymmetric information theory. In this case, firms should not issue stocks and must use all internal resources and then financing via debt according to the pecking order theory.

Empirically, Aivazian et al (2005) examine the effect of leverage on investment on 1035 Canadian industrial firms for the period from 1982 to 1999. They found a negative relationship between investment and leverage and that the relationship is more significant for low growth firms rather than high growth firms. Chen and Zhao (2006) find a non-monotonic and positive relationship between growth opportunities and leverage for more than 88% of COMPUSTAT firms. Billett et al. (2007) conclude that although growth opportunities negatively affect the leverage, there is a positive relationship between leverage and growth opportunities because of covenant protection. Debt covenants may attenuate the negative effect by attenuating the agency costs of debt for firms with high growth opportunities.

H5 (a): according to the agency theory and the asymmetric information theory, there is a negative relationship between leverage and growth opportunities.

H5 (b): according to the pecking order theory, there is a positive relationship between leverage and growth opportunities.

2.2.5. Profitability

There are no consistent theoretical predictions on the effects of profitability on leverage. According to the trade-off theory, more profitable firms should have higher leverage because they have more income to shield from taxes. Also, according the free cash-flow theory would suggest that more profitable firms should use more debt in order to discipline managers. However, from the point of view of the pecking-order theory, firms prefer internal financing to external. Thus more profitable firms have a lower need for external financing and consequently should have lower leverage.

Most empirical studies observe a negative relationship between leverage and profitability, for example (Rajan and Zingales, 1995), (Huang and Song, 2002), (Booth et al., 2001), De Jong et al., (2008) and Karadeniz et al.,(2009).

H6 (a): according to the agency theory, there is a positive relationship between leverage and profitability.

H6 (a): according to the pecking order theory, there is a negative relationship between leverage and profitability.

2.2.6. Firm risk

Several authors stipulate that the level of leverage is a decreasing function of the gain variability. The negative relation is predicted by the Trade-off theory, the pecking order theory and the agency theory. Indeed, in a hierarchical financing perspective the volatility of profits can allow the firm to form a reserve of assets easily mobilizable in order to avoid an overinvestment problem. However, there are arguments demonstrating the effect positive of the risk on the leverage. Indeed, firms having a higher risk can also have a strategy of overinvestment that creditors have difficulty discerning because of the asymmetry of information between lenders and borrowers and will to reduce costs of agency. Huang and Song (2002) suggest based on findings of Hsia (1981): "As the variance of the value of the firm's assets increases, the systematic risk of equity decreases. So the business risk is expected to be positively related to leverage."

Empirically, the effect of risk on leverage is ambiguous. On the one hand, some authors find an inverse relationship between risk and leverage, for example Bradley et al., 1984; Titman and Wessels, 1988; Friend and Lang, 1988; MacKie-Mason, 1990; Kale et al., 1991; Kim et al., 1998). Other studies suggest a positive relationship (Jordan et al., (1998), Michaelas et al., (1999), Wiwattanakantang (1999), Kremp and Stöss (2001), Esperança et al. (2003) and Pao (2008).

H7 (a): according to the trade off theory and the pecking order theory, there is a negative relationship between leverage and firm risk

H7 (a): according to the asymmetric information theory, there is a positive relationship between leverage and firm risk

2.2.7. Industry Classification

Some empirical studies identify a statistically significant relationship between industry classification and leverage. Titman (1984) and Titman and Wessels (1988) show that firms manufacturing machines and equipment should be financed with relatively less debt because they incur some very important liquidation costs. They use a dummy variable equal to one if the firm belongs to the industry sector and zero otherwise. Harris and Raviv (1991) declare, based on a survey of empirical studies: "Drugs, Instruments, Electronics, and Food have consistently low leverage while Paper, Textile Mill Products, Steel,

Airlines, and Cement have consistently large leverage". More recently Awan and al., (2010) examine the relationship between growth opportunities and capital structure of the firms for sample of 110 manufacturing companies listed on Karachi Stock Exchange for 15 years (1982-1997) from 9 different sectors. They have found a significant positive relationship between growth opportunities and leverage that is greatly significant for sectors such as textile, sugar, cement, paper and jute. The possible explanation for such leverage behavior in these sectors could be that the owners of these firms, with a nominal foreigners' representation view the available growth opportunities as unsustainable and more risky, intend to pass on a higher risk to their creditors which would result in a high debt level. Although, some empirical studies find no significant relationship between the leverage and industry classification. We essentially mention the study of Drobetz and Fix (2005) for the Swiss firms and the one of Kim, Heshmati and Aoun (2006) for the non financial listed firms in Korea. For the Tunisian firms, the industrial sector grants a big importance to restructurings requiring some enormous amounts.

H8 : The industrial firms should be financed with relatively more debt what will have as consequence the reduction of their free cash flow level.

2.3. Ownership structure and agency costs of free cash flow

The literature provides mixed guidance on the role of ownership structure as a corporate governance mechanism. The ownership concentration, the managerial ownership and the institutional ownership are three attributes that characterize the ownership structure of a firm.

Theoretically, for a firm whose capital is very dispersed, a minority shareholder won't have the incitement, nor the necessary funds to exercise a control on managers. While, for a shareholder possessing an important part in the capital, he will grant more interest to the control of managers. This can be exercised by voting rights that he possesses, either by resources that he can use to supervise managerial actions, and either by the influence that he can exercise on the minority shareholders in order to sustain him in case of disagreement with managerial team.

Jensen and Meckling (1976) affirm that large shareholders are more motivated and have stronger power to guarantee shareholder value maximization, by aligning the interest of managers and shareholders and therefore reduce agency costs.

Zeckhauser and Pound (1990) test whether presence of large shareholders is related to systematic differences in expected earnings growth, dividend payout ratios and leverage ratios. Based on a sample of firms from 22 industries, results show that in 11 industries with a relatively open information structure, large shareholders are associated with significantly higher expected earnings growth rates.

More recent works suggest the benefits of large shareholders in a different context. .

Pindado and De La Torre (2005) examine the effect of ownership structure on debt policy on the basis of a sample of 135 Spanish companies from 1990 to 1999. Results show that ownership concentration enhances debt financing in presence of free cash flow problem, even though debt is less used when there is problem of expropriation of minority shareholders by controlling owners. Furthermore, they provide some results about the interaction between insider ownership and ownership concentration. Results show that ownership concentration does not change the relationship between managerial ownership and debt because when entrenched managers are in control, the monitoring role of outside owners become ineffective. Even though, the additional debt promoted by outside shareholders increase when managers are entrenched. So, the relationship between ownership concentration and debt is affected by managerial ownership.

Al-Deehani and Al-Saad (2007) test the impact of the ownership structure on the capital structure of the firms listed in the Kuwait Stock Exchange. Empirical results show a positive relationship between the amount of debt and the level of control rights relative to the level of cash flow rights. Moreover, findings point out a positive relationship between the level of debt and the existence of a manger from a controlling family. Finally, a third positive relationship between the amount of debt and the amount of controlling rights, and cash flow rights and a family concentrated ownership has also been found.

Driffield et al (2007) empirically examine the effects of ownership structure on capital structure and firm value among listed non-financial companies in Indonesia, Korea, Malaysia and Thailand. Results obtained from 3SLS model confirm that ownership concentration have significantly positive effects on leverage and firm value. Moreover, results show that ownership concentration tends to minimize agency costs for all groups of firms.

Syriopoulos et al. (2007) tend to show how different ownership structures may influence the allocation of firms´ resources and investigate the impact of debt and dividend policies on corporate performance and firm market value. Based on a sample of 166 Greek companies listed in the Athens Stock Exchange, the empirical results confirm the importance of debt and dividends in terms of firm value creation by demonstrating a negative

relationship between firm value and both leverage and dividend ratios in firms with high growth opportunities. Concerning the effect of ownership structure on firm resources, results show a positive relationship between ownership concentration and market value of firm, higher in the firms facing growth opportunities which are consistent with the idea that large shareholders have power to monitor management and reduce the free rider problem of corporate control associated with dispersed ownership.

Chen and Yur-Austin (2007) examine the efficiency of blockholders in mitigating agency costs such as managerial extravagance, poor asset management and underinvestment. Based on a sample of large publicly traded companies from 1996 to 2001, empirical results show that outside blockholders are more effective in mitigating managerial extravagance whereas inside blockholders are more vigilant about improving the efficiency of firm asset utilization. However, only managerial blockholders significantly overcome underinvestment problems, which may be attributable to their duality roles.

Nevertheless, Nekhili and al. (2009) show that the ownership concentration increases agency costs of the free cash flow in the case of the French firms

On the basis of a sample of Tunisian listed firms from 1995 to 2000, Omri (2003) show that the ownership concentration permits to reduce the managerial entrenchment and increase the possibility of the change in case of bad performance.

Hypothèse 9: free cash flow level will be lower at higher levels of ownership concentration

Managerial ownership has been extensively mentioned in the literature like a governance mechanism assuring the alignment of interests. Jensen and Meckling's convergence of interest' hypothesis suggest that managerial ownership serves to align the interests of mangers and outside shareholders. Indeed, managers take fewer decisions that will have some negative effects on the firm value because the part of costs that they will absorb, as shareholders, increases with their part of the capital. Therefore, managerial ownership property represents a mechanism that permits to reduce the cost of control supported by shareholders because it is supposed to reduce the managerial opportunism. However, according to the entrenchment theory, when the managerial ownership becomes very high, it becomes sometimes difficult to oust them even though their performance is judged dissatisfactory. Thus, they manage to dominate assemblies of shareholders and indirectly, all decisions taken by the firm (Daniel and Halperns, 1996), and try to reduce the possibility of takeover attempts (Stulz, 1988). The first developments of this theory are owed to Shleifer and Vishny (1989). The entrenchment process passes by the execution of specific investment that is going to facilitate the realization of projects in direct relation with their formation or experience, even though these are not necessarily most profitable for the firm.

Morck, Shleifer, and Vishny (1988) propose a model in which increased managerial ownership leads to entrenchment, where the manager will indulge in non-value-maximizing behavior. However, management's self-indulgence is expected to be less than if he has control but no claim on the firm's cash flows. The entrenchment hypothesis predicts that the value of the firm will decrease management ownership increases.

Poulain-Rehm (2005) tested the role of governance mechanisms in the limitation of the free cash flow problem in managerial and patrimonial listed firms. The author suggests that the effect of the ownership structure on the free cash flow affectation is not direct. The empiric results show that the impact of managerial and domestic ownership is negative and significant on the affectation of the free cash flow to the debt service for firms with low growth opportunities. This effect is rather positive in firms with high growth opportunities.

Using a survey sample of approximately 3800 Australian small and medium enterprises from 1996 to 1998 Fleming, Heaney and McCosker (2005) examine how agency costs change when ownership and control are separated. Empirical results provide a positive relationship between equity agency costs and the separation of ownership and control. Specifically, it is found that agency costs are lower in firms managed by equity holders, consistent with the argument that reducing the separation of ownership and control reduces agency costs. Finally, agency costs decrease as managerial and employee equity holdings increase.

Lee and Yeo (2007) examine the association between managerial entrenchment and capital structure of Asian firms. They find a negative association between managerial entrenchment and level of leverage in firms with higher agency costs of free cash flow. Specifically, the level of leverage decrease in firms with CEO who is president of the board, lower proportion of outside directors and higher CEO tenure. The authors also show a positive relationship between institutional ownership and level of leverage which indicates that active monitoring by institutional investors diminishes entrenched managers' incentives to avoid debt.

Ghosh (2007) adopted the three stage least square simultaneous model approach to examine the interaction between leverage, ownership structure and firm value. Results show that capital structure, ownership structure and firm value are

jointly determined. Specifically, the managerial ownership is a nonlinear determinant of firm leverage and also, leverage is a negative determinant of managerial ownership. These finding reveal the existence of a substitution monitoring effect between debt and managerial ownership. Then, the findings indicate that firm value decreases as promoters ownership increase. Since control of such companies can still be in the promoters' hands because of the dispersed nature of shareholding, such companies need to be subjected to more vigilant external monitors through debt and to the discipline of an active market for corporate control.

Florackis and Ozkan (2008) indicate that important governance mechanisms for the UK listed companies are managerial ownership, ownership concentration, executive compensation, short-term debt and, bank debt. The authors examine the interactions between these mechanisms and firm growth opportunities in determining agency costs. The results show that impact exerted by governance mechanisms on agency costs vary with firms' growth opportunities. Specifically, high-growth firms face more serious agency problems than low-growth firms due to information asymmetries between managers, shareholders and debtholders. Moreover, results reveal that managerial ownership is more effective for high-growth firms.

McKnight and Weir (2009) examine the impact of ownership structure on three measures of agency costs which are the ratio of sales-to-total assets, the interaction of free cash flows and growth prospects and the number of acquisitions agency costs. To do so, employ a range of techniques to analyze the data collected for large UK listed companies: fixed-effects, instrumental variables, and Tobit regressions the authors. Results show that the changes in board structures have not affected agency costs. This suggests a range of mechanisms is consistent with firm value maximization. Results also indicate that having a nomination committee increases agency costs, which indicates that there are costs associated with certain governance mechanisms. Increasing board ownership also helps to reduce agency costs. Finally debt reduces agency costs.

In our study we presume, in accordance with the theory of interest convergence, that as the managerial ownership increases, their behavior comes closer of the one of shareholders. It results in a limitation of the free cash flow risk.

Hypothesis10: free cash flow level will be lower at higher levels of managerial ownership.

The internationalization of financial markets made the institutional investors the major actors of the world economy given their large portfolio size. According to the OECD (2000), the institutional investors regroup four types of institutions: funds of pension, the mutual funds or investment Society, companies of insurances and the other institutional investor form as foundations or Private investment partnerships. Forester (1995) stipulates that the institutional investor presence pushes enterprises to be more conformable to recommendations of the various codes of good governance and can have an effect on the corporate performance by minimizing agency costs.

In this context, Bohn (2007) indicates that the movement of the governance benefitted from an important soaring in 2002 following the study achieved by the management consulting McKinseys & Company concerning the institutional investors through the world, that showed that these investors would be ready to invest significant funds in the control of firms and to pay for a supplement until 40% to make a firm having good corporate governance practices.

Several studies confirmed the positive role of the institutional investors in the corporate governance. Thus, McConnel and Servaes (1990) indicate that the implication of the institutional would result in their propensity to vote in general assembly (Brickley, Lease and Smith, 1988). Their study establishes that these investors exercise their voting rights more frequently than the individual shareholders and that they don't hesitate to oppose to managers decisions in order to defend their interests in case of dissatisfaction.

In their seminal paper, Pound (1988) presented three hypotheses concerning the effect of institutional ownership on firm performance: efficient monitoring, conflict of interest, and strategic alignment. According to the first hypothesis, institutional investors may have a positive impact on corporate performance if they monitored the managers effectively. They held more stocks and were more professional than private investors, so they had stronger motive to inspect the listed companies. Under the second hypothesis, institutional investors are less subject to information asymmetries than are other shareholders because they have greater resources, incentives for control firms and financial resources.

Finally, the third hypothesis suggests that the institutional investors and managers find that cooperation is mutually advantageous. This cooperation reduces the beneficial effects on the firm value that could be result from the direction by the institutional investors.

According to Solh (2000), the institutional investors can influence the long-term investment decisions and encourage the company's management to choose the optimal projects from the point of view of shareholder interest.

Henry (2010) indicates that the institutional investors have a larger experience and they are

more efficient monitors that the minority shareholders on the plane cost of control. Strategies that are accepted by the institutional investors are those that will be undertaken by firm through the accumulation of an important number of votes at the time of the board meeting what has the tendency to privilege the strategies creative of the value to the detriment of those destructive of the value to shareholders. Indeed, resources of which they arrange allow them to control the firm to a weaker cost that the other shareholders. It is due to the fact that they have a better access to information, because of their activity and the numerous investments that they achieve, a rich information on the environment and an excellent knowledge of the labor market. So institutional investors should help to facilitate the alignment of shareholder and managerial interests and, therefore, lower estimated agency costs. Darren (2010) identify the mechanisms that are effective in reducing agency costs using data for the period from 1992 to 2002 for listed companies on the Australian Stock Exchange. Empirical results indicate that institutional ownership has a negative effect on agency costs and there are a non-linear relationships between managerial ownership and external ownership and the level of agency costs generated by companies. Though, the results provide limited evidence, in the effect of capital structure on agency costs. Finally, it is showed that internal governance and external shareholding influences are substitute mechanisms in their effect on the level of agency costs.

Several works test the interaction between corporate governance mechanisms. Agrawal and Knoeber (1996) examine the relationship between seven corporate governance mechanisms in mitigating agency problems between managers and shareholders. These mechanisms are: shareholdings of insiders, institutions, and large blockholders; use of outside directors, debt policy, the managerial labor market and the market for corporate control. Results show that ownership concentration and institutional ownership constitute a substitute to the external ownership. Moreover, the findings demonstrate a relation of complementarity between OPA, shareholdings of institutions, and large blockholders.

Kale, Ciceksever and Ryan (2006) estimate a system of three equations to analyze the interrelations among governance, debt, and activist institutional ownership as disciplining mechanisms. Using two-stage least squares, the findings of analysis indicate that mechanisms for disciplining managers serve as both substitutes (institutional ownership and debt) and complements (governance and institutional ownership)

Al - Khouri (2006), find for a sample of listed firms on the stock market of Amman during the period 1998-2001, a positive and significant relationship between the institutional ownership and the firm value proxied by Tobin Q whether or not institutional investors are on the board of directors. This relationship is verified provided that the part of institutional ownership exceeds 25%.

Wu (2004) shows that in the firms with low growth opportunities, institutional investors discourage managerial overspending by governance process and hence compensate for the debt monitoring. However, in the firms with high growth opportunities, institutional investors encourage higher leverage. Thus, Author finds that the institutional substitutes ownership the leverage in controlling the managerial self-interest.

McKnight and Weir (2009), prove that at higher levels of institutional ownership, institutions become less effective in supervising managerial actions and may not moderate the agency cost problem.

Hypothèse11: free cash flow level will be lower at higher levels of institutional ownership.

3. Methodology

The review of the empirical literature treating the role of the debt and the ownership structure, as mechanism of resolution of agency conflicts between shareholders and managers due to the overinvestment problem brings us to note the contradiction and the empirical result ambiguousness don't seem again today to permit to succeed to the robust findings. It is therefore useful to spread knowledge on this topic and to see if the same factors keep in a different environment such the one of Tunisia.

3.1. Sample Selection and the definition of the variables

3.1.1. Sample selection

Our sample consists of firms listed on the Tunisian stock exchange. Because banks and insurances are subject to specific rules and regulations, their leverage is severely affected by exogenous factors. So, Following Rajan and Zingales (1995), we exclude all firms categorized as"Financials" and focus exclusively on non-financial firms. Moreover, we eliminated firms not having long term debts (variable important of the model). Data used is provided by the Tunisian Stock Exchange and the Council of Capital Market through respectively their official bulletins and their annuals reports covering the period from 1998 to 2008. The analysis is about the period from 1999 to 2008. The year 1998 serves to calculate some parameters that are variations. Our final sample consisted of 35 firms with a total of 206 firm year observations.

3.1.2. Definition of the variables

3.1.2.1. Dependent variables

We use two dependent variables in this study: the leverage (proxied by the long term debt ratio) and the level of free cash flow.

Surprisingly, there is no clear-cut definition of leverage in the academic literature. The specific choice depends on the objective of the analysis. On one hand, the total debt ratio has been used by several authors (Kremp and Stöss (2001) and Hovakimian 2005). whereas Rajan and Zingales (1995) asserts that a ratio that includes the total debts doesn't constitute a good indicator, notably to put in exergue risks of bankruptcy of the firm. However, the short-term debt ratio has also been used by Titman and Wessels (1988). On another hand, some authors use the market value of debts as Taggart (1977), Titman and Wessels (1988), Flannery and Rangan (2006). Other authors as Benett and Donnelly (1993), Chang, Lee and Lee (2008), Huang and Song (2006) used both market value and book value of debt. In our study, we use the same definition of leverage as Lang et al(1996), namely the ratio of the book value of long-term debt to the book value of total assets in order to not neutralize the impact of agency costs joined to the leverage(Myers, 1977). This measure would not reflect recent changes in the markets. This measure has been used by Mello and Miranda (2010) who investigate the role of long-term debt in influencing over investments by analyzing the pattern of abnormal investments around a new debt offering by unlevered firms. Pao (2008) precise that all studies that are interested in determinants of the capital structure judged that the difference between the market value of debt is very close to book value of debt.

$$Leverage = \frac{book\ value\ of\ long\ term\ debt}{book\ value\ of\ total\ assets}$$

literature provides mixed guidance on the measures of free cash flow, which Jensen (1986) defines as cash flow left after firms have invested all available positive NPV projects. Since the value of positive NPV projects is unobservable, free cash flow is difficult to measure in practice. The most commonly used FCF definition is the one suggested by Lehn and Poulsen(1989). Their measure of FCF is the operating income before depreciation minus taxes, interest expenses, and preferred and common dividends. Also, some authors define it as the operational income before depreciation, capital expenditures and taxes, divided by the book value of total asset In order to eliminate any size effect (Lang and al., 1991). Gul and Tsui (1998) argue that these measures of FCF by themselves do not provide a measure of the availability of positive NPV projects. However, in combination with low growth, they suggest the existence of cash flow in excess of that required to fund positive NPV projects.

Recently, Richardson (2006) constructs a measure of free cash flow. This measure is "the cash flow from operations, plus research and development expenditure less the 'required' maintenance less the 'expected' level of investment". Richardson applies "the label 'free' cash flows to the resulting measure, which is cash flow less the assumed non-discretionary and mandated components of investment". He suggests "The stated goal is to create a measure of the amount of cash flows that are not encumbered by the need to maintain the existing assets of the firm".

In our study we measure cash flow as:

$$\text{Free Cash flow} = (OI - T + D - NI - \Delta WCR) / TA$$

OI: operating income
T: tax
D: depreciation
NI: Net Investment
ΔWCR: change in working capital requirements
TA: total assets

To take account of growth opportunities we refer to studies of Miguel and Pindado (2001) Pindado and De la Torre (2009) and Nekhili et al. (2009), and we are going to measure the risk of free cash flow while multiplying free cash flow by the inverse of the Tobin Q. This last is measured like Dennis and al. (1994) which is market value of equity divided by book value of equity

Also, in accordance with Nekhili et al., (2009), we consider the Tobin Q at the year t-1. The authors argue that investments that are determined at the year t concern growth opportunities relative at the year t-1.

3.1.2.2. Independent variables

A detailed discussion of the variable construction is presented in Table 1.

Three explanatory variables are included as control variables on the basis of prior studies that investigate the determinants of free cash flow: state ownership, firm size and industry classification. According to the agency theory, state ownership is reputed to be inefficient due to the lack of capital market monitoring. Thus, it would incite their managers to pursue their own interests instead of those of their institutions. Managers of the private firms will have a stronger pressure of their environment and a more intense disciplinary effect from the capital market which can considerably reduce the inefficiency of these firms, (Lang and So, 2002). Indeed, through the control by goods and services market (competitive pressure of the sector), the badly managed companies should naturally disappear. However, often, public

corporations are in position of monopoly and have not competitors. Besides, through the control by the financial market, badly managed firms constituent targets for the more effective acquirers. However, stocks detained by the state are generally non transferable and the state imposes a strict control on partners. Also, the diffusion of information concerning the firm to the capital market is often confused (political considerations, rules of public accounting). Also, managers who are members of the board of directors have no interest to contest the president decisions being discerned like emanating from the government. So we presume a negative relationship between state ownership and firm size (proxy as logarithm of total assets) is used to explain the complexity of the surveillance required in the largest firms. We presume a negative relationship between the size and the risk of free cash flow in accordance with Jensen (1986), that precise that large firms, had much cash flow, would prefer debt financing in order to discipline managers what limits the risk of free cash flow. For the variable "industry" we anticipate that his sign is negative. Indeed, following restructurings of the Tunisian industrial firms, these will issue debts, what minimizes the level of free cash flow.

Table 1. Definition and measurement of the variables

	Code	Proxy
Dependent variables		
Leverage	Lev	Leverage is measured as long-term debt over the book value of total assets.
free cash flow risk	FCF	FCF =/ Tobin Q_{t-1}
Independent variables		
Firm size	Size	Log (total assets)
Fixed assets	Tang	$\text{Tangibility} = \frac{\text{tangible assets} + \text{stock}}{2\text{total assets}}$
Profitability	Profit	Profit = earnings before interest and taxes / total assets
Tax paid	Tax	Tax = taxe paid / earning before interest and taxes
Operational risk	Risk	Variation of ***Return On Capital Employed*** $= \frac{\text{variation of operating income - tax}}{\text{fixed assets + working capital requirement}}$
Growth opportunities	Growth	Total assets_t-total assets_{t-1} / total assets_{t-1}
Industry classification	Ind	***Dummy variable*** equal to one if the firm belongs to the industry sector and zero otherwise
Managerial ownership	MAN	MAN = Amount of shares that were owned directors and member of the board / Total of share
Ownership concentration	CONC	Percentage of share owned by the ***largest five shareholders*** in a firm. CONC ; K represents the kème sharedolder in a rank of decreasing order of importance
Institutional ownership	INS	.INS = Amount of shares that were owned institutional investors / Total of share Institutional investors are banks, investment society, companies of insurances and cases of social security

3.3. Descriptive Statistics

Table 2. Descriptive Statistic of the variables

	Observation	Mean	Stdv	min	max
LEV	206	0,200	0,270	0,0002	2,254
FCF	206	0,173	0,239	-0,415	1,235
Size	206	10,963	0,892	9,240	14,205
Tang	206	0,494	0,163	0,143	0,869
Tax	206	0,087	0,091	-0,159	0,361
Growth	206	0,078	0,176	-0,241	1,391
Profit	206	0,074	0,079	-0,237	0,282
Risk	206	-0,001	0,091	-0,551	0,395
Man	206	0,652	0,144	0,303	1,000
Inst	206	0,236	0,240	0,000	0,880
Conc	206	0,708	0,130	0,274	0,961

Table 2 shows the statistic descriptive of the characteristic of the endogen and exogen variables in the relationship between debt policy, free cash flow and ownership structure of this study. It is mainly about the non weighted averages, of standard deviation as well as of the minimal and maximal values of distributions. Mean value of the debt ratio (leverage) is 0.20 (20%). It shows that the firms in Tunisia use debt not so much for financing their activity. Minimum value of using debt is 0.0002 (0.02%) and maximum value is 2.254 (200.254)% with standard deviation is 0.27 (27%). Otherwise, an important stylized fact on Tunisian firms is the concentration of the ownership whose mean value is 0.708 (70.8%). Besides, mean value of the managerial ownership is 65.2% with a maximum that reaches 100%. Managers and administrators of the Tunisian firms hold a strong proportion of the capital therefore what sustains the join of functions of ownership and control. Finally, we note that the institutional ownership is restraint. It is on average equal to 23.6%.

According to the free cash flow theory, the divergence of interest between shareholders and managers should be the most severe in the firms with few growth opportunities and large free cash flow. Hence the relations between ownership structure, free cash flow and leverage are most important for these firms. following the study of Nekhili and al (2009) and Awan And al (2010), we decompose our sample in two groups of firms depending on whether their level of free cash flow is low or high in order to determine variables can characterize every group.

Table 3. Provides descriptive statistics for low-fcf and high-fcf firms

Variables		**Total sample (Nb = 206)**	**Group 1 : low FCF (Nb = 131)**	**Group 2 : high FCF (Nb = 75)**
Leverage	Mean	0,200	0,187	0,224
	Stdv	0,270	0,267	0,276
	Min	0,0002	0,0003	0,0003
	Max	2,254	2,254	2,075
Man	Mean	0,652	0,629	0,692
	Stdv	0,144	0,138	0,144
	Min	0,303	0,303	0,328
	Max	1,000	1,000	0,890
Inst	Mean	0,236	0,250	0,213
	Stdv	0,240	0,235	0,248
	Min	0,000	0,000	0,000
	Max	0,880	0,880	0,880
Conc	Mean	0,708	0,685	0,749
	Stdv	0,130	0,130	0,121
	Min	0,274	0,274	0,475
	Max	0,961	0,946	0,961
Size	Mean	10,963	10,972	10,947
	Stdv	0,892	0,874	0,928
	Min	9,240	9,560	9,240
	Max	14,205	14,108	14,205

As expected, high-fcf firms have higher amount of debt in their capital structure than low-fcf firms. The mean leverage for high-fcf firms is 22.4 percent, compared to a mean of 18.7 percent for low-fcf firms. This is consistent with the free cash flow hypothesis in which firms with higher fcf and fewer growth opportunities have higher levels of leverage.

There is also evidence that ownership structure differs between the two subsamples. Low-fcf firms have lower managerial ownership and concentration ownership. The mean managerial ownership for low-fcf firms is 62.9 percent, compared to a mean of 69.2 percent for high-fcf firms. The mean concentration ownership for low-fcf firms is 68.5 percent, compared to a mean of 74.9 percent for high-fcf firms. It appears,

therefore, that some governance mechanisms of governance intervene as soon as the level of the free cash flow increases. Nevertheless, the mean institutional ownership for high-fcf firms is 21.3 percent compared to a mean of 25 percent for low-fcf firms what lets prejudge that the institutional ownership is not an efficient mechanism in the limitation of the free cash flow problem.

Table 4. The correlation matrix of the independent variables

	Leverage	FCF	Size	Tang	Tax	Growth	Profit	Risk	Conc	Man	Inst	State
Leverage	1											
FCF	-0.144	1										
Size	0.156	-0.086	1									
Tang	-0.043	-0.107	-0.061	1								
Tax	-0.282	0.149	-0.207	-0.139	1							
Growth	-0.185	-0.033	-0.005	-0.008	0.092	1						
Profit	-0.511	0.247	-0.121	-0.196	0.500	0.175	1					
Risk	0.005	0.001	-0.037	-0.057	0.067	-0.093	0.160	1				
Conc	0.316	0.241	0.244	-0.098	-0.086	-0.091	-0.184	-0.004	1			
Man	0.345	0.244	0.329	-0.047	-0.016	-0.138	-0.151	0.032	0.727	1		
Inst	0.404	-0.130	0.050	0.186	-0.095	-0.035	-0.307	0.089	0.104	0.233	1	
State	0.3387	-0.318	0.315	0.205	0.109	-0.127	-0 .37	-0.005	0.261	0.35	0.401	1

Before achieving regressions it is indispensable to study correlation between the independent variables and to test the multicollinearity problem. The correlation matrix shows relations between all explanatory variables. It is to signal that correlation between the independent variables are weak or moderate which reduced multicollinearity problem. However, the correlation matrix shows that variable "MAN" and variable "CONC" are highly correlated. So, we may keep only one variable in every equation in order to examine the true relationship between the independent variables and the free cash flow and avoid the problem of correlation between variables.

3.4. Specification of the simultaneous equations model and method of estimation

3.4.1. Specification and the identification of the model

A simultaneous equations approach particularly 3SLS is deemed to be appropriate on the basis of the interrelationships among the agency-cost-reducing mechanisms. This study uses a two-equation model with free cash flow and leverage as the dependent variables. Additional leverage appears as a regressor in the free cash flow equation and vice-versa. Thus, the leverage and free cash flow are simultaneously determined.

$$\begin{cases} Leverage_{i,t} = \beta_0 + \beta_1\, Size_{i,t} + \beta_2\, Tang_{i,t} + \beta_3\, Tax_{i,t} + \beta_4\, Growth_{,t} + \beta_5\, FCFi_{,t} + \beta_6\, Profit_{i,t} + \beta_7 Risk_{i,t} + \beta_8 Ind_{i,t} + \varepsilon_{1i} \quad (1) \\ FCF_{i,t} = \alpha_0 + \alpha_1\, Leverage_{i,t} + \alpha_2\, MAN_{i,t} + \alpha_3 INST_{i,t} + \alpha_4\, State + \alpha_5\, Size_{i,t} + \alpha_6\, Ind_{i,t} + \varepsilon_{2i,t} \quad (2) \\ Leverage_{i,t} = \delta_0 + \delta_1\, Size_{i,t} + \delta_2\, Tang_{i,t} + \delta_3\, Tax_{i,t} + \delta_4\, Growth_{,t} + \delta_5\, FCFi_{,t} + \delta_6\, Profit_{i,t} + \delta_7 Risk_{i,t} + \delta_8 Ind_{i,t} + \varepsilon_{1i,t} \quad (3) \\ FCF_{i,t} = \gamma_0 + \gamma_1 Leverage_{i,t} + \gamma_2 CONC_{,t} + \gamma_3 INST_{i,t} + \gamma_4 State + \gamma_5 Size_{i,t} + \gamma_6 Ind_{i,t} + \varepsilon_{2i,t} \quad (4) \end{cases}$$

Leverage equation, includes measures of firm size (Size), tangible assets (Tang), tax paid (Tax), asset growth (GROWTH), level of free cash flow (FCF), earning (profit), variation of the economic profitability rate (Risk) and industry (Ind). While free cash flow equation includes long term debt (Leverage), institutional ownership (INST), managerial stock ownership (MAN), concentration ownership (CONC), state ownership, size of the firm (Size) and industry (Ind).

$\varepsilon 1it = a1i + \mu 1it$
$\varepsilon 2it = a2i + \mu 2it$
$\varepsilon 3it = a3i + \mu 3it$
$\varepsilon 4it = a4i + \mu 4it$
i = 1, ... N and t = 1, ... T
N : the number of firms and T : the estimation period

ε1it, ε2it, ε3it and ε4it: Error Term corresponding respectively to the first, to the second, to the third and the fourth equation,

ai et μit are random non-correlated perturbations

a1i, a2i ,a3i and a4i: specific individual effects corresponding respectively to the first, to the second, to the third and the fourth equation

β1…… β8 and δ11…… δ8 representative parameters of the relative weight of each exogenous variable on the variable to explain: « leverage »

α1 ….. α5 and γ1 …… γ5: representative parameters of the relative weight of each exogenous variable on the variable to explain « Free Cash Flow » ;

β0 , α0, δ0 and γ0: constants corresponding respectively to the first, to the second, to the third and the fourth equation,.

3.4.2. The identification condition in the model

Order conditions are determined equation by equation. They are verified when the number of endogenous variables excluded (k - k') plus the number of exogenous variables excluded (g - g') is superior or equal to the number of equations less 1: (k - k') + (g - g') ≥ (e - 1).

The equation is under - identified if (k - k') <(g' - 1)

The equation is exactly identified if (k - k') = (g' - 1)

The equation is over - identified if (k - k')> (g' - 1)

With:

g: number of endogenous variables of the model;

k: number of exogenous variables of the model;

g': number of endogenous variables introduced in an equation;

k': number of exogenous variables introduced in an equation;

Rank conditions assure here that the model, under its reduced form, possesses a unique solution. The rank conditions for empirical identification are relatively complicated.

A simultaneous linear equation model is identified if all the equations are identified.

Table 5. The ***identification condition in the model***

Equation	**g**	**k**	**g'**	**k'**	**k-k'**	**g'-1**	**Identification**
Equation 1	2	10	2	7	3	1	k-k' > g'-1; The equation is over - identified
Equation 2	2	10	2	4	5	1	k-k' > g'-1; The equation is over - identified

3.4.3. Method of estimation

The model describes below is a simultaneous equations model of the leverage and the level of free cash flow. We can estimate parameters of the system when equations are exactly-identified or over - identified. We distinguish limited information method and full information method. The first consist in estimating equation by equation the model by the two stage least square method. The second consider the model in its totality and we use here the three stage least square method (Cadoret and al. (2004)). Our model will be estimated by the three stage least square method with 206 observations on the period 1999-2008. The system of two simultaneous equations, for every firm i and every year t, can be written:

$$y = Z\delta + \varepsilon \qquad (5)$$

as,

$$y = \begin{bmatrix} y_1 \\ y_2 \end{bmatrix} = \begin{bmatrix} Z_1 & 0 & 0 \\ 0 & Z_2 & 0 \end{bmatrix} \begin{bmatrix} \delta_1 \\ \delta_2 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \end{bmatrix} \qquad (6)$$

as :

$y' = (y_1, y_2)$ is vector of endogenous variables (long term debt and free cash flow)

Vectors of the explanatory endogenous and exogenous variables of the equation of leverage Z1 and the level of free cash flow Z2, are :

Z_1 = [Size, tang, Tax, Growt, Profit, Risk, Ind]

Z_2 = [MAN or CONC, INST, State, Size, Ind] (7)

δ_s represent the vector of coefficients of all explanatory variables (endogenous and exogenous).

For error term:

$E(\varepsilon) = 0$

$E(\varepsilon\varepsilon') = [\sigma_{sh} I]$ is the variance-covariance matrix

In the case of the simultaneous equations, the interdependence of endogenous variables deal place to an interdependence of error terms, what calls at the time of the estimation on the three least square

method. This method consists in estimating the system in three stages. The first two stages are those of the two least square method applied separately to every equation of the system under its reduced form. Therefore, in our case we have three equations to estimate. The reduced form of the system is gotten by the application of the following stages: while using vectors (7), we can define a matrix B of three endogenous variable coefficients and a matrix A of exogenous variable coefficients as:

$$y' = (B - I)' + X'A = \varsigma$$

$$y' = -X'A(B - I)^{t-1} + \varsigma'(B - I)^{t-1}$$

$$y' \equiv X'\Pi + \nu$$

$$\Pi \equiv -A'(B - I)^{t-1}$$

Π_h and Π'_h the generic elements of the matrix

$\nu' \equiv \varsigma(B - I)^{t-1}$

the variance-covariance matrix of error terms $E[\nu\nu']$ is:

$$E[\nu\nu'] = (B - I)^{-1} \sum \Omega I (B - I)^{t-1}$$

Then, the reduced form of the explicit system is the following:

$$Leverage_{it} = \Pi_0 + \Pi_1 Size_0 + \Pi_2 Tang_{it} + \Pi_3 Tax_{it} +$$
$$\Pi_4 Growth_{it} + \Pi_5 \Pr ofit_{it} + \Pi_6 Risk_{it} + \Pi_7 Ind + v_1$$
$$FCF_{it} = \Pi'_0 + \Pi'_1 MAN_{it} / CONC_{it} + \Pi'_2 Leverage_{it}$$
$$+ \Pi'_3 INST_{it} + \Pi'_4 State + \Pi'_5 Size_{it} + \Pi'_5 Ind_{it} + v'_2$$

To this level the evaluation is done while applying the ordinary least square method, and we get $\hat{\Pi}$ the estimator of Π

$$\hat{\Pi} = (X'X)^{-1} X'y$$

This method permits us to get values $\hat{y}_1$ and $\hat{y}_2$ serving to get the instrumental variables in the two equations. The following procedure consists in estimating every equation of the structural system while using the gotten instruments while applying the two least square method. So, we get an estimator $\hat{\sigma}_s$. The objective will be to construct the estimated matrix of variance - covariance matrix of error terms that is going to be used like ponderation matrix whose generic element $\hat{\sigma}_{ij}$ is :

$$\hat{\sigma}_{ij} = \frac{\left(y_i - Z_i \hat{\delta}_i\right)\left(y_j - Z_j \hat{\delta}_j\right)}{n}$$

n : the number of years.

The third and last stage consists in estimating simultaneously the three equations with the triple least square method.

4. Empirical results and discussion

Three stage east square results

Result of the joint estimation of debt policy and free cash flow level are presented at panel A, panel B, panel C and Panel D of Table 1.

Table 6. Estimated Coefficients for the leverage and free cash flow Using Thtree-Stage Least Squares Method

Panel A: Equation 1: $Leverage_{i,t} = \beta_0 + \beta_1 Size_{i,t} + \beta_2 Tang_{i,t} + \beta_3 Tax_{i,t} + \beta_4 Growth_{i,t} + \beta_5 FCF_{i,t} + \beta_6 Profit_{i,t} + \beta_7 Risk_{i,t} + \beta_8 Ind_{i,t} + \varepsilon_{1i,t}$

Variable	Coefficient	t-Statistic	Prob.
Contant	0,255	1,16	0,248
Size	0,020	1,08	0,282
Tang	-0,227	-2, 18**	0,030
Tax	-0,110	-0,54	0,588
Growth	-0,113	-1,22	0,221
FCF	-0,108	-1,56	0,118
Profit	-1,670	-6,87***	0,000
Risk	0,177	1,09	0,277
Ind	-0,019	-0.45	0,654
R-squared	0, 2988		
Number of observation	206		

Panel B: Equation 2: $FCF_{i,t} = \alpha_0 + \alpha_1 Leverage_{i,t} + \alpha_2 MAN_{i,t} + \alpha_3 INST_{i,t} + \alpha_4 State_{i,t} + \alpha_5 Size_{i,t} + \alpha_6 Ind_{i,t} + \varepsilon_{2i,t}$

Variable	Coefficient	t-Statistic	Prob.
Constant	0,105	0,55	0,585
Leverage	-0,195***	-3, 25	0,001
Man	0,734***	6,11	0,000
Inst	0,004	0,07	0,947
State	-0,316***	-5,5	0,000
Size	-0,025	-1,43	0,152
Ind	-0,042	-1,11	0,265
R-squared	0,2758		
Number of observation	206		

Panel C: Equation 3: $Leverage_{i,t} = \delta_0 + \delta_1 Size_{i,t} + \delta_2 Tang_{i,t} + \delta_3 Tax_{i,t} + \delta_4 Growth_{,t} + \delta_5 FCFi_{,t} + \delta_6 Profit_{i,t} + \delta_7 Risk_{i,t} + \delta_8 Ind_{i,t} + \varepsilon_{1i,t}$

Variable	Coefficient	t-Statistic	Prob.
Constant	0, 273	(1,24)	0.217
Size	0,019	(1,02)	0.306
Tang	-0,231**	(-2,22)	0.027
Tax	-0,124	(-0, 61)	0.542
Growth	-0,107	(-1,17)	0.243
FCF	-0,129**	(-1,86)	0.063
Profit	-1,663***	(-6,86)	0.000
Risk	0,175	(1,08)	0.279
Ind	-0,021	(-0,51)	0.609
R-squared	0.2961		
Number of observation	206		

Panel D: Equation 4: $FCF_{i,t} = \gamma_0 + \gamma_1 Leverage_{i,t} + \gamma_2 CONC_{,t} + \gamma_3 INST_{i,t} + \gamma_4 State_{i,t} + \gamma_5 Size_{i,t} + \gamma_6 Ind_{i,t} + \varepsilon_{2i,t}$

Variable	Coefficient	t-Statistic	Prob.
Constant	0,003	(0,02)	0.985
Leverage	-0,216***	(-3, 48)	0.000
Conc	0,653***	(5,20)	0.000
INST	0,065	(0,92)	0.356
State	-0,289***	(-4,96)	0.000
Size	-0,015 *	(-0,87)	0.386
Ind	-0,071 **	(-1,86)	0.063
R-squared	0.2398		
Number of observation	206		

* Significant at the 0.10 level. ** Significant at the 0.05 level. *** Significant at the 0.01 level.

4.1. The impact of debt policy on free cash flow levels

The findings suggest that there is a significant impact of leverage which serves as a monitoring device to mitigate agency problem between owner and principal. The leverage variable has the negative predicted sign in the free cash flow equation and is statistically significant at the 0.01 level. Our result corroborates the hypothesis of free cash flow of Jensen (1986) and confirms the empirical study of Wu (2004) who explore the implications of the free cash flow hypothesis concerning the disciplinary role of ownership structure in corporate capital structure policy. The author finds that the sensitivity of ownership structure to leverage depends on growth opportunities and free cash flow. When firms in the sample are classified as low-growth and high-growth firms, relation between leverage and free cash flow are significantly greater for low-growth firms than for the high-growth firms. Moreover, we observe evidence that firms with more severe overinvestment problem have higher levels of

leverage and the coefficient of free cash flow are significantly positive, consistent with the free cash flow hypothesis. Our result corroborates the previous result of D'Mello and Miranda (2010) who shows that issuing debt leads to a dramatic reduction in this form of overinvestment and within three years of the offering the sample firms' cash ratios are similar to their industry benchmarks. Also, these relations are stronger for firms that have poor investment opportunities relative to other sample firms implying that debt plays an especially important role in reducing excess investments in firms that have the highest agency problems.

However, our result contradicts the empirical evidence of Nekhili et al., (2009) who show that it is distribution of dividends – rather than debt level – that leads to reduction of free cash flow.

In sum, our results indicate that debt plays a critical role in reducing the agency costs of free cash flow in Tunisian firms.

4.2. Capital structure determinants

Our findings show that the coefficient associated to the weight of immobilizations in the total of asset has a negative and significant sign at the 0.05 level. Our hypothesis H3(b) concerning the relation between the leverage and the structure of asset is therefore confirmed. Our finding corroborates the empirical study of Hosono (2003) concerning the capital structure determinants of Manufacturing Firms in Japan.

Otherwise, this finding seems to confirm the pecking order theory that suggests that firms with few tangible assets will be most sensitive to the information asymmetry. So they, will use the debt that is an external financing vehicle less sensitive to information asymmetry that stocks (Harris and Raviv 1991). Indeed, in Tunisia the major part of the firm debt banking. According to Rajan and Zingales (1995), the tangibility of assets must take less importance in countries bank-dominated. Another explanation more specific to the Tunisian firms, and relative to the real value of fixed assets which is appreciated (and the appreciation has not been reflected in accounts of the firms), will be able to be to the origin of this relation.

Besides, profitability is strongly negatively related with leverage. This negative correlation demonstrates that the highly profitable firms have need of less external funds. It support for the pecking order theory by Myers and Majluf (1984). It is also consistent with Huang and Song (2006) for listed firms in China and Sheikh and Wang (2010) for firms listed on the stock market of Karachi. An explanation consists in considering that the profitable Tunisian firms are more incited to finance their activities by the financial markets and no by the debt. This finding also comes in support of the hypothesis that stipulates that managers choose the internal financing resource in the first place in order to control agency costs resulting from external financing.

Finally, it is to signal that no conclusion can be made as for the effect of the size, of the variation of the risk, of the firm growth and of the tax on the leverage from the moment the relative coefficients are non significant in the two equations of the leverage. In the same way, the relative coefficient to the variable «industry» is always non significant. In other words, the industrial firms don't appear more levered nor less levered than the non industrial firms. This finding comes in support of those found by Drobetz and Fix (2005) for the Swiss firms and Kim and al., (2006) for the non financial listed firms in Korea.

4.3. The impact of ownership structure on free cash flow levels

Results show that the coefficient of the variable "MAN" is positive and statistically significant at the 0.1 level, in accordance with the entrenchment theory. So, when managerial ownership increase, the risk to waste the free cash flow is raised which can amplify conflicts between shareholders and managers. thus, managers try to spend the free cash flow that is at their service in the non profitable projects and to negative NPV in the only objective to increase the firm size to increase, consequently, their remuneration. Therefore, our hypothesis 10 is invalidated. Our result corroborates Lee and Yeo (2007) who suggest that firm where the principal manager is himself the president of the board of directors, and where more than half of the members are not outside directors, have a weak level of debt. In this case managers have an enormous amount of free cash flow that is going to be used in activities that serve their own interests at the expense of those of shareholders.

Also, Our results show that the coefficient associated to the ownership concentration has a positive and significant sign at the 0.01 level what demonstrate that Companies characterized by the presence of a large blockholder have higher risk of free cash flow. Our finding confirms the result of Nekhili et al., (2009) for the case of the French firms. Authors explain these findings by 3 arguments. First, the majority shareholders undertake nonprofit investments with other firms that are affiliated to them. Secondly, the majority shareholders cannot acquire all information detained by managers. Third, the limited relationship that shareholders maintain with the entrenched managers doesn't permit them to criticize their choices.

Otherwise, analysis showed that institutional ownership had a non-significant effect on free cash flow. The non significant impact can be explained by the restricted part detained by the institutional

investors in the capital of the Tunisian listed firms. Our findings corroborate the neutrality thesis of ownership structure developed by Demsetz (1983), Demsetz and Lehn (1985), and Demsetz and Villalonga (2001).

The coefficients of variable "State" are significant for two regressions. We find a negative correlation between level of free cash flow and the state ownership at the 0.01 level which is in concordance with our hypothesis. As state ownership increases, there is more pressure on management to limit the wasting of free cash flow. Our results bring accusation a quasi – evident conclusion admitted by economists which is the primacy of the private sector. Also, they put in exergue the importance of public firms. In fact, these firms not only fill several social objectives but control also the behavior of managers. These results are essentially owed to the context of the study: a developing country where the state plays a determining role in the economic life and where the private sector cannot assure alone the good functioning of the economy.

In reality, the presence of the state stays until our days predominate in the most Tunisian firms in spite of the privatization program started since several years. The public powers constitute the authority of regimentation and thus define a set of measures to repressive character or purifying in order to discipline managers.

Finally, the coefficient of the variable «Industry " is negative and statistically significant in the equation of free cash flow what shows that the risk of free cash flow is weak in the industrial firms.

5. Conclusion and implication

The purpose of this paper is to explore the implications of the free cash flow hypothesis concerning the disciplinary role of ownership structure and capital structure policy in an emerging stock exchange such as that of Tunisia. we adopted the three stage least square simultaneous model approach basis of a sample composed of 35 non financial listed firms during the period going from 1999 to 2008. Our results show that firms with more severe overinvestment problem have higher levels of leverage and the impact of the leverage on the free cash flow is significantly negative, consistent with the free cash flow hypothesis. Moreover, state ownership has a positive effect on the level of free cash flow. Hence, in the Tunisian firms, the overinvestment problem can be mitigated by issuing debt and by increasing state ownership. However, the ownership concentration and the managerial ownership increase the risk of the free cash flow. Though, the impact of institutional ownership on free cash flow is not significant. Finally, we should signal that the estimated model doesn't integrate all corporate governance mechanisms. We mention the audit committee, the dividend policy and the board of directors that constitute also the main systems of control omitted in our study.

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SHOULD THE 4 BIG REPLACE THE BIG 4? AN EXAMINATION OF AUDIT QUALITY USING INTERNAL AUDIT

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Abstract

Prior research has linked audit quality with large audit firms. Consequently, a dichotomous variable, Big N/non-Big N has traditionally proxied for audit quality. Applying a different measure of audit quality than audit fee, this study investigates whether a single dummy variable for Big N is an appropriate proxy for audit quality in explaining differences in the existence of clients' internal audit (IA) function. Results indicate that the existence of clients' IA function is not consistent among Big 4 firms. This has important research implications for the universal use of a Big N dummy variable as a measure for audit quality.

Keywords: Audit Quality, Big 4, Internal Audit, Corporate Governance and Intra-Big N Differences

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1. Introduction

Research over the last three decades has consistently linked audit quality with large international audit firms(Hay et al., 2006), often proxied by the ability of these large audit firms to charge a fee premium (Simunic, 1980). These studies offer a variety of plausible reasons for the observation of a fee premium. For example, it is proposed that audit clients have a heterogeneous demand for audit quality, considering the costs and benefits accruing from a quality audit whereby larger audit firms service clients with a need for a higher quality audit (Blokdijk et al., 2006, DeAngelo, 1981, Francis et al., 1999, Palmrose, 1988, Teoh and Wong, 1993).

It is suggested that audit quality increases with audit firm size. This is arguably because: of differences in loss function faced by large firms compared to their smaller counterparts; larger audit firms have lower litigation rates than smaller audit firms; stock price reaction is higher for clients of larger firms when positive unexpected earnings are announced; and larger audit firms are more likely to be able to restrict their clients' income-increasing discretionary accruals than are smaller audit firms (Becker et al., 1998, Behn et al., 2008, Choi et al., 2005, Jeong and Rho, 2004).

Given the evidence differentiating audit firms by size, researchers have systematically used Big N audit firm/non-Big N audit firm as an indicator variable to proxy for audit quality, even though the acknowledged group of large audit firms has halved from eight to four since the late 1970s.Given the changes over time in the number of large audit firms, we use the term N to denote the number of large firms at a given point in time. For instance, at the time of the study by Simunic (1980), the Big 8 accounting firms were Arthur Andersen & Co., Arthur Young & Co., Coopers & Lybrand, Deloitte Haskins & Sells, Ernst & Winney, Peat Marwick Mitchell, Price Waterhouse and Touche Ross. Subsequent to two major mergers in 1989—Ernst & Winney merged with Arthur Young & Co. to become Ernst & Young while Deloitte Haskins & Sells merged with Touche Ross to become Deloitte Touche Ross—the Big 8 firms were reduced to the Big 6. As a result of another merger in 1998—Coopers & Lybrand with Price Waterhouse to form PricewaterhouseCoopers—the Big 6 were reduced to the Big 5. Finally, the dissolution of Arthur Andersen & Co. in 2002 as a result of the Enron aftermath reduced the Big 5 to the Big 4. Researchers have also continued to hold the same assumption about the relationship between audit firm size and audit quality over the past three decades and, while this assumption may be supported by empirical results, audit research so far has ignored intra-Big N audit firm structural differences that could result in variation of audit

quality across those large audit firms. This study, therefore, attempts to bridge this gap in seeking to answer whether a single dummy variable for the Big N is an appropriate proxy for audit quality, or whether there are intra-Big N differences.

A major contribution of our study, therefore, is that we examine possible differences in audit quality among the now Big 4. As the number of large audit firms has declined, we expect these remaining four to make greater effort to differentiate themselves from each other. One way these external audit firms can differentiate themselves is to be associated with clients that have a more favourable view on risk management (and the associated existence of an internal audit [IA] function) given the strategic role IA now plays in enhancing internal controls and reporting quality of the audit client. Prior research supports the view that the external audit process is more robust when it incorporates the work of an internal auditor thereby increasing audit quality (Goodwin-Stewart and Kent, 2006a, Hay et al., 2008, Hay et al., 2006, Spira and Page, 2003).

The importance of IA has been elevated in recent years following the unravelling of well-publicised corporate scandals. The Australian Securities Exchange (ASX) Corporate Governance Council's Principles of Good Corporate Governance and Best Practice Recommendations of 2007 have reinforced the view that the role of the internal auditor reflects the increasing focus on corporate governance and risk management rather than the traditional narrow focus on internal controls. Recent research on the aftermath of corporate collapses and the ensuing corporate governance reforms has reported a change in the relationship between internal and external audit from a substitutive to a complementary one (Carey et al. 2000a; Spira & Page, 2003;Goodwin-Stewart & Kent 2006a, 2006b; Abbott et al. 2007). This suggests that high quality auditors are more likely to be associated with clients with an IA function.

Given that the primary objective of the study is to investigate the existence of intra-Big N structural differences and the resulting association with audit quality—that is, considering the importance of IA within the overall framework of audit quality—the following research question is adopted:

3BRQ: Are there intra-Big 4 differences in audit quality considering the complementary nature of internal audit and external audit?

Our final sample comprises 272 of the largest publicly listed firms in Australia. These firms were chosen because, given their size, they were most likely to be both impacted by the ASX Principles of Good Corporate Governance and have an IA function. Data was collected from annual reports as at their respective reporting dates in 2005 and downloaded from Aspect Huntley FinAnalysis, which is an online electronic repository for such publicly available secondary data.

Our results indicate that firms which employed a Big 4 auditor were more likely to have an IA function, both as an overall group and for each constituent firm. This is in line with expectations and, therefore, compatible with the findings of prior research that the Big N effect is consistent across all relevant audit practices. However, the results indicate that the relationship between auditor and client IA might not be consistent across all Big 4 audit firms, with KPMG significantly more likely to have clients with IA than the other Big 4 firms (see Table 4). Results from our logistic regression analysis indicate that assuming asingle Big4 effect on IA existence in client firms might well be spurious—that is, the Big 4 dummy variable is not a consistent proxy for the characteristics of all its constituent members. While Big 4 (relative to non-Big 4) was a significant predictor of IA existence, this significance was not consistent among the 4 Big accounting practices in Australia (again, relative to the non-Big 4). All control variables that were significant in the Big 4 model were also significant in the 4 Big model, with only slight changes in p-values. There were no control variables significant in the 4 Big model that were not significant in the Big 4 model. Our analysis finds that the Ernst & Young (EY) and Deloitte Touche Tohmatsu (Deloitte) dummies were not significant determinants of client firms having an IA function, yet both the PricewaterhouseCoopers (PWC) and KPMG dummies were (see Tables 4 & 7). We also found that PWC and KPMG charged higher audit fees than EY and Deloitte, suggesting the existence of structural differences between the Big 4.

The results imply differences in the audit approaches of the members of the Big 4 vis-à-vis IA and therefore, potentially, audit quality. There may be an attempt to systematically conduct the audit with a different methodology or a differentiating policy on client selection. Assuming these differences lead to variations in the level of audit quality within the Big 4, this has important research implications in terms of the continued use of a Big N dummy variable to proxy for audit quality. We also ran extension tests using audit fees as the dependent variable since audit fees has been used extensively in the literature as a proxy for audit quality. Results indicate that the Big 4 dummy variable has a significant association with audit fees, as found in prior studies. In addition, each of the four firms comprising the Big 4 also showed a significant association with audit fees. These results imply that in certain circumstances, for instance when using audit fee as the indicator for audit quality, using a proxy dummy variable of the Big 4 is justified. However, when taking into account the multi-dimensional perspective on audit quality

(such as the existence of IA function), care needs to be taken not to ignore intra-Big N effects.

Each of the Big 4 accounting firms makes strategic individual decisions impacting on their audit quality. They decide whether to maximise audit quality via superior audit procedures (therefore reflecting an audit fee premium) or through a combination of superior audit procedures complemented by the existence of IA (which recently focuses more on corporate governance and risk management issues rather than the traditional focus on internal controls and compliance matters).

The rest of the paper is organised as follows. The next section reviews the literature and develops the hypothesis. Thereafter, we explain the empirical methodology, describe the data and report the results. We then conclude with a discussion of the implications and opportunities for future research.

2. Literature review and hypothesis development

2.1. Measuring Audit Quality

Audit quality is defined as the probability that the auditor will both detect and report a breach in the contract to provide fair accounting information (Watts and Zimmerman, 1986). However, given that audit quality is difficult to observe, users have to evaluate it using proxy measures (DeAngelo, 1981) such as the auditor's reputation, membership with professional societies and employment with large-scale audit firms (Watts and Zimmerman, 1986).

Prior research shows that audit quality differs systematically between Big N and non-Big N firms and, as a result, accounting researchers normally use a Big N indicator variable to control or test for differences in audit quality. For example, Teoh and Wong (1993) argued that the earnings response coefficients of Big 5 clients were significantly higher than those of non-Big 5 clients, suggesting that Big 5 auditors provided a higher quality audit service than non-Big 5 auditors.

Palmrose (1988) compared litigation activities of independent auditors to assess litigation as a means of making distinctions among auditors in terms of audit quality. Palmrose's sample (n=472) encompassed audit services rendered by both Big 8 and large non-Big 8 audit firms for the 26 year period from 1960 through 1985 in the US market. The results indicated that auditors with relatively low (high) litigation activity represent higher (lower) quality suppliers. This result is consistent with the notion that the Big N are quality-differentiated auditors.

Krishnan (2003) examined the existence of a link between audit quality and the pricing of discretionary accruals using a sample of US firms covering a 10 year period from 1989 to 1998. Findings indicated that the association between stock returns and discretionary accruals was higher for firms audited by Big 6 auditors than for firms audited by non-Big 6 auditors. Overall, the results suggest that a higher audit quality is associated with Big N (Big 6) auditors and this is reflected in the security returns of clients of Big N auditors.

Jeong and Rho (2004) also investigated the association between discretionary accruals and Big 6 and non-Big 6 auditors in a Korean setting. They hypothesized no significant difference in discretionary accruals between Big 6 and non-Big 6 clients when there was low incentive for auditors to provide high-quality audits (as was the case in Korea). Using a sample of 2,117 firm-year observations listed on the Korean Stock Exchange for the period 1994 to 1998, their empirical results showed no statistically significant difference between the discretionary accruals of firms that changed from Big 6 auditor to non-Big 6 auditor and vice-versa. Consistent with other studies in Korea (and their hypotheses), this was inconsistent with findings from studies on audit quality in other countries. Jeong and Rho (2004) suggested that the inconsistent results between audit quality studies in Korea and other countries could be due to different incentives which exist for Korean auditors to provide high or low quality audits given Korea's different economic and institutional environment. Similarly, Khurana and Raman (2004) point out that investors' perception of financial reporting quality increases with perceived audit quality.

Using a random sample of 600 incorporated societies (ISs) in New Zealand and 380 usable sets of financial statements, Hay and Davis (2004) examined auditor choice and auditor quality. However, finding limited support for ISs preferring Big 5 audit firms when they have more need for a higher quality audit, the authors conceded that their results were not generalizable to larger firms and that anecdotal evidence from partners in Big 5 firms suggested they preferred not to be involved in non-profit entity audits.

Focussing on analyst earnings forecast properties, Behn, Choi and Kang (2008) investigated whether audit quality was associated with the predictability of accounting earnings. Using a sample of US firms from 1996 through 2001 with 3,749 firm-year observations, the evidence showed that analysts' earnings forecast accuracy was higher and that the forecast dispersion was smaller for firms audited by a Big 5 auditor. Hence, Behn, Choi and Kang (2008) suggested that Big N (Big 5) auditors did provide higher quality audits and that this was significantly associated with better forecasting performance by analysts.

In general, it is maintained that external auditor monitoring improves the quality of accounting earnings by minimizing the difference between a client's reported economic circumstances and the

unobservable underlying situation of the client (Wallace, 1984). The monitoring role played by the IA function and its impact on audit quality is discussed in the following section.

2.2. Internal Audit's Growing Role in Audit Quality

According to Gay and Simnett (2007), the traditional view of IA is that it is an independent appraisal function which evaluates the adequacy and effectiveness of controls within a firm. This has evolved in many firms such that the IA function is now seen as an assurance and consulting service which promotes the understanding of risk exposures and control strategies (Leung et al., 2007). More recently, in the aftermath of well-publicised corporate collapses, the role of IA has broadened to encompass risk management and corporate governance (Brody & Lowe 2000; Carey et al. 2006b). Internal auditors can assist companies by providing assurance that their risk exposures are properly identified and managed (Leithhead, 1999, Walker et al., 2003). Hence, IA should play a key role in monitoring a company's risk profile and in identifying areas where risk management practices can be improved (Lindow and Race, 2002).

There is extensive research on the importance of an internal control function as part of an effective corporate governance structure. Prior IA research has evaluated: objectivity issues (Brody and Kaplan, 1996, Brody and Lowe, 2000, Church and Schneider, 1991, Church and Schneider, 1992); the interaction between internal and external audit (Brody et al., 1998, Carey et al., 2000a, Felix et al., 2001, Lampe and Sutton, 1994, Stein et al., 1994); the trend to outsource IA functions (Caplan and Kirschenheiter, 2000, Widener and Selto, 1999); and the relationship between IA and the audit committee (Raghunandan et al., 2001). However, existing research exploring the determinants of IA is limited, primarily due to the difficulty of accessing potentially sensitive corporate information and meeting with and interviewing key stakeholders. Wallace and Kreutzfeldt (1991) examined the characteristics associated with the existence of an IA function using a sample of Arthur Andersen & Co (AA) clients in 1983. The authors found that company size, decentralization, industry (regulated or not), auditor tenure, audit committee existence, EDP control and pressure to achieve goals were significantly related to the presence of an IA function. In addition, findings revealed that the number and magnitude of errors requiring adjustment by the external auditor were considerably lower for companies that had an IA function compared to those that did not. This emphasizes the important role IA plays in enhancing overall audit quality.

Carey et al. (2000b) used an agency cost framework to examine the demand for internal and external auditing by 186 Australian family-owned companies, particularly focusing on whether internal auditing supplemented or substituted external audit work. They examined firm size and debt plus agency variables measuring separation of ownership from control (the proportion of non-family representation on the board plus the proportion of non-family management of the firm) and found that none of these variables were significantly associated with the existence of IA. All but the size of firms were, however, significantly associated with the use of internal audit.

Using data from 217 American public companies, Carcello et al. (2005) found evidence that companies with greater IA budgets were larger, had more debt, were in the financial services and utility industries, maintained greater inventory levels, had greater operating cash flows and had an audit committee that monitored the IA budget. Overall, their results suggest that IA investment is associated with companies' risks and ability to pay for monitoring and auditing characteristics and that IA and external audit are complements rather than substitutes.

Combining an agency framework and a dataset from surveyed and publicly available Australian data from 2000, Goodwin-Stewart and Kent (2006b) found the existence of IA to be significantly positively associated with the presence of a risk management committee, the role played by the risk manager, the presence of an independent board chairperson and the presence of an audit committee. Additional analysis of firms with internal auditing revealed the number of IA staff to be positively associated with the presence of a Big 5 auditor. These findings are consistent with an increased demand for higher quality auditing by audit committees and by firms that make greater use of IA, suggesting that firms that engage in increased internal monitoring through the use of IA also demand higher quality external auditing. This provides further support for the complementary relationship between external audit and the IA function.

Most recently, Coram et al. (2008) investigated whether organizations with an IA function are more likely to detect and self-report fraud than those without. Their findings indicate that companies with an IA function are more likely than those without such a function to detect and self-report fraud. The importance of this study extends beyond reinforcing the function of IA in detecting fraud and advocates the usefulness of IA as part of an overall effort to improve internal monitoring and enhance the corporate governance structure within the organization. Hay, Knechel and Ling (2008), using a combination of public and company-specific

information for New Zealand publicly listed firms, have found that measures of internal auditing, corporate governance and concentration of ownership are all positively related to audit fees. This is consistent with the argument that controls within firms (including IA) complement external audit to increase overall monitoring.

As demonstrated by recent research—post-Enron and post-worldwide corporate governance reforms—the relationship between internal and external audit has evolved from a substitutive to a complementary one (Abbott et al., 2007, Carey et al., 2000a, Goodwin-Stewart and Kent, 2006a, Goodwin-Stewart and Kent, 2006b, Spira and Page, 2003). This suggests that high quality auditors are more likely to be associated with clients with an IA function. Hence, firms more committed to a strong corporate governance culture are likely to engage in greater levels of IA as well as being prepared to pay for a higher quality external audit.

Clearly, the existence of an IA function has a significant impact on a firm's ability to strengthen controls and prevent and detect fraud and financial statement errors and, therefore, can enhance external audit effectiveness and, by association, audit quality. This is because external auditors rely on the IA function in a firm to detect weaknesses in controls and to prevent and detect fraud (Carcello et al., 2005, Felix et al., 2001). This is probably due to the external auditor's greater awareness and familiarity with the role that IA plays in enhancing audit effectiveness (and thereby quality) through the strengthening of client controls, preventing and detecting fraud and financial statement errors (Goodwin and Seow, 2002). This potentially allows the external auditor to divert their audit procedures/effort to other areas in order to maintain or even improve overall audit quality.

In Australia, recent reforms to the *Corporations Act 2001* and the Corporate Governance Council's Recommendations have strongly emphasized the importance of good corporate governance (ASX Corporate Governance Council, 2003). Given the importance of IA as part of good corporate governance, these changes are likely to enhance its role in the Australian audit environment (Coram et al. 2008). In the face of the global scale of corporate scandals and related regulatory responses, we also predict that the benefit of IA in enhancing audit quality should transcend international boundaries.

As a result of the complementary relationship between IA and external audit along with the multi-dimensional view of audit quality, the following hypotheses are proposed:

H1: There is a positive association between the auditor being a Big 4 firm and the audit clienthaving an IA function.

H2: There is positive association between each of the Big 4 firms and having audit clients with an IA function.

3. RESEARCH METHOD

3.1. Sample

Data was gathered from secondary sources, specifically the annual reports of the top 300 publicly listed companies in Australia (by market capitalization) as at their respective reporting dates in 2005. Since one of the major drivers of company performance is the need to maximise shareholder value (Balvers et al., 1990), this measure is best reflected by the market capitalization of a firm.

The annual reports were downloaded from FinAnalysis. Of the 300 companies that met the initial criteria, twelve (12) were excluded on the grounds that they were financial institutions (Simunic, 1980), eight (8) were excluded as they reported their results in non-Australian denominated currencies and eight (8) were excluded because their annual report was unobtainable. Panel A of Table 1 outlines the selection process, presenting information by quartiles (based on market capitalization) for the final sample of 272 firms.

The ASX Corporate Governance Council's Principles of Good Corporate Governance and Best Practice Recommendations of 2003 require companies, amongst other things, to establish a sound system of risk oversight and internal control. Specifically, Recommendation 7.1 requires the Board of Directors of a company (or an appropriate board committee) to establish policies on risk oversight and management. As part of this process, the recommendation explicitly identifies the IA function of a firm as being ideally placed to assist in analysing the effectiveness of the firm's risk management and internal compliance and control system (ASX Corporate Governance Council, 2003). As a result of this requirement for companies to indicate the mechanism used to manage risksin their annual report, it is possible to identify firms which have an IA function to assist them in managing their risks(that is, a dichotomous variable) and firms who choose to use the Board of Directors or another board committee to manage these risks (as at 2005).

Panel B of Table 1 reveals the number of firms in each of the four quartiles which had an IA function, with the chi-square two-tailed p-value of 0.000 showing that larger firms were more likely to have had that function with the proportion of firms having an IA function decreasing as firm size decreases. With only 55 percent of the sample having an IA function, coupled with variation of IA existence across the quartiles, the sample selected was used with confidence in subsequent testing.

Table 1. Sample selection by market capitalisation, internal audit existence and audit firm

Panel A	1st Quartile Largest	2nd Quartile	3rd Quartile	4th Quartile Smallest	Total
Initial number of firms	75	75	75	75	300
Less financial institutions	8	4	-	-	12
Less overseas denominated currencies	7	1	-	-	8
Less unobtainable data	7	-	1	-	8
Usable sample	53	70	74	75	272
Panel B					
Existence of an IA function in usable sample					
Firms with	44	48	31	27	150
Firms without	9	22	43	48	122
Firms with (%)	83%	69%	42%	36%	55%
Chi-square test	χ^2 = 38.118, two-tailed p value = 0.000				
Panel C					
Deloitte Touche Tomatsu clients	3	11	11	7	32
with IA (%)	2 (67%)	6 (55%)	5 (45%)	3 (43%)	16 (50%)
Ernst and Young clients	11	14	25	21	71
with IA (%)	10 (91%)	11 (79%)	8 (32%)	7 (33%)	36 (51%)
KPMG clients	16	17	13	13	59
with IA (%)	16 (100%)	14 (82%)	7 (54%)	6 (46%)	43 (73%)
PricewaterhouseCoopers clients	20	22	14	22	78
with IA (%)	15 (75%)	14 (64%)	9 (64%)	9 (41%)	47 (60%)
Chi-square test (clients)	χ^2 = 13.612, two-tailed p value = 0.137				
Chi-square test (with IA)	χ^2 = 4.562, two-tailed p value = 0.871				
All Big 4 clients	50	64	63	63	240
with IA (%)	43 (86%)	45 (70%)	29 (46%)	25 (40%)	142 (59%)
Non-Big 4 clients	3	6	11	12	32
with IA (%)	1 (33%)	3 (50%)	2 (18%)	2 (17%)	8 (25%)
Chi-square test (clients)	χ^2 = 4.571, two-tailed p value = 0.206				
Chi-square test (with IA)	Cannot be calculated (50% of cells have expected value less than 5)				
All firms firms	53	70	74	75	272
with IA (%)	44 (83%)	48 (69%)	31 (42%)	27 (36%)	150 (55%)

Finally, as this study is based on the effectiveness of the Big 4 proxy of audit quality, Panel C of Table 1 shows the number of clients and clients with an IA function for each of the Big 4 audit practices, the Big 4 practices as a whole and the non-Big 4 audit practices (all by quartile). The panel reveals that there was no systematic difference in client size (by quartile) across the four Big 4 practices, both for all clients and clients with IA (chi-square two-tailed p-value of 0.137 and 0.871, respectively). Similarly, comparison of client size (by quartile) between Big 4 and non-Big 4 practices revealed no significant difference (chi-square two-tailed p-value of 0.206). A similar comparison could not be done for clients with IA as small values in half the cells meant that the chi-square statistic lacked empirical validity.

3.2. Variables of Interest and Multivariate Models Used

IA determination models used in prior research have included a variety of variables to control for cross-sectional differences associated with firm size, firm complexity, firm risk, audit firm characteristics and other relevant measures (Carcello et al. 2005; Goodwin-Stewart & Kent 2006b). The models have provided good explanatory power and been robust across countries, industries and time periods. These prior IA determination models have been used as the basis for selecting the independent variables used in this study (see Table 2). Some of the variables are subject to square root or logarithmic transformation to provide a better linear fit.

Table 2. Details of all variables

Explanatory variable (proxy measure)	Definition of proxy measure	Expected direction of relationship	Prior use as IA determinant by…
Firm size			
ASSETSLN	Natural log of total assets as at year-end	+	Carcello et al. (2005), Goodwin-Stewart and Kent(2006b)
Firm complexity			
SUBSIDSR	Square root of number of subsidiaries	+	Carcello et al. (2005)
NBS	Natural log of 1 plus number of business segments	+	Carcello et al. (2005), Goodwin-Stewart and Kent(2006b)
Risk			
DEBT	Non-current liabilities divided by total assets.	+	Carcello et al. (2005), Carey et al. (2000b), Goodwin-Stewart and Kent(2006b)
RECEIVABLE	Total receivables divided by total assets.	+	Carcello et al. (2005)
INVENTORY	Total inventory divided by total assets.	+	Carcello et al. (2005)
CFOAVTAS	Cash from operations divided by average total assets.	+	Carcello et al. (2005)
Audit firm characteristics			
BIG4	A dummy variable given the value of 1 when a Big 4 auditor is used and 0 otherwise.	+	Goodwin-Stewart and Kent(2006b)
DELOITTE	A dummy variable given the value of 1 when the firm is audited by Deloitte Touche Tomatsu and 0 otherwise.	+	
EY	A dummy variable given the value of 1 when the firm is audited by Ernst and Young and 0 otherwise.	+	
KPMG	A dummy variable given the value of 1 when the firm is audited by KPMG and 0 otherwise.	+	
PWC	A dummy variable given the value of 1 when the firm is audited by PricewaterhouseCoopers and 0 otherwise.	+	
Other characteristics			
PERACIND	The percentage of independent directors on the audit committee.	+	Goodwin-Stewart and Kent(2006b)
PERACFEX	The percentage of audit committee members with accounting and finance expertise.	+	Goodwin-Stewart and Kent(2006b)
FINANCIALS	A dummy variable given the value of 1 if the company is in the financials industry and 0 if otherwise.	-	Carcello et al. (2005), Goodwin-Stewart and Kent(2006b)

To assess the relationship between IA and the variables identified in Table 2, the following logistic model will be fitted:

IA=f(ASSETSLN, SUBSIDR, NBS, DEBT, RECEIVABLE, INVENTORY, CFOAVTAS, PERACIND, PERACFEX, FINANCIALS, BIG)(1)

where BIG *will be measured by either BIG4 or by EY, PWC, KPMG and DELOITTE.* Subsequently, measures of audit fees (TOTAUDFELN - natural logarithm of total audit fees) and non-audit fees (NONAUDITSR - square root of other services fees) will be included to determine if these impact the logistic model. The sensitivity of this model to different measures of the control constructs will also be checked. Firm size will be alternatively proxied by SALESLN (natural logarithm of sales), EMPLOYSR (square root of the number of employees) and a principal components factor (SIZEFACTOR) derived from assets, sales and employees (per Carey et al., 2000b); firm complexity will be adjusted by replacing *NBS* with NGS (geographical segments); and risk will be assessed by replacing *DEBT* with QUICK (current assets less inventory, divided by current liabilities) and *CFOAVTAS* with ATURN (asset turnover).

4. RESULTS

4.1. Descriptive Statistics

Table 3 shows the descriptive statistics for all the variables used in this study. The table shows that total assets of the companies in the sample averaged $2 billion, ranging from a minimum of $19.1 million to a maximum of $43 billion (not reported in the table). The number of subsidiaries ranged from zero to 781 (not reported in the table) with a mean of 37 and a 'high' standard deviation of 65. This variation in subsidiaries, however, was not necessarily a function of diversification, with most of the firms having only two business segments (not reported in the table).

Table 3. Descriptive statistics

	Mean	Standard deviation	Median
Firm size			
Total assets as at year-end ($millions)	2 014	4 405	679
ASSETSLN	20.38	1.42	20.34
Firm complexity			
Total number of subsidiaries as at year-end	37	65	18
SUBSIDSR	4.91	3.62	4.24
Total number of business segments	2	2	2
NBS	1.11	0.45	1.10
Risk			
DEBT	24%	19%	23%
RECEIVABLE	12%	12%	9%
INVENTORY	9%	12%	2%
CFOAVTAS	9%	15%	8%
Other characteristics			
PERACIND	75%	26%	75%
PERACFEX	24%	14%	25%
Audit firm characteristics			
Total audit fees ($000s)	789	1 403	327
TOTAUDFELN	12.79	1.27	12.70
Other services fees ($000s)	176	333	73
NONAUDITSR	310.73	282.37	270.88

The mean debt ratio (24%) and its standard deviation (19%) did not suggest that the sampled companies had solvency problems (in general) although the maximum value found was 116 percent (not reported in the table). Similarly, while the (unreported) minimum and maximum levels for receivables and inventory highlighted firms at both ends of the liquidity spectrum, the means of 12 percent and 9 percent (respectively) do not show high levels of audit risk.

Table 3 also reveals that the proportion of audit committee members meeting the test of independence was 75 percent (ranging from zero to 100%, not reported in the table), which is not far from the oft argued ideal of 100 percent. However, some concern needs to be expressed that, on average, only 24 percent of audit committee members had tertiary trained accounting and finance expertise.

Finally, Table 3 reports mean sample audit fees of just under $800 000 with a surprisingly 'low' standard deviation of $1.4 million given a (unreported) minimum of $14 900 and maximum of $11.4 million. Other service fees also ranged widely (from zero to $3 million, not reported in the table), with the average amount paid by firms to their auditors for non-audit services being approximately $176 000. Separate calculation of the proportion of non-audit fees relative to total fees revealed that a little more than a quarter of fees (26%) charged by audit practices came from non-audit services.

4.2. Chi-square Tests

Chi-square tests were completed for the dichotomous experimental and control variables collected in this study to examine their relationship with IA. Table 4 shows that firms which employed a Big 4 auditor were more likely to have an IA function, both in total (one-tailed p-value of 0.000) and for each of the constituent firms: Deloitte (one-tailed p-value of 0.020); EY (one-tailed p-value of 0.008); KPMG (one-tailed p-value of 0.000); and PWC (one-tailed p-value of 0.000). This is in line with the expectations expressed in Table 2 and, therefore, compatible with prior researchers' views that the Big N effect is consistent across all relevant practices.

Nonetheless, even while providing support for the use of the Big 4 variable, Table 3 gives a first clue that the relationship between auditor and client IA might not be consistent across all Big 4 audit practices, with KPMG significantly more likely to have had clients with IA than the other Big 4 practices (two-tailed p-value of 0.014). Separate (Chi-square) Big 4 practice by practice tests (not shown in the table) revealed that KPMG was also significantly more likely to have clients with IA compared to Deloitte (two-tailed p-value of 0.029) or EY (two-tailed p-value of 0.010), but not compared to PWC (two-tailed p-value of 0.123). However, PWC was not significantly more likely to have clients with IA than Deloitte (two-tailed p-value of 0.323) or EY (two-tailed p-value of 0.241), nor did Deloitte and EY significantly differ (two-tailed p-value of 0.947).

Table 4 also reports that firms in the financial sector were significantly less likely to have an IA function (one-tailed p-value of 0.003), consistent with the expected direction of the relationship noted in Table 2.

Table 4. Chi-Square tests and dichotomous variables

	With IA		Without IA	
Audit firm variables				
Big 4	142	95%	99	81%
Non-Big 4	8	5%	23	19%
Total	150		122	
Chi-square test	χ^2 = 12.177, one-tailed p value = 0.000			
DELOITTE	16	67%	16	40%
Non-Big 4	8	33%	24	60%
Total	24		40	
Chi-square test	χ^2 = 4.267, one-tailed p value = 0.020			
EY	36	82%	35	59%
Non-Big 4	8	18%	24	41%
Total	44		59	
Chi-square test	χ^2 = 5.956, one-tailed p value = 0.008			
KPMG	43	84%	16	40%
Non-Big 4	8	16%	24	60%
Total	51		40	
Chi-square test	χ^2 = 19.308, one-tailed p value = 0.000			
PWC	47	85%	31	56%
Non-Big 4	8	15%	24	44%
Total	55		55	
Chi-square test	χ^2 = 11.282, one-tailed p value = 0.000			
DELOITTE	16	11%	16	16%
Other Big 4	126	89%	82	84%
Total	142		98	
Chi-square test	χ^2 = 1.284, two-tailed p value = 0.257			
EY	36	25%	35	36%
Other Big 4	106	75%	63	64%
Total	142		98	
Chi-square test	χ^2 = 2.989, two-tailed p value = 0.084			
KPMG	43	30%	16	16%
Other Big 4	99	70%	82	84%
Total	142		98	
Chi-square test	χ^2 = 6.091, two-tailed p value = 0.014			
PWC	47	33%	31	32%
Other Big 4	95	67%	67	68%
Total	142		98	
Chi-square test	χ^2 = 0.057, two-tailed p value = 0.812			
Other control variables				
Financials	26	16%	39	32%
Chi-square test	χ^2 = 7.922, one-tailed p value = 0.003			

4.3. Correlations

Table 5 presents a correlation matrix reporting Pearson listwise correlation coefficients for the continuous variables used in the study. Unsurprisingly, firm size was found to be significantly positively correlated to subsidiary and business segment numbers and to the debt ratio (two-tailed p-values all being 0.000). Consistent with many prior studies (Choi et al., 2005, Davis et al., 1993, Hay et al., 2006, Simunic, 1980, Taylor and Baker, 1981), audit fee was significantly positively correlated to all the firm size, complexity and risk variables in Table 5 (mostly with two-tailed p-values of 0.000) and was significantly negatively related to the proportion of independent directors on the audit committee (two-tailed p-value of 0.030). The proportion of receivables to total assets was significantly positively associated with a similar ratio for inventory, subsidiary numbers and business segment numbers (two-tailed p-values all being 0.000). Examination of correlations with non-audit fee showed most followed the same pattern as for audit fee (the inventory ratio and cash flow from operations to assets were not significant, two-tailed p-values of 0.526 and 0.635, respectively) with the addition of a significant positive correlation for the proportion of audit committee members with accounting and finance expertise (two-tailed p-value of 0.011). All other significant correlations in Table 5 were consistent with prior beliefs.

Table 5. Pearson correlation matrix

	Pearson's r (two-tailed p-value)										
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Firm size variables											
ASSETSLN [1]	1.000										
Firm complexity variables											
SUBSIDSR [2]	0.548 (0.000)	1.000									
NBS [3]	0.373 (0.000)	0.506 (0.000)	1.000								
Risk variables											
DEBT [4]	0.464 (0.000)	0.241 (0.000)	0.101 (0.098)	1.000							
RECEIVABLE [5]	0.000 (0.994)	0.266 (0.000)	0.340 (0.000)	-0.121 (0.046)	1.000						
INVENTORY [6]	-0.035 (0.570)	0.055 (0.363)	0.171 (0.005)	-0.083 (0.172)	0.260 (0.000)	1.000					
CFOAVTAS [7]	0.021 (0.729)	0.041 (0.502)	0.022 (0.721)	-0.040 (0.512)	0.181 (0.003)	-0.008 (0.899)	1.000				
Other characteristics variables											
PERACIND [8]	-0.111 (0.068)	-0.142 (0.019)	-0.146 (0.016)	-0.079 (0.194)	-0.028 (0.645)	0.050 (0.415)	-0.069 (0.259)	1.000			
PERACFEX [9]	0.119 (0.051)	0.067 (0.273)	0.049 (0.421)	-0.050 (0.408)	-0.008 (0.900)	-0.017 (0.775)	-0.040 (0.510)	-0.047 (0.438)	1.000		
Audit firm fees											
TOTAUDFELN [10]	0.693 (0.000)	0.668 (0.000)	0.563 (0.000)	0.301 (0.000)	0.293 (0.000)	0.172 (0.004)	0.135 (0.026)	-0.132 (0.030)	0.114 (0.060)	1.000	
NONAUDITSR [11]	0.559 (0.000)	0.548 (0.000)	0.474 (0.000)	0.226 (0.000)	0.139 (0.022)	0.039 (0.526)	0.029 (0.635)	-0.119 (0.049)	0.154 (0.011)	0.652 (0.000)	1.000

4.4. T-tests

T-tests were completed for the continuous variables collected in this study. The objective in undertaking t-tests was to examine the relationship between IA and these continuous variables to determine if firms with IA significantly differed from those without IA.

An overall review of Table 6 shows a number of significant relationships depending on whether a firm has an IA function or not. Given our prior conjecture, the fact that our measure for firm size and both continuous measures for firm complexity had a significant relationship with IA is not surprising (all one-tailed p-values of 0.000). Unexpectedly, however, only the *DEBT* risk measure proved significant (although the other three were in the anticipated direction). In terms of other characteristics, the percentage of independent directors on the audit committee (*PERACIND*) failed to significantly differ between the firms with and without IA, but the variable measuring audit committee expertise (*PERACFEX*) was found to have a significant and expected positive relationship with IA (one-tailed p-value of 0.006). Our transformed measures of audit and non-audit fees were also found to be significantly positively associated with IA (both with two-tailed p-values of 0.000).

The results of the bivariate testing suggest that a number of variables (both dichotomous and continuous) have statistically significant relationships with the existence of an IA function within a firm. For example, Table 6 reveals that, on a bi-variate basis, the percentage of audit committee members that have accounting and finance expertise is statistically significantly positively related to the existence of an IA function. However, it is important to realise that the results of multivariate testing will have the greatest bearing on the statistical significance of IA variable and any audit quality measure. This is because multivariate testing not only examines the significance of the relationship between the experimental variable (in this case, Big 4 or 4 Big) and the dependent variable (in this case, IA) but, more importantly, controls for the effects of a number of other independent variables on this relationship.

Table 6. T-tests and continuous variables

	Mean scores			
	with IA	without IA	t-statistic	one-tailedp-value
Firm size variables				
ASSETSLN	20.923	19.714	7.806	0.000
Firm complexity variables				
SUBSIDSR	5.958	3.627	5.743	0.000
NBS	1.219	0.978	4.585	0.000
Risk variables				
DEBT	0.270	0.196	3.354	0.000
RECEIVABLE	0.127	0.113	0.964	0.168
INVENTORY	0.094	0.076	1.151	0.125
CFOAVTAS	0.099	0.076	1.315	0.095
Other characteristics variables				
PERACIND	0.734	0.757	-0.713	0.238
PERACFEX	0.256	0.213	2.503	0.006
Audit firm characteristics				
TOTAUDFELN *	13.293	12.165	8.136	0.000
NONAUDITSR *	382.900	221.996	5.142	0.000

* No direction was predicted for the effect of this variable, hence, the p-values are for a two-tailed test.

4.5. Logistic Regression Results

Table 7 reports our main results where we have controlled for the effects of client firm size (*ASSETSLN*), client firm complexity (*SUBSIDSR*, *NBS*) and risk (*DEBT*, *RECEIVABLE*, *INVENTORY*), other auditee attributes (*PERACIND*, *PERACFEX*, *FINANCIALS*) and the audit and non-audit fee the auditee pays (Panel B only; TOTAUDFELN, NONAUDITSR). The results shown in Panel A of Table 7 supportthe suspicions noted earlier that claims of asingle Big4 effect on IA existence in client firms might well be spurious, and that a simple Big 4 variable may not be a consistent proxy for the actions of its constituent members. After allowing for the same control variables noted above, Big 4 (relative to non-Big 4) is significant (one-tailed p-value of 0.013 in Panel A; one-tailed p-value of 0.049 in Panel B) but this significance is not consistent for the 4 Big accounting practices in Australia (again, relative to the non-Big 4).All control variables that were significant in the Big 4 model were also significant in the 4 Big model, with some slight changes in p-values. There were no control variables significant in the 4 Big model that were not significant in the Big 4 model.Our analysis finds the EY and Deloitte dummies do not significantly explain whether client firms have an IA function, yet both the PWC and KPMG dummies do. This result was robust to the inclusion of measures for audit and non-audit fees (Panel B of Table 7) and to numerous variations of the control variables for client firm size, complexity and risk (not reported).

This finding was also robust to the substitution of alternative control measures for firm size, complexity and risk discussed earlier (for example, SALESLN used instead of *ASSETSLN*, NGS instead of *NBS* and QUICK instead of *DEBT*) and to the addition of further control variables not previously applied in the IA determinants literature, such as length of auditor tenure (LENGTH01 - dummy variable for more or less than 7 years), existence of a reported loss in the previous three years (LOSS) and return on assets (ROA - earnings before interest and tax divided by total assets).These robustness tests are not reported in the interests of brevity, but can be obtained from the authors.

Finally, given the multitude of studies that have established a positive relationship between Big N and audit fees (for example Choi et al., 2005, Davis et al., 1993, Gerrard et al., 1994), the generalizability of the Big 4 relative to the 4 Big was examined using audit fees as the dependent variable (TOTAUDFELN). Applying the same control variables as shown in Table 2to a linear regression model, it was found that Big 4 did significantly explain variation in audit fees (as expected) and, in addition, each of the 4 Big measures were also significant at the 0.05 level. These results suggest that there is no price differentiation among the 4 Big. This extension testing shows that, while the use of intra-Big N variables significantly explains audit quality measured by IA, it does not extend to audit quality measured by audit fees. Results are consistent with Big 4 product differentiation rather than monopolistic pricing. Product differentiation is

achieved by the 4 Big in varying approaches and motivations towards attracting or selecting clients with an IA function.

Table 7. Predicting IA existence

Panel A: Without audit and non-audit fees		BIG 4		4 BIG	
Expected direction		Beta	one-tail p-value	Beta	one-tail p-value
Constant *		-15.737	0.000	-11.997	0.000
ASSETSLN	+	0.691	0.000	0.673	0.000
SUBSIDSR	+	0.023	0.359	0.027	0.335
NBS	+	0.576	0.075	0.496	0.114
DEBT	+	-0.504	0.717	-0.474	0.705
RECEIVBL	+	-0.550	0.654	-0.709	0.692
INVENTRY	+	0.964	0.204	0.970	0.206
CFOAVTAS	+	1.311	0.111	1.263	0.123
PERACIND	+	0.187	0.371	0.089	0.439
PERACFEX	+	1.678	0.050	1.465	0.078
FINANCIALS	-	-1.010	0.003	-1.048	0.003
BIG4	+	1.088	0.013		
DELOITTE	+			0.819	0.090
EY	+			0.856	0.058
KPMG	+			1.449	0.006
PWC	+			1.160	0.015
Nagelkerke pseudo-r^2		0.346		0.354	
% with IA predicted accurately		78.0%		78.0%	
% without IA predicted accurately		63.9%		61.5%	
Total % predicted accurately		71.7%		70.6%	
Panel B: With audit and non-audit fees		BIG 4		4 BIG	
Expected direction		Beta	one-tail p-value	Beta	one-tail p-value
Constant *		-17.794	0.000	-14.432	0.000
ASSETSLN	+	0.565	0.000	0.545	0.001
SUBSIDSR	+	-0.005	0.530	0.000	0.497
NBS	+	0.480	0.125	0.395	0.179
DEBT	+	-0.446	0.694	-0.406	0.678
RECEIVBL	+	-1.081	0.769	-1.280	0.804
INVENTRY	+	0.576	0.316	0.549	0.323
CFOAVTAS	+	1.102	0.155	1.028	0.175
PERACIND	+	0.203	0.362	0.086	0.441
PERACFEX	+	1.702	0.051	1.488	0.079
FINANCIALS	+	-0.884	0.010	-0.916	0.009
TOTAUDFELN *	?	0.409	0.064	0.425	0.056
NONAUDITSR *	?	-0.001	0.713	-0.001	0.686
BIG4	+	0.987	0.049		
DELOITTE	+			0.723	0.124
EY	+			0.742	0.091
KPMG	+			1.401	0.008
PWC	+			1.036	0.029
Nagelkerke pseudo-r^2		0.358		0.368	
% with IA predicted accurately		79.3%		77.3%	
% without IA predicted accurately		65.6%		63.9%	
Total % predicted accurately		73.2%		71.1%	

* No direction was predicted for the effect of this variable, hence, the p-values are for a two-tailed test.

4.6. Additional Tests

In order to test the robustness of our results, we performed additional testing to examine the association between audit fees and the variables in our original model. In other words, we replaced the dependent variable (IA existence) with the natural log of audit fees. This was done to confirm that Big 4 audit firms continue to be associated with an audit fee premium. The results reported in Table 8 suggest that not only is the Big 4 positively associated with audit fees, each Big 4 firm is positively significantly associated with audit fees. This provides assurance that the Big 4 are able to all charge an audit fee premium and are hence thought to provide a quality audit.

In addition to this, we analysed the difference in audit fees charged by the two audit firms that were more highly associated with clients that have an IA function (PWC and KPMG) and the two audit firms that were associated with clients where the IA function was less prevalent (Deloitte and EY). We found in a tests of means that PWC and KPMG charged audit fees that were, on average, statistically higher than audit fees charged by Deloitte and EY (significant at the 95% confidence level on a two-tailed test). These additional tests suggest that while Big 4 firms are still a proxy for audit quality, as evidenced in their ability to charge an audit fee premium, considerations also need to be made for intra-Big 4 differences when it comes to other aspects of audit quality such as the importance placed on the IA function and the ability to charge higher fees when associated with a more stringent view of internal controls and risk management as a whole.

Table 8. Predicting Natural logarithm of Total audit fee

		BIG 4		4 BIG	
Expected direction		Beta	one-tail p-value	Beta	one-tail p-value
Constant *		2.537	0.002	2.570	0.002
ASSETSLN	+	0.426	0.000	0.422	0.000
SUBSIDSR	+	0.073	0.000	0.076	0.000
NBS	+	0.527	0.000	0.542	0.000
DEBT	+	-0.109	0.916	-0.123	0.912
RECEIVBL	+	1.256	0.001	1.248	0.001
INVENTRY	+	0.962	0.004	0.988	0.003
CFOAVTAS	+	0.656	0.014	0.696	0.011
PERACIND	+	-0.054	0.935	-0.029	0.969
PERACFEX	+	0.193	0.259	0.207	0.246
FINANCIALS	-	-0.380	0.001	-0.379	0.001
IA *		0.150	0.126	0.153	0.122
BIG4	+	0.409	0.002		
DELOITTE	+			0.400	0.012
EY	+			0.398	0.005
KPMG	+			0.323	0.023
PWC	+			0.482	0.001
F-statistic (p-value)		54.406 (0.000)		43.412 (0.000)	
R		0.846		0.847	
Adjusted R^2		70.3%		70.1%	

* No direction was predicted for the effect of this variable, hence, the p-values are for a two-tailed test.

5. Conclusion and future research

The results of this study provide new insights into the notion of audit quality and Big N audit firms against a backdrop of renewed focus on more robust corporate governance practices. Corporate governance-based regulations and recommendations place a renewed focus on IA to deliver better internal monitoring and increase the detection and prevention of fraud, hence improving overall audit quality. We postulate that since corporate governance thought and practice has emerged at the forefront of corporate policy and strategy while the number of large audit firms has dwindled, there must be a re-examination of what drives audit quality in the new era.

While we report results that are consistent with well-established literature on audit quality, we also provide evidence suggesting caution be taken in relying on the assumption that all Big N firms are homogenous in their provision of audit services. As the number of Big N audit firms decreases, we suggest that, in order for them to remain competitive, there is an increasingly greater need for the remaining firms to differentiate themselves from other large firms. A potential consequence of successful differentiation within the Big N would be firms having differentiated client bases. This is one potential reason why two of the four firms in our sample (PWC and KPMG) are more significantly associated with the existence of IA compared to Deloitte and EY.

The key contribution of this study is that it is the first to consider differences among the Big N firms by examining an alternative measure for audit quality, namely IA. The results provide evidence supporting intra-Big N differences in relation to IA usage by clients, but extension tests revealed these significant intra-Big N differences did not appear for the most common measure of audit quality, being audit fees. Future use of Big N as a proxy for audit quality should, therefore, be viewed cautiously as differences in the constituent members of the Big N may mask 'true' results.

While the overall findings of our study appear robust, they are subject to certain limitations that provide opportunities for further research. First, the study focuses on the top 300 public companies from a market capitalisation perspective and, therefore, may not be generalizable to other smaller public companies or to private firms. Future research could expand the scope of this study by examining the next largest 300 firms on the ASX. Second, the dichotomous experimental variable used in the study (existence of an IA function) might not be an ideal measure of IA usage if its lacks sensitivity. The size of the IA budget could be used in future research. In addition, differentiation between in-house versus outsourced IA functions could also be made. Lastly, all information has been collected from annual reports, limiting the amount and type of data available.

Despite these limitations, however, this study sheds light on the necessity for continuous and extended validation of measures used to proxy variables of research interest. In terms of the specifics of this paper, audit researchers should not assume that the Big 4 proxy has the same empirical effect as the intra-Big N (4 Big) proxies when assessing audit quality.

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LISTING STATUS, FAMILY FIRM AND THE COST OF BANK LOAN FINANCING

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Abstract

This research examines the impact of firm's listing status on the relationship between corporate governance and cost of bank loans. The analysis yields four major findings after controlling for firm characteristics and prime interest rate. First, the financing cost of debt is higher for private firms. This result confirms that information risk is higher for private firms. Second, family firms enjoy lower cost of debt. The result found is consistent with the literature that family firms are related to a lower cost of debt financing. Third, that family firms having lower cost of debt is only found in listed firms. This evidence supports the prediction based on the lack of market perspective which suggests that the family effect requires a capital market to make it substantiate. Finally, strong corporate governance helps reduce financing cost of debt. However, these governance effects are not affected by the listing status. In other words, commercial lenders in this study price indifferently for good governance mechanisms regardless of public or private firms.

Keywords: Cost of Debt, Listing Status, Corporate Governance, Family Firms

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1. Introduction

Bank loans are important sources of external capital for most firms around the world, which means that bank loans are essential for most firms' operations. Surprisingly, few studies, if any, examine the determinants of bank loan pricing. In addition, some prior studies show that listing status (public vs. private) affects earnings quality. Given that accounting earnings and its related information is commonly used by creditors to assess firm health and viability, listing status may influence the determination of the cost of debt financing. This study explores how the cost of debt is affected by the listing status, corporate governance and the interaction effect of the two. The results indicate that listing status, governance variables, and financial variables systematically explain the level of cost of debt, which is measured by interest rates of bank loans.

The studies on the determinants of cost of debt generally document that higher the default risk of the firm, higher the cost of debt. Some examples of factors in addition to financial variables affecting the estimate of default risk through lessening the degree of agency conflicts and information asymmetry are firm's disclosure policy (Sengupta, 1998), family ownership (Anderson, Mansi, and Reeb, 2003a, 2003b) and the effect of corporate governance (Bhojraj and Sengupta, 2003; Anderson, Mansi, and Reeb, 2004; Ashbaugh-Skaife, Collins, and LaFond, 2006). More recent studies investigate whether the cost of debt for firms being overlevered or underlevered will be asymmetrical (Van Binsbergen, Graham and Yang, 2010), the roles of auditor (Dhaliwal, Gleason, Heitzman, and Melendrez, 2008; Amir, Guan and Livne, 2010; Karjalainen, 2011) on the pricing of debt capital. These studies suggest that firms with weak governance tend to have higher cost of debt, measured in terms of effective interest rate, yield or spread of bond for publicly traded companies.[1] Limited research, if any, examines whether listing status affects the relationship between corporate governance and the cost of debt. To fill this void, I explore whether commercial lenders price differently the attributes of corporate governance due to difference in firm's listing status.

Some support for the research idea is found in recent studies that investigate the effect of listing status on financial reporting incentives and the effect of corporate governance on cost of bond financing. For instance, using European public and private firms, Burgstahler, Hail, and Leuz (2006) find that public firms have more incentives to report

1 The exception is Karjalainen (2011) who exmines privately held Finnish firms.

higher quality earnings. Opposed to findings in Burgstahler et al. (2006), Kim and Yi (2006), using Korean companies, find that listed firms are associated with greater magnitude of earnings management. Although these studies have focused on the potentially differential effect of listing status on earnings reporting behavior, none of them examine the impact of listing status on the cost of capital. Since private firms do not have publicly traded stock prices, I use the cost of debt as the measure for cost of capital.

The analysis, which examines how listing status affects the association between the cost of debt and corporate governance attributes, is important. For instance, Wang (2006) find that family firms are motivated to provide high quality earnings, and Anderson et al. (2003) find that family firms are associated with lower cost of debt. These studies attribute the link between a lower cost of debt and family firm to the desire to retain family's reputation. I believe that there requires a market for reputation for family to be valued. I define *family effect* as how family firms affect the cost of debt. I provide two alternative views on the family effect below.

The first view, referred as the *scarcity of information perspective*, predicts that the family effect is stronger for private firms than for public firms. Because the information environment of private firms is poorer relative to that of public firms, the scarcity increases the importance of family reputation concern for private firms.

The second view, referred as the *lack of market perspective*, predicts that the family effect is weaker for private firms than for public firms. The existence of capital market enhances the value of reputation of family. Therefore, private firms, operating in an environment where their equity securities are nonmarketable, have less concern for their family reputation.[2]

In a similar manner, the scarcity of information perspective predicts that the importance of corporate governance variables on the cost of debt is greater for private firms than that for public firms. The lack of market perspective, on the contrary, predicts the opposite.

The analysis of this study yields four major findings after controlling for firm-specific characteristics and prime interest rate. First, the financing cost of bank loan is higher for private firms. This result confirms that information risk is higher for private firms. Second, family firms enjoy lower cost of debt. This result is consistent with the literature that the benefit of family firms can be shown in a form of reduced cost of debt financing. Third, the previous finding that family firms have lower cost of debt is *only* found in listed firms. This evidence supports the prediction based on the lack of market perspective hypothesis which suggests that the family effect requires a capital market to make it substantiate. Finally, good corporate governance helps reduce financing cost of private debt. Moreover, these governance effects are not affected by the listing status. Both publicly traded and private firms enjoy lower cost of debt given firm are associated with stronger governance mechanisms.

This study makes several contributions to the extant literature on the cost of debt, listing status and corporate governance in the following way. First, different from prior studies focusing on the cost of equity capital which emphasizes an investor's perspective, I adopt a creditor's perspective and use the interest rate charged on a bank loan as the proxy for the cost of debt financing. It is valuable because commercial banks play essential roles in providing finance to firms, public or private, and in stabilizing the order of financial market in any economy—developed, developing or underdeveloped. Second, extant corporate governance literature focuses its research on public firms. The governance issues related to private firms are largely left unexplored. By incorporating listing status, corporate governance, and their interactions into the empirical model, the results regarding the cost of debt financing for private firms add to the literature of governance and the cost of debt.

The remainder of this paper is organized as follows. Section 2 reviews the related literature and presents the hypotheses. Section 3 describes the research design, sample, data, and variable measures. Section 4 presents the empirical results, and section 5 concludes the paper.

2. Literature Review and Hypothesis Development

Evidence shows that firms with high quality financial reporting obtain external financing on better terms (e.g., Sengupta, 1998; Bhojraj and Sengupta, 2003; Ashbaugh-Skaife et al., 2006). Studies also indicate that family firms are associated with lower cost of debt financing. In this section, I discuss two variables of interest—listing status and family firms— and their interaction effect that explain the determination of the cost of debt, and develop three hypotheses regarding their effects on the cost of debt.

2.1. Listing Status and the Cost of Debt Financing

The role of listing status in the cost of debt financing is based on the notion that creditors rely on accounting-based debt covenants, which suggests the influence of credible financial accounting information. As the demand for

2 As few studies focus on the cost of debt for private firms, I find no literature on these two perspectives.

accounting information differs significantly between public and privates firms, listing status may play an important role in creditors' loan decisions.

Two alternative views concerning the quality of accounting reports for public and private firms are presented in the literature. Public firms are distinguished from private firms in that public firms can raise capital from outside investors in stock markets. The presence of the positive or the negative impact of stock market determines the quality of accounting information. The first view argues that public firms usually re-enter the equity capital market for capital, outside investors will be reluctant to supply capital to firms with bad quality of reporting. That stronger demands and pressures from capital market as an external governance force motivates the public firms to report more credible earnings. However, it is also recognized that there are trade-offs and potentially important countervailing effects (e.g., Burgstahler et al., 2006). For instance, controlling insiders in public firms might expropriate outside investors by consuming large private control benefits. As an attempt to hide their activities and prevent outsider intervention, they could mask firm performance by managing reported earnings (e.g., Leuz, Nanda, and Wysocki 2003),3 which provides the second view. The second view argues that stock markets create motives for public firms to engage in earnings manipulations to obtain better terms on additional funding through equity offerings in stock market (e.g., Teoh, Welch and Wong, 1998) to meet the earnings expectations of market participants (e.g., Degeorge, Patel, and Zeckhauser, 1999), or to achieve other economic objectives such as management compensation. Private firms, on the other hand, rely primarily on bank loans or other borrowings from private lenders to meet their financing needs, are free from stock market pressures facing public firms. Private firms have weaker incentives to engage in earnings management than public firms.

Consistent with the first argument, Burgstahler et al. (2006) use European private and public firms and provide evidence that publicly traded firms demonstrate greater incentives to report quality information reflecting economic performance. Burgstahler et al. (2006) pinpoint that due to private firms have other private channels to convey their performance to the shareholders, private firms are found to be related to a lower reporting quality. Opposed to the findings in Burgstahler et al. (2006), Kim and Yi (2006), confirmed to the second argument, find that publicly traded firms tend to engage in earnings management to a greater extent than private firms. Beatty and Harris (1998) and Beatty, Ke, and Petroni (2002) document evidence suggesting that public firms engage in opportunistic earnings management more intensively than private firms.

As accounting disclosure quality reduce the degree of information asymmetry and lower the cost of debt financing (e.g., Sengupta, 1998; Anderson et al., 2004; Karjalainen, 2011), and quality of accounting-based information is different for private and public companies due to difference in demands and incentive for reporting credible economic performance to outside parties (Burgstahler et al., 2006), listing status is related to the cost of debt financing. Due to the lack of literature closely related to this study, and the mixed evidence regarding the effect of listing status on earnings quality, I provide this hypothesis without direction to test the effect of listing status on the cost of debt:

H1: Listing Status of a firm is systematically related to the cost of debt.

2.2. Family Firms and the Cost of Debt Financing

Most companies around the world are family-owned businesses (Burkart, Panunzi, and Shleifer, 2003; La Porta, Lopez-de-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Claessens, Djankov, Fan, and Lang, 2002; Anderson, Mansi and Reeb, 2003a), indicating the essential role of family.4 Family firms can potentially reduce the cost of debt because family owners share similar incentive structures. Family monitoring and control of the firm could result in better operating performance and superior cash flows to meet debt obligations. For instance, Anderson et al. (2003a) document that family firms, with or without active control, perform better than nonfamily firms. Anderson et al. (2004) further show that the benefit of family firms can be seen in their relation to a lower cost of debt financing. As families hold large, undiversified shareholdings, they have strong incentives to reduce firm risk and cash flow variability. This suggests that debt holders experience less risk and, as a result, demand lower return on capital provided. Anderson et al. (2004) argue, because extended horizons, family loyalty, and concerns over reputation suggest families are less likely to expropriate debt holder wealth than other shareholders.

3 Other examples of forces that could give rise to more earnings management in public firms are managerial compensation contracts, debt covenants, particularly in public debt agreements, or political pressures (Healy and Wahlen 1999).

4 Among others, Anderson et al. (2003a) find that family ownership is both prevalent and substantial. In specific, the authors report that families are present in one-third of the S&P 500 and account for 18 percent of outstanding equity.

Although it is posited that family ownership is associated with a lower agency cost of debt, an alternative perspective is that families can exacerbate agency conflicts because they possess the voice as well as the power to force the firm to meet their demands. Family members usually hold important positions on both the management team and the board of directors. Thus, family firms may have inferior corporate governance because of ineffective monitoring by the board. Another source of entrenchment is potentially greater information asymmetry between founding families and other shareholders. Fan and Wong (2002, p.403) argue that concentrated ownership limits accounting information flows to outside investors, while Francis, Schipper, and Vincent (2005) suggest that information asymmetry lowers the transparency of accounting disclosures. Therefore, family firms could have higher cost of debt resulting from higher information asymmetry.

Anderson et al. (2004) suggest that debtors are concerned with governance attributes that influence the integrity of financial accounting reports. Wang (2006) points out founding family ownership could affect the demand and supply of quality financial reporting in one of two competing ways: the entrenchment effect and the alignment effect. The entrenchment effect motivates financial statement suppliers (firms) to opportunistically manage earnings. It is consistent with the traditional view that family firms are less efficient because concentrated ownership creates incentives for controlling shareholders to expropriate wealth from other shareholders (Fama and Jensen 1983; Morck, Shleifer, and Vishny 1988; Shleifer and Vishny 1997).

Several prior studies report that family ownership affects the quality of accounting information. From the controlling shareholders' view, Fan and Wong (2002) find that a combination of the entrenchment effect and the information asymmetry between family members and other shareholders motivates the family firms to report lower quality earnings information. Opposed to findings of Fan and Wong (2002), Wang (2006) documents findings in consistent with the alignment effect that family firms are associated with higher earnings quality reducing the degree of information asymmetry between insiders and outsiders. With better operating performance, more stable cash flows and less degree of family-debtor agency conflicts, family firms potentially could mitigate the agency cost of debt, which results in a beneficial effect on the cost of debt.

If family increases agency conflicts, then I would expect debt holders to require higher returns, i.e., higher interest rate in this study, from family firms. However, it is argued that family firms share the similar incentive structure, and have stronger incentive to pass the business onto next generation. Hence, family firms are motivated to protect family's reputation. Based on the literature, the association between whether the family members actively involved in management and the cost of debt will be determined by the effect of either entrenchment or alignment. In other words, the entrenchment effect predicts that family-controlled firms are associated with the supply of lower earnings quality, while the alignment effect predicts that family-controlled firms are associated with lower cost of debt. This leads to the second hypothesis:

H2: Family firm is systematically related to the cost of debt.

Most prior research on governance or the cost of debt has focus on public firms. Evidence shows that listing status affects the quality of earnings (Burgstahler et al., 2006; Kim and Yi, 2006), and family firms are found to be related with better performance (Anderson et al., 2003a), higher incentive to report quality earnings (Wang, 2006), and a lower cost of debt (Anderson et al., 2004) than non-family firms. The difference in listing status of firm may thus have differential effect on the cost of debt due to family's incentive and ability in creating stable cash flows and conveying quality earnings that helps creditors to assess the firm health and viability. To enhance the knowledge on the effect of listing status on the association between family firms and the cost of debt, I provide the third hypothesis to test which type of firms—public-family or private-family firms—tend to have lower cost of debt:

H3: The interaction of family firms and listing status is systematically related to the cost of debt.

3. Research Methodology

I use the following model to examine the determinants of cost of debt (COD), measured as interest rate of bank loans:

$$COD = b_0 + b_1\,Private + b_2\,Family + b_3\,Private \times Family + b_4\,BoardHold + b_5\,BlockHold + b_6\,IndBoard + b_7\,Group + b_8\,Private \times BoardHold + b_{10}\,Private \times BlockHold + b_{11}\,Private \times IndBoard + b_{12}\,Private \times Group + b_{13}\,Size + b_{14}\,Leverage + b_{15}\,ROA + b_{16}\,IntCov + b_{17}\,PRate + e \quad (1)$$

The dependent variable is the interest rate of bank loan (*COD*). From financial reports or annual report, for each firm-year, I manually collect and identify *new* loans obtaining from the lenders in the year. The variable *COD* is the weighted average interest rate (using loan amount as the weight) of all new non-collateral loans. The firm and year subscripts are omitted for ease of exposition for all variables.

Two primary variables of interest in this study are *Private* and *Family*. *Private* is a dummy variable to indicate whether the observation is a private firm or not, and *Family* is also a dummy variable to indicate whether the firm is a family firm or not.[5] The coefficient of *Private*, b_1, measures, holding governance and financial variables constant, the difference in *COD* between public and private firms. The coefficient of *Family*, b_2, reports how family companies affect *COD* for public firms. As for the private firms, this effect is measure by the sum of $b_2 + b_3$, which the coefficient b_3 estimates the difference of *COD* between listed and non-listed family firms. Specifically, the scarcity information perspective and the lack of market perspective predict a negative and a positive estimated coefficient of *Private* × *Family* (b_3) respectively.

I control for several economic determinants of *COD* based on prior literature, which can be classified into two categories: corporate governance variables and financial characteristic variables. The corporate governance variables include (1) board member equity ownership, (2) shareholding by outside blockholders, (3) board independence, and (4) a member firm of a group business dummy. As for financial characteristic variables I include (1) firm size, (2) financial leverage, (3) profitability, (4) an interest coverage ratio dummy, and (5) the prime interest rate. These variables are discussed below.

I first discuss four corporate governance variables. First, board member equity ownership (*BoardHold*) is measured as the percentage of a firm's outstanding shares held by its board members.[6] Regarding the effect of board member equity ownership on the cost of debt, Jensen (1993) argues that the board with greater ownership in the firm is more likely to monitor management diligently, which reduces agency conflicts between management and outside stakeholders such as debt holders. Consistent with Jensen (1993), Ashbaugh-Skaife et al. (2006) empirically find that credit ratings (which are negatively related to the cost of debt) are positively related to board ownership. Based on these studies, I expect a negative relation between *COD* and *BoardHold*.

Second, outside block hold (*BlockHold*) is measured as the percentage of shares held by non-board members whose shareholdings are either in the top 10 or over 5%. Previous research substantiates that outside blockholders play a positive role in corporate governance. In an extensive survey on blockholders and corporate control, for instance, Holderness (2003) points out that blockholders have the incentive and opportunity to monitor management and thus enhance a firm's expected cash flows that accrue to all shareholders. I hypothesize that there is an inverse relation between *COD* and *BlockHold*.

Third, board independence (*IndBoard*) is measured as the ratio between the number of independent board members and board size. Myers et al. (1997) find that independent board members curtail managerial perquisite consumption. Prevost et al. (2002) find a positive relation between firm performance and the percentage of independent directors on the board. Moreover, Lee et al. (2003) find that corporate illegal acts are negatively related to the percentage of independent directors on the board in Taiwan. Finally, Ashbaugh-Skaife et al. (2006) find a positive relation between credit ratings and board independence. Based on these studies, I expect a negative relation between *COD* and *IndBoard*.

Last, group business (*Group*) is a dummy variable that takes the value of one if a firm is affiliated with a business group, and zero otherwise. There are two opposite views about the effect of business group on the firm value, which has an inverse relation to the cost of capital. The positive view argues that business group in developing countries can mimic the functions of market mechanism that are present only in advanced economies (Khanna and Palepu 1997, 2000). According to this perspective, there will be negative relation between *Group* and *COD*. The negative view, however, argues that the business group facilitates the controlling shareholders to siphon resource out of the member firms, which is often referred as "tunneling." Thus, tunneling view would expect that *Group* is positively related to *COD*. Due to the lack of consensus in the literature regarding the effect of group business on firm value, I make

5 Family members usually are actively involved in business management. Anderson et al. (2003) note that a potential concern with using family ownership data is that some families are able to exert control with minimal fractional ownership, while others require larger stakes for the same level of control due to differences in firm size, industry, business practices, and product placement. Therefore, a binary variable to denote firms with family ownership is used in the testing. Following Anderson et al. (2003a), I also adopt an indicator variable approach to indicate the degree of participation of family members. As for family member, I indentify it as the individual ultimate controller (including his/her spouse and a collateral relative by affinity within the two generations), unlisted companies of owned by the ultimate controller, non-profit of organizations and foundations owned by the ultimate controller. The variable *Family* equals one if the family members hold more than half of the board seats, and zero otherwise.

6 In Taiwan, basic corporate governance is a two-tier structure that consists of *directors* and *supervisors*, both elected by shareholders. Directors are responsible for ensuring compliance with laws and regulations, avoiding conflicts of interest, and overseeing the overall management of a company's business. Supervisors are responsible for the effective monitoring of a company's board and management. This study uses the term "board members" to indicate both directors and supervisors.

no prediction for the relation between the *Group* and *COD*.

I now turn to discussion of the financial characteristic variables affecting the *COD*. First, following prior literature (e.g., Ederington et al. 1987; Ziebart and Reiter 1992; Pittman and Fortin 2004; Ashbaugh-Skaife et al. 2006), I include firm size (*Size*), measured as the natural logarithm of total assets, return on assets (*ROA*), and a dummy for interest coverage ratio (*IntCovt*), which is set to one if a firm's interest coverage ratio (income before interest expense and taxes divided by interest expense) is higher than the industry median interest coverage ratio computed on a yearly basis and zero otherwise,[7] and prime interest rate (*PRatet*), measured as the average interest rate on a one-month certificate of deposit from five major Taiwan banks.[8] I expect all the coefficients of these three variables, except for that of the *Leverage*, to be negatively related to the *COD*.

4. Empirical Results

Sample selection

I collect data from *Taiwan Economic Journal* for both listed and unlisted firms over the period 1996 to 2006.[9] I delete financial firms, firms with non-calendar years and firms with missing data. This process results in a final sample of 6,218 firm-year observations as shown in Table 1.

Basis statistics

To mitigate the potential influences of extreme values, I winsorize all continuous variables at the top and bottom one percent of their respective distribution.[10] Descriptive statistics for variables examined in this study are reported in Table 2, where the superscript asterisks in the Difference column indelicate that the statistics are significantly different from the two samples.

The mean (median) *COD* for public firms is 4.74% (4.79%), whereas that for private firms is 6.59% (6.98%). A two-tailed *t*-test (Wilcoxon *z*-test) suggests that the *COD* for public firms is significantly smaller than that for private firms at the 0.01 level.

Turning to other variables, the differences of all governance and financial variables in means and medians between public and private samples are all significant. The only one variable requires explanation is *PRate*. Theoretically, if the number of observations in each year of the public and private samples is equal, the central tendency of *PRate* of the two samples should be the same. However, the mean of *PRate* in the public firms (2.86%) is significantly smaller than that of private firms (3.85%).

Table 3 presents the Pearson correlations among key variables where below the diagonal is the matrix of public companies, and above the diagonal is that of private companies. Except for *Family*, the correlations between *COD* and other variables are similar between the public and the private samples, at least in terms of direction of sign of the correlation. I first discuss the variable of interest in this study, *Family*, followed by variables with significant correlations to *COD*, and the remaining ones.

The correlation between *COD* and *Family*, 0.11, is significantly positive at 0.01 level in the sample of private companies, but it turns negative but insignificant, –0.02, in the public-firm sample. This result is consistent with the lack of market perspective. Specifically, this correlation analysis shows that the decreasing *COD* effect of *family*, if any, does not apply to private firms.

For variables with significant correlations in both samples, I find that the *COD* are, at the conventional statistical level, significantly negatively correlated with *BoardHold* (–0.12 and –0.10), *BlockHold* (–0.17 and –0.06), *IndBoard* (–0.33 and –0.39), *ROA* (–0.11 and –0.27), and *IntCov* (–0.21 and –0.29), where the former number in parenthesis is the correlation of public sample and the latter is that of private one. In addition, *COD* is significantly and positively correlations to *Group* (0.08 and 0.35) and *PRate* (0.77 and 0.66). On the other hand, the *COD* is significantly negatively correlated only with *Size* (–0.23, *p*-value < 0.01) in the public sample but become insignificant (–0.01, *p*-value = 0.62) in the private sample. These results support the notion that larger firms can enjoy lower financing cost. Several findings noted are that the effect of these variables, including governance mechanisms, firm characteristics and prime interest rate, on *COD* are similar. The only exception is the variable *Family*.

7 Since an interest coverage ratio above a certain threshold offers little incremental benefit to creditors, I measure *IntCov* as a dummy variable.

8 I measure this as the average interest rate on a one-month certificate of deposit from the five major Taiwan banks – the Bank of Taiwan, Taiwan Cooperative Bank, First Bank, Hua Nan Bank, and Chang Hwa Bank.

9 Taiwan Economic Journal is a popular financial database provider in Taiwan. The database covers firms listed in Taiwan Stock Exchange Corporation and Gre Tai Securities Market in Taiwan and private firms.

10 Deleting, instead of winsorizing, these variables at the top and bottom 1% produces qualitatively identical results as reported in the paper.

Table 1. Sample Selection

Period 1996~2006	Public Company	Private Company
All observations in the TEJ files	13,956	9,204
Less:		
Companies with missing data for corporate governance variables	(6,924)	(474)
Companies with missing data for financial characteristic variables	(58)	(28)
Missing data while computing Rate	(1,708)	(5,802)
Financial institutions	(471)	(1,137)
Non-calendar year firms	(54)	(340)
	4,795	1,423
Final sample	6,218	

Table 2. Univariate tests of differences in means (median) between public and private companies

	Public Companies			Private Companies			Difference	
	Mean	Median	Std. Dev	Mean	Median	Std. Dev	Mean	Median
Explained variable								
COD	4.74	4.79	2.22	6.59	6.98	1.95	–1.85***	–2.19***
Governance variables								
Family	0.58	1.00	0.01	0.63	1.00	0.48	–0.05***	0.00***
BoardHold	29.59	25.87	17.74	50.22	46.39	24.85	–20.63***	–20.52***
BlockHold	14.63	13.08	11.90	10.87	1.21	15.46	3.76***	11.87***
IndBoard	0.35	0.00	0.95	0.14	0.00	0.61	0.21***	0.00***
Group	0.86	1.00	0.35	0.73	1.00	0.45	0.13***	0.00***
Financial variables								
Size	15.28	15.14	1.35	14.34	14.23	0.99	0.94***	0.91***
Leverage	0.47	0.47	0.15	0.56	0.57	0.20	–0.09***	–0.10***
ROA	8.12	7.63	8.63	4.38	4.83	10.31	3.74***	2.80***
IntCov	0.58	1.00	0.49	0.35	0.00	0.48	0.23***	1.00***
PRate	2.86	2.13	1.60	3.85	4.42	1.33	–0.99***	–2.29***

Notes:

*, **, *** Difference in mean (median) between the Public sample and the Private sample significant at the 0.10, 0.05, and 0.01 level using a two-tailed t-test (Wilcoxon z-test).

COD = the weighted-average interest rate for new bank loans initiated, with the loan amounts serving as weights;

Family = one if the family members hold more than half of the board seats, and zero otherwise

BoardHold = the percentage of shares held by its board members;

BlockHold = the percentage of shares held by its outside blockholders;

IndBoard = the ratio between the number of independent board members and board size;

Group = one if a firm is affiliated with a business group, and zero otherwise;

Size = natural logarithm of total assets (in NT$ 1,000)

Leverage = financial leverage measured as the ratio between total liabilities and total assets;

ROA = return on assets;

IntCov = one if a firm's interest coverage ratio (income before interest expense and taxes divided by interest expense) is larger than the median interest coverage ratio in a year, and zero otherwise.

PRate = prime interest rate measured as the average interest rate on a one-month certificate of deposit from five major Taiwan banks.

Table 3. Pearson correlations matrix—publicly traded vs. private companies*

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
COD		0.11***	–0.10***	–0.06***	–0.39***	0.35***	–0.01	0.27***	–0.27***	–0.29***	0.66***
Family	–0.02		0.27***	0.04	–0.18***	0.13***	0.11***	0.13***	–0.09***	–0.11***	0.13***
BoardHold	–0.12***	0.02		–0.45***	–0.13***	0.20***	0.05	0.10***	–0.18***	–0.14***	0.20***
BlockHold	–0.17***	0.02	–0.24***		0.13***	–0.07***	–0.04	0.04	0.07***	0.01	–0.15***
IndBoard	–0.33***	–0.19***	–0.02	0.10***		–0.15***	–0.06	–0.07***	0.11***	0.13***	–0.43***
Group	0.08***	0.08***	0.10***	–0.06***	–0.13***		0.16***	0.22***	–0.36***	–0.30***	0.36***
Size	–0.23***	0.18***	–0.28***	–0.06***	–0.03	0.09***		0.38***	0.02	–0.13***	0.07***
Leverage	0.06***	0.09***	0.01	0.05***	0.02	0.03	0.24***		–0.32***	–0.40***	0.12***
ROA	–0.11***	–0.09***	0.19***	0.01	0.13***	0.01	–0.10***	–0.27***		0.57***	–0.17***
IntCov	–0.21***	–0.09	0.11***	0.05***	0.13***	–0.03	–0.07***	–0.30***	0.62***		–0.18***
PRate	0.77***	0.01	0.18***	–0.25***	–0.36***	0.09***	–0.13***	–0.10***	0.01	–0.07***	

Note: The sample consists of 6,218 firm-year observations during 1996-2006 taken from the Taiwan Economic Journal database. See Table 2 for variable definition. Pearson correlations of public (private) companies are reported below (above) the diagonal. *, **, *** indicate significance at 10%, 5%, or 1% respectively.

Table 4. Regression results on bank loan interest rate (number of observation = 6,218)

Variable	sign	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept (b_0)	?	1.728***	1.759***	1.757***	1.781***	6.398***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private (b_1)	+	0.803***		0.805***	0.703***	0.227*
		(0.000)		(0.000)	(0.000)	(0.090)
Family (b_2)	?		–0.029	-0.051	-0.088**	-0.090**
			(0.446)	(0.164)	(0.034)	(0.024)
Private × *Family* (b_3)	?				0.168*	0.114
					(0.059)	(0.187)
BoardHold (b_4)	−					-0.007***
						(0.000)
BlockHold (b_5)	−					-0.003
						(0.126)
IndBoard (b_6)	−					-0.168***
						(0.000)
Group (b_7)	?					0.126**
						(0.022)
Private × *BoldHold* (b_8)	?					0.000
						(0.939)
Private × *BlockHold* (b_9)	?					0.002
						(0.428)
Private × *IndBoard* (b_{10})	?					-0.090
						(0.150)
Private × *Group* (b_{11})	?					0.085
						(0.388)
Size (b_{12})	+					-0.323***
						(0.000)
Leverage (b_{13})	+					2.104***
						(0.000)
ROA (b_{14})	−					0.001
						(0.725)
IntCov (b_{15})	+					-0.520***
						(0.000)
PRate (b_{16})	−	1.054***	1.109***	1.055***	1.054***	0.993***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adj. R^2		0.6150	0.5950	0.6152	0.6153	0.6781
F-statistic		4968.73	4569.21	3313.63	2487.15	819.65
p-value		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
H_0: $b_2 + b_3 = 0$					0.080	0.024
					[0.311]	[0.757]

*, **, *** indicate significance at 10%, 5%, or 1% respectively. See Table 2 for variable definitions. Numbers reported in parentheses (brackets) are two-tailed *p*-values of the t-statistics (*F*-statistics).

Regression results

Table 4 reports the findings from estimating equation (1) using the ordinary least squares (OLS) method. To get a clearer picture on how the variables *Family* and *Private* affect *COD*, I provide five OLS models. In Column 1, the significantly positive coefficient of *Private* (b_1), 0.803, means that, on average, the *COD* for private firms is larger than that of public firms. In Column 2, the insignificantly negative coefficient of *Family* (b_2), –0.029 (p-value = 0.446), means that, on average, *Family* has no impact on the *COD*. In Column 3, the positive coefficient of *Private* (b_1), 0.805 with p-value < 0.01, and the negative coefficient of *Family* (b_2), –0.051 with p-value = 0.164). The result is consistent with Column 1 and Column 2.

As for the interaction effect of *Family* and *Private*, in Column 4, the coefficient of *Private* × *Family* (b_3), 0.168 with p-value < 0.10, reveals that the *COD* is higher for private firms than that of public firms. In fact, a further joint test of the sum of $b_2 + b_3$ (0.08, p-value =0.311) finds that there exists no impact of *Family* on *COD* if the observations is private firms. This evidence confirms the hypothesis that prior literature finding evidence that family companies can enjoy lower of financing cost because of the *lack of market perspective*. According to the evidence, public family firms enjoy lower financing costs because they face a stock market in which family reputation is valuable. However, there is no relation between private family firms and loan financing costs owing to lack of a "market" to price reputation, which results in lack of incentive to make reputation built.

Column 5 provides the results of the full model, which includes four parts: *Private*; the corporate governance variables examined in this study (hereafter *CG*) and the interaction of *CG* and *Private*; firms' financial characteristics (*Size*, *Leverage*, *ROA*, and *IntCov*); and prime interest rate (*PRate*). I explain the results in that sequence.

First, the estimated coefficient of *Private*, b_1 (0.227, p-value < 0.10), is still significantly positive. Next, the negative estimated coefficient of *Family*, b_2 (–0.090, p-value < 0.05); the positive estimated coefficient of *Private* × *Family*, b_3 (0.114, p-value = 0.187); the insignificance of the sum of $b_2 + b_3$ (0.024, p-value = 0.757) are largely consistent with the findings in Column 4. The analysis of the effect of remaining CGs reveals that, in public firms, I find significantly negative coefficients on *BoardHold* (–0.007, p-value < 0.01) and *IndBoard* (–0.168, p-value < 0.01), are consistent with the expectation based on prior literature. These findings suggest that firms with greater board equity ownership or more independent board are associated with a lower *COD*. Regarding the effect of *BolckHold* (–0.003, p-value = 0.126) on decreasing *COD* is only modest. On the other hand, the coefficient of *Group* is significantly positive (0.126, p-value < 0.05), suggesting that firms being a group members have a higher cost of debt. I, however, do not find there are different effects between public and private samples because none of the estimated coefficients, b_8, b_9, b_{10} and b_{11}, is significant at the conventional analysis level. These findings imply that, except for *Family*, the effect of governance mechanism on the cost of debt is similar between public and private samples, at least in this study.

The third part in Column 5 documents how firms' financial characteristics affect *COD*. As expected, firms with a larger size (*Size*) or higher interest coverage ratio (*IntCov*) are associated with a lower *COD*, financial leverage (*Leverage*) is strongly positively related to the *COD*. Surprisingly, the only exception is the estimated coefficient of *ROA* is insignificant. I provide two possible reasons to explain this insignificant finding on *ROA*. One is that the banks proving loan face downside risk but without right of sharing upside potential, thus, *ROA* is less important for creditors than to general shareholders. The other is that the correlation between *ROA* and *IntCov* is pretty high in Table 3.[11] Finally, as expected and consistent with Column 1 to Column 4, *PRate* (0.993, p-value < 0.01) is positively related to *COD*.

5. Conclusion and Discussion

In attempt to bridge together research on the influence of listing status on corporate reporting behavior and research on exploring the effect of governance attributes on cost of debt financing, the analysis focuses on two firm-specific factors and an interaction effect that are deemed to affect the financing cost: (1) a firm's listing status (that is, publicly traded versus private); (2) the role of family control, and (3) the interaction effect of listing status and family control.

I explore the effect of firm's listing status and active role of family members in the management or the corporate board, and its interaction effect, on the cost of debt financing by using a unique data set of bank loan information disclosed by publicly traded and private firms in Taiwan. Different from studies commonly adopt yield spreads of bonds as the measure for cost of debt financing, interest rate a firm paid to obtain loan from banks is used in this research.

The findings are consistent with the proposition that the capital market plays a constructive role in enhancing earnings quality, and firms provide quality information can benefit from lowering their financing cost of debt. The analysis also shows that

11 The estimated coefficient of *IntCov* is significant because I adopt a *dummy* measure for it (see Table 1 variable definition). If I use the traditional measure, a *continuous* one, I also find it is insignificant.

strong governance is beneficial for both public and private firms. Interestingly, the evidence indicates that except for the role of family, listing status has no significant impact on all governance variables. In other words, commercial lenders in this study price indifferently for good governance mechanisms regardless of public or private firms. With regards to the finding that family firms provide incremental importance beyond the influence of being listed, indicating a confirmation to the lack of market perspective, which suggests that the family effect requires a capital market to validate.

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EFFECT OF CORPORATE GOVERNANCE ON THE FIRMS' STRUCTURAL CAPITAL

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Abstract

The study seeks to understand how the firm's ownership structure and the board of directors' composition influence the structural capital. The latter is apprehended by two main levers: innovation ("R&D") and firm's reputation. By mobilizing several panel linear regressions on 274 American firms, the results show that the firms which heavily invest in structural capital are more successful and chaired by the younger and heterogeneous TMT. No disciplinary effect of the board on structural capital has been found. The results support the cognitive theory assumptions. The classic perspective failed to explain the structural capital phenomena. In order to enhance their structural capital, firms must pay a close attention to their board cognitive contribution and not to its disciplinary role.

Keywords: Corporate Governance, Cognitive Approach, Structural Capital, Innovation, Reputation

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Introduction

The main purpose of the present paper is to study the effect of firms' governance (composition of the board of directors and ownership structure) on their structural capital. The structural capital is defined as "the packaging" of the human capital. It consists in both the "organizational capital" and "the relational capital". The "organizational capital" is, in turn, composed of the "process capital" and the "innovation capital". The latter is usually measured by the R&D expenditures. The R& D activity allows the firms to improve their productivity, succeed in competitive markets and meet environmental requirements. R&D has also contributed to the development of new products and, in many cases, the creation of new markets. The "relational capital" can be apprehended by the firm's reputation. In fact, the reputation plays an important role in legitimizing the organizations, developing a relationship based on faithfulness with customers and attracting better partners.

The current work will investigate the different perspectives of the theory of corporate governance in the framework of the two main levers of the structural capital: Innovation (internal structure) and Reputation (external structure). In particular, it proposes to explain the determinants of firm's innovation and reputation. In this regard, it seeks to highlight the impact of certain mechanisms of governance on these issues.

The contribution of the article is to combine two themes belonging to different fields of study (finance: corporate governance and management: structural capital). In addition, these topics attract today the greatest attention of academicians and researchers due to the increased importance of the intangible capital and the governance issue. In fact, corporate scandals of numerous firms have maintained public and political interest in the regulation of corporate governance since the Enron collapse in 2001 (Anup & Sahiba, 2005).

The paper will be divided into two sections. The first will present the hypotheses to be tested which are based on the theoretical arguments of different approaches of governance. The second will be devoted to the description of the research models and the results which will be the subject of a detailed interpretation.

Conceptual framework and hypothesis

1.1 - The Effect of Governance on the Structural Capital: The Contractual Approach View Point

1.1.1. The Composition of the Board of Directors as the Main Determinant of the Structural Capital

Duality: According to the agency theory, the managers who hold of a dual position have an unmeasured power which allows them to satisfy their self interests by decreasing the investment in R&D which may damage the company's reputation (Jensen & Mecking, 1976). By contrast, the theory of normal succession assumes that the duality allows a better strategic decision and does not

systematically lead to harmful activities (Vancil, 1987).

Size of the board of directors: The agency theory assumes that the boards of directors of small size exercise a more effective control. These boards are likely to enhance the firm's reputation and promote innovation by taking the appropriate decisions.

Presence of outsiders: A great majority of researchers advocate "the effectiveness of the outsiders" hypothesis which is supported by the agency theory and associated the presence of the outsiders with a triple advantage: the opening of prospects, the experience and the independence (Fama, 1980; Fama and Jensen, 1983). The presence of outsiders stimulates innovation (Baysinger, Kosnik & Turk, 1991; Tylecote and Visintin, 2008). In this respect, Kosnik (1990) argued that the outsiders are more likely than the insiders to impose their choices in favor of the shareholders' interests by reducing the managers' resistance to changes and to the risky investments of "R&D".

The proponents of "the managerial hegemony" hypothesis, however, found that the managers dominate the board of directors (Lin and Hsing, 1997; Monks and Minow, 1995) and the outsiders tend to prefer the non risky projects in order to preserve their reputation. This behavior can be prejudicial to the stocks' value because "eliminating the most risky projects can in some cases lead to eliminating the most profitable ones".

Hypothesis 1: The level of the structural capital of a firm depends on the composition of its board of directors (Duality, size and percentage of outsiders).

1.1.2 The Ownership Structure as the Main Determinant of the Structural Capital

Concentration of capital: According to the agency theory, the presence of the "Blockholders" reflects the effectiveness of the control of the board. The effect of the concentration of capital on investments in "R&D" is subject to two conflicting perspectives. According to the agency theory, the presence of blockholders should be reflected through an increase in the "R&D" investment (Cook and Deakin, 1999; Crespi, 2004; Hill and Snell, 1988). But the dominating shareholders can agree with the managers to maximize their own interests by reducing the investments in "R&D"(Pound, 1988; Shleifer and Vishny, 1997).

Managerial ownership: According to the theory of entrenchment, the managers who possess bigger share capital can take advantage of their supremacy to conduct the investment policies in the direction of achieving their own goals by reducing the amount devoted to "R&D". This is opposed by the theory of the interests' convergence (Salancik and Pfeffer, 1980).

Institutional ownership: The institutional investors have recently emerged to reduce the managerial supremacy (Gompers et al., 2003). The attitude of these institutional investors towards the risk is subject to two contradictory alternatives. According to the dominant "efficient control" hypothesis, the institutional investors who highly contribute to the capital urge the managerial coalition to act in the interest of shareholders and partners (Pound, 1988) by profiting from the "R&D" (Eng and Shackell, 2001). These comments are not valid if the institutional investors have business relationships with the managers (assumption of the strategic alignment).

According to the theory of the "myopia of the institutions", the institutional investors are considered as transitional shareholders who are looking for short-term profits (Bushee, 1998). Graves (1988) noted that the "R&D" expenses are small in the firms strongly held by institutional investors in order to limit the risk of the firm and keep the financial interests of the companies they represent (especially if these investors are creditors of the firm).

Outsiders' ownership: The more important their ownership in the company is, the more attentive the outsiders become in controlling the managers so that to lead them to undertake risky and innovative activities (Filatotchev and Bishop, 2002).

Hypothesis 2: The level of the structural capital of a firm depends on its ownership structure (presence of blockholders, institutional investors, managers and outsiders in the capital).

1.2 - The Effect of the Board of Directors on the Structural Capital: The Cognitive Approach View Point

According to the cognitive approach, the TMT tenure is considered as indicator of its competence (theory of human capital). Indeed, the relationship between the TMT and the shareholders is not hostile. Their objectives are converging towards the continuous prosperity of the company. In this context, the role of discipline of the board yielded to a role of developing and organizational learning. According to the "stewardship theory" and the "circulation of power model", the insiders are able to exercise an effective control over the TMT. On the other hand and with reference to the "CEO succession theory", duality does not systematically damage the companies' performance. The board of great size seems to be favored by the stakeholder theory because they generate cognitive conflicts and alternative political coalitions which may create a fruitful organizational learning. The vehicles of entrenchment can be seen as vehicles of skills

acquisition. Thus the role of governance is to help managers improve firm's performance by stimulating innovation and collective learning. The board of directors must have a strategic and external vision to adapt the firm to its environment. They also have to be involved in providing innovation strategies and go beyond the financial control to exercise a strategic control. Thus, the composition of directors' board and the ownership structure of the company (supposed to reflect the power of the board and the magnitude of the financial interests of directors), do not necessarily have a significant effect on innovation. According to the cognitive perspective, reputation is based on the strategic considerations of innovation, organizational learning and relational capital. This contradicts the classical theory which bases reputation on financial and economic aspects. In fact, the board must play an active role in running the company whose effectiveness mustn't be conceived in terms of independence of the control (contractual approach) but in terms of cognitive contribution. In the absence of some levers of effectiveness of the board, significant levels of "R&D" and reputation can be enrolled. Thus, it does not seem necessary to follow the standards of governance (in the shareholder meaning) so that the company can enhance its intellectual capital.

Hypothesis 3: The structural capital of a firm is not necessarily related to the effectiveness of its board of directors (in the contractual meaning).

1.3 - Other Determinants of Structural Capital

In addition to governance, the human capital and remuneration should determine the "R&D" intensity and the reputation. Indeed, the better paid managers are more likely to invest in the "R&D" and to improve the reputation of their firms (Cheng, 2001). This holds true for the "Stock options" because the managers whose compensation is focused on "stock options" are more engaged, committed and responsible. Thus, they deal attentively with the firm's "R&D" and reputation.

Hypothesis 4: The "R&D" intensity and the reputation depend on the nature and the importance of compensation granted to the TMT.

Age and tenure are not only perceived as indicators of the managers' experience but also as a proof of their narrow prospects. Thus their impact on innovation and reputation seems to be controversial (Barker and Mueller, 2002; Hayes and Abernathy, 1980; Porter, 1990; Reinmoeller, 2004; Schoenecker *et al*., 1995).

Hypothesis 5: The "R&D" intensity and the reputation depend on the TMT demographic characteristics.

Finally and according to "Upper Echelons" theory, heterogeneity generates a cognitive conflict which enriches discussions and yields better decisions. It may, however, generate affective conflicts which mess up the working conditions.

Hypothesis 6: The TMT demographic heterogeneity is linked to the "R&D" intensity and the firm's reputation.

2 - Research methodology and results

We will present in this section the models, the research variables, the methodological approach and the main results obtained.

In order to test the range of the hypotheses displayed, we need to clarify the determinants of the "R&D" intensity and the firm's reputation. This is done by using a set of linear regressions for panel data (274 American firms from the Most Admired of the "Fortune" magazine and 8 years running from 1997 to 2004).

Our basic models are the following:

Innovation (R&D) = f° (Governance, Sales, Compensation of managers, TMT Heterogeneity & Demographic Features, Control variables)

Reputation Score = f° (Governance, Performance, Sales, TMT Heterogeneity & Demographic Features, Control variable).

The 1st table describes the variables used in the regressions.

Table 1. Description of the variables used in the regressions

	Variable Name	*Measure*
Dependent Variables		
Innovation	lnrd	Napierian Logarithm of the amount of "R&D"
Reputation	score	Reputation Score published by the "Fortune" magazine
Independent Variables		
Governance		
Board Size		Number of directors in the board (insiders + outsiders)
Duality (Binary variable)		= 1 if the chairman of the board is the CEO and = 0 otherwise
Percentage of outsiders in the board		Number of outsiders / Board Size
Percentage of majority individual		Number of majority individual shareholders / Board Size

shareholders in the board		
Percentage of institutional shareholders in the board		Number of institutional shareholders / Board Size
Outsiders' ownership		Number of shares held by the outsiders / Total number of shares in circulation
Managerial ownership		Number of shares held by the managers and directors / Total number of shares in circulation
Majority ownership (Majority shareholders ownership exceeds 5%)		Number of shares held by the individual majority investors / Total number of shares in circulation
Institutional ownership		Number of shares held by the institutional investors / Total number of shares in circulation
Performance	roa	Return on Assets [(Income Before Extraordinary Items / Total Assets) * 100].
	npm	Net Profit Margin (Income Before Extraordinary Items / Revenues) * 100
	mtob	Market to Book (Unitary Price – Monthly – Close /Ordinary Equity divided by Common Shares Outstanding)
Compensation	lnrem	Napierian Logarithm of the total remuneration paid to the TMT (The 1st five senior managers)
	salr	The proportion of salary (granted to TMT) compared to their total remuneration
	bonusr	The proportion of the bonus (granted to TMT) compared to their total remuneration
	cashr	The proportion of the cash (granted to TMT) compared to their total remuneration
	bsoptr	The proportion of options (granted to the TMT) compared to their total remuneration
Demographic characteristics	age	Average TMT Age
	tenpst	Average TMT Tenure in current position
	tenfirm	Average TMT Tenure in the firm
Demographic Heterogeneity	hettp	Heterogeneity of tenure in the team (tenure max - tenure min)
Control Variables		
Firm Size	lnemp	Napierian Logarithm of Number of employees
Growth of firm Size	sevemp	Sign of evolution in the number of employees (Binary variable : takes the value 1 if the growth of employees compared to the previous year is positive and 0 otherwise)
Revenues	lnrev	Napierian Logarithm of sales
Revenues Growth	erev	It is a binary variable. It takes the value 1 if the growth of sales compared to the previous year is positive and 0 otherwise
Debt	debt	The value of the debt reported to the value of total assets
Activity Sector	isect1	It takes the value 1 if the firm belongs to the sector "Basic materials" and 0 otherwise
	isect2	It takes the value 1 if the firm belongs to the sector "Basic materials" and 0 otherwise
	isect3	It takes the value 1 if the firm belongs to the sector "Consumer Goods" and 0 otherwise
	isect5	It takes the value 1 if the firm belongs to the sector "Healthcare" and 0 otherwise
	isect6	It takes the value 1 if the firm belongs to the sector "Industrial Goods" and 0 otherwise
	isect8	It takes the value 1 if the firm belongs to the sector "Technology" and 0 otherwise

Note: The Technology sector (8) is omitted in the different regressions in order to eliminate the problem of Collinearity. The interpretation will be conducted relatively to this sector. The financial sector (4) is eliminated because it is subject to specific regulations and the services' sector (7) containing a single firm in our sample is reclassified and assigned to the sector 2 of the conglomerates.

To perform our regressions, we applied a specific procedure for the panel regression[12]. We will present the adopted estimations after detecting and solving the problems. For the sake of clarity,

[12] We have applied the following approach:
Perform the test of VIF to detect a potential problem of collinearity
analyze the type of relationship (linear, quadratic or cubic) between the dependent variable and each independent variable
Estimate the model by individual fixed effects (test of Fisher)
Estimate the model by individual random effects (Lagrange Multiplication Test of Breusch & Pagan)
Specify the model (fixed or random effects) by using the Hausman Test
Conduct the "post – estimation tests " to reveal the potential problems of heteroskedasticity and auto correlation of errors
and finally correct the detected problems by performing the Least Squares Quasi Generalized

we separate the interpretation of the regressions in three different paragraphs considering the three levers of the structural capital.

2.1 - "R&D" Investments: Main lever of the Internal Structural Capital

In order to study the effect of board of directors on innovation, we should clarify the main determinants of "R&D" using the panel linear regressions. We suggest to re-estimate the basic model (model 1) by varying the measures of remuneration. The main results related to the four regressions are reported in the following table.

Table 2. Determinants of R&D

Model	*Model 1*	*Model 2*	*Model 3*	*Model 4*
Board Size	0,004	0,004	0,004	0,004
Duality	-0,023	-0,023	-0,021	-0,021
Outsiders' Percentage	0,128	0,115	0,097	0,115
Majority shareholders Percentage	-0,361**	-0,349**	-0,320**	-0,338**
Institutional Percentage	-0,054	-0,053	-0,052	-0,055
Managerial Ownership	0,070	0,080	0,102	0,094
Outsiders' Ownership	-0,032	-0,033	-0,028	-0,033
Institutional Ownership	0,018	0,014	0,010	0,013
Revenues	0,329***	0,333***	0,326***	0,332***
Total Compensation	0,021**			
Age	-0,006**	-0,006**	-0,006**	-0,006**
Tenure in position	0,008**	0,007*	0,006	0,007*
Tenure in firm	0,007***	0,006***	0,005***	0,006***
Tenure Heterogeneity (in position)	0,003**	0,003**	0,003**	0,003**
Firm Size	0,255***	0,257***	0,260***	0,257***
Debt	-0,006**	-0,006**	-0,006**	-0,006**
isect 1	-1,675***	-1,685***	-1,677***	-1,678***
isect 2	-1,081***	-1,085***	-1,080***	-1,075***
isect 3	-0,681***	-0,693***	-0,703***	-0,691***
isect 5	-0,585***	-0,580***	-0,553***	-0,566***
isect 6	-0,706***	-0,711***	-0,704***	-0,702***
Salary		-0,017		
Bonus			-0,029	
Cash				-0,023
Constant	10,040***	10,234***	10,355***	10,243***
N	2192	2192	2192	2192

Notes:
Significance levels: †p < .10; *p < .05; **p < .01; ***p < .001. P-values greater than .05 but less than .10 are considered marginally significant. P-values greater than .10 are considered insignificant.
For all models, the dependent variable is the natural logarithm of R&D. Among the independent variables, the first model integrates the total compensation but the other models integrate respectively the salary, the bonus and the stock options.
The use of "bsopt" instead of "cashr "does not change the estimation, only the regression coefficient of "bsoptr" becomes the opposite of the "cashr" (since bsopt = 1 - cashr).
We have reported 3 decimal places for statistics because the ß values are very weak.

Effect of Governance: For all the models, the variables of governance (except the percentage of the majority individual shareholders) do not have a significant effect on the amount of "R&D". Accordingly, the directors' board does not seem to play the disciplinary role as assigned by the agency theory. In fact, it is not necessary for the firm to have a powerful board to be able to improve its process of innovation. In other words, the control mechanisms (reflecting the board power) do have neither a positive nor a significant effect on the motivation of managers towards the risky investments. A tight control could be exerted by the external mechanisms (the financial market, the public power, the goods and services market and the labor market). The mixed results and the non-

significance of board variables support the cognitive approach of governance.

Effect of TMT Compensation: Generally speaking, the effect of remuneration on innovation is positive (ß = 0,021; p < 0,01). The firms which grant the higher compensation to their managers tend to invest heavily in "R&D". Nevertheless, our results highlighted the expected positive effect of stock-options (H_4 confirmed).

Effect of TMT Demographic Attributes: The results indicate that older managers are the least likely to innovate because they are risk-averse (ß = -0,006, p < 0,01 in all). The investments in "R&D" may adversely affect the firm profitability and thus their compensation. In addition, these managers are not motivated to invest in "R&D" because they have a limited employment horizon and the yields of such investments are to be achieved in the long run. This result supports the presumptions of the "Upper Echelons" and the agency theories and therefore confirms H_5. The effect of TMT tenure on innovation is generally positive and significant for all the models (ß = 0,007 in model 1; 0,005 in model 3 and 0,006 in models 2 & 4, p < 0,001 in all). The older managers are more experienced and therefore more likely to run the innovation process (Hayes & Abernathy, 1980).

Effect of TMT Demographic Heterogeneity: The effect of heterogeneity is, in all cases, significant and favorable (ß = 0,003; p < 0,01 in all). The heterogeneity of the TMT tenure implies a diversity of experiences and perceptions. It strengthens the intellectual conflict necessary for any innovation. The TMT discontinuity improves the quality of decisions. This result is highly supported by Hambrick and Mason (1984) work and validates H_6.

Control Variables: Large firms are usually endowed with many ways to promote and enhance the innovation activities. The negative effect expected from debt is verified. The "activity sector" seems to influence the amount devoted to the investment in "R&D". Seemingly, the firms which do not belong to the technology sector invest less in "R&D". With reference to the nature of its activity, this sector evidently ranks high in terms of innovation.

2.2 - The Firm's Reputation: Main Lever of the External Structural Capital (Relational Capital)

To identify the effect of directors' board on the relational capital, we applied, similarly, a set of multiple linear regressions for panel data which explains the determinants of firm's reputation. In fact, the latter is hardly measured as it is qualitative and abstract. In this work, it has been apprehended, by the scores published by the "Fortune" American Magazine. The exogenous variables reflect:

- The governance variables
- Performance
- Innovation
- The TMT compensation
- The sales growth
- The TMT demographic features
- And other control variables: size, debt and the activity sector of firms.

We will estimate the basic model by varying the components of compensation (the overall remuneration and the component cash) and the performance measures (ROA, NPM and MTOB). In sum, six regressions are employed. The results are summarized in the 3th table.

Table 3. Determinants of Reputation

Model	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Board Size	0,036***	0,034***	0,035***	0,037***	0,035***	0,036***
Duality	0,034	0,032	0,041	0,032	0,030	0,039
Outsiders' Percentage	-0,605***	-0,622***	-0,571***	-0,604***	-0,618***	-0,573***
Majority shareholders Percentage	0,177	0,186	0,216	0,180	0,195	0,205
Institutional Percentage	0,210	0,231	0,157	0,213	0,237*	0,162
Managerial Ownership	-0,624***	-0,576**	-0,716***	-0,602***	-0,554**	-0,698***
Outsiders' Ownership	0,038	0,033	0,001	0,035	0,032	-0,007
Institutional Ownership	-0,809***	-0,793***	-0,742***	0,817***	-0,804***	-0,750***
ROA	0,010***			0,011***		
Innovation	0,038***	0,035***	0,045***	0,037***	0,034***	0,046***
Total Compensation	0,033*	0,028	0,037**			
Sales growth	0,038	0,036	0,046**	0,041*	0,039*	0,049**
Revenues	0,134***	0,140***	0,118***	0,140***	0,145***	0,125***
Age	-0,003	-0,003	-0,005	0,004	-0,003	-0,005
Tenure in position	0,011**	0,011**	0,01*	0,01**	0,01**	0,009*
Tenure in firm	0,012***	0,012***	0,011***	0,012***	0,012***	0,011***

Growth in number of employees	-0,081***	-0,08***	-0,08***	0,081***	-0,08***	-0,081***
Debt	-0,001	-0,001	-0,002*	-0,001	-0,001	-0,002*
isect 1	-0,082	-0,111	-0,153	-0,089	-0,115	-0,163
isect 2	0,016	0,009	-0,009	0,012	0,009	-0,017
isect 3	-0,057	-0,098	-0,052	-0,061	-0,103	-0,059
isect 5	-0,110	-0,134*	-0,144***	-0,109	-0,129*	-0,147**
isect 6	0,094	0,084	0,085	0,095	0,088	0,081
NPM		0,01***			0,011***	
MTOB			0,001			0,001
Cash				-0,103**	-0,104**	-0,085*
Constant	2,303***	2,277	2,642***	2,708***	2,639***	3,045***
N	2190	2190	2190	2190	2190	2190

Notes:

Significance levels: †p < .10; *p < .05; **p < .01; ***p < .001. P-values greater than .05 but less than .10 are considered marginally significant. P-values greater than .10 are considered insignificant.

The first three models considering the overall compensation while the three latest models incorporate the party cash of remuneration as exogenous variable.

Model 1 is the model which has for endogenous variable reputation score and integrates among its exogenous variables the variable "R0A" as a measure of performance and total compensation ("lnrem") as a measure of the managers' compensation.

Model 4: is the model which has for endogenous variable reputation score and integrates among its exogenous variables the variable "ROA" as a measure of performance and the component cash ("cashr") as a measure of the managers' compensation.

Model 2 & 3 are similar to the model 1 but they integrate respectively Npm & MTOB.

Model 5 & 6 are similar to the model 4 but they integrate respectively Npm & MTOB.

Effect of Governance: The variables of governance do not have unanimous positive significant effect on the firms' reputation[13]. This result can be interpreted in two ways.

On the one hand, the firms that enjoy the best reputations are not necessarily those which conform to the instructions of the good governance within the shareholder approach. In other words, the market does not quote favorably a firm because it has a rigorous board that is able to thwart the arbitrary actions of managers. Thus, the direct effect of governance on firm's reputation has not been observed in our sample. On the other hand, the most anxious boards to comply with the standards of good governance do not seem to intervene effectively in the management in order to steer them towards the right choices. Accordingly, we can say that the boards of our sample did not exercise an indirect effect on the reputation by influencing the strategic decisions of firms.

It seems that boards do not play the disciplinary role advocated by the contractual approach of governance to restore the firms' reputation. This confirms the negative effects of the percentage of outsiders and the managerial and institutional ownership. In addition, larger boards sound to have a favorable impact on reputation as they enrich the decisions and strengthen the cognitive conflict. The cognitive contribution of the board is more important than its contribution in the control and supervision. Furthermore, the market believes that the board of directors is not the police officer in the company but it must rather play the role of an adviser to the management. The directors and managers should maintain cooperative relations to help one another while running firms.

Effect of Firm's Performance: The effect of performance (for the two facets of performance: profitability and market value) is always positive (ß = 0,01 in models 1, 2, 4 & 5, p < 0,001 in all). The financial data are very important in the assessment of firms despite the powerful assumptions of theories that emphasize the relevance of the social and societal data and intangible goods.

Effect of "R&D" intensity: The effect of "R&D" is significant and positive in all the models (p < 0,001 in all). It is obvious that the analysts favor the firms which devote big amounts to "R&D".

Effect of sales growth: The firms which have the higher sales are usually well perceived by the market (ß = 0,049, p < 0,01). This seems also obvious as the sales growth reflects the important efforts made by firms to satisfy their consumers (quality of products, originality of services, economic, social and societal responsibilities).

Effect of TMT Demographic Attributes: The negative effect of the managers' age has been checked in all the models but it is not statistically significant. Possibly, the market perceives age as a vector of entrenchment, resistance to change and aversion to risk. The market believes that the firms directed by older managers are unable to confront the challenges imposed by the current changes of the environment. In addition, the effect of tenure (in the post and in the firm) is positive and significant in all the models (for example ß = 0,011, p < 0,001 in model 6). This result shows that the market perceives tenure as an indicator of experience and professionalism.

[13] Some variables are non-significant (duality, the outsiders' ownership, the presence of the majority investors: individual or institutional) for all models and other variables have adverse effect on the reputation (the presence of outside directors in the board, the managerial and institutional ownership).

Effect of TMT Compensation: The results indicate that the market does not appreciate the firms which depend on the "cash" component to compensate their managers (ß = -0,085, p < 0,05). By contrast, the market considers the stock options as an effective means to strengthen the commitment of these managers.

Control Variables: First, the results prove that the firms which increase the number of their employees have a deteriorated reputation since they seem to go beyond the interval of the optimal size and will help in amplifying their salary charges (ß = - 0,08, p < 0,001 in all models). Then, the most indebted firms are the firms which have the most moderate level of reputation (ß = - 0,002, p < 0,05 in models 3 & 6). These firms are suffering from financial difficulties. Finally, the non-significant signs of the latest binary variables predict that the firms' reputation is not explained by their activity sector.

Conclusion

The objective of this work is to apprehend the effect of the firms' ownership structure and the directors' board characteristics on the structural capital.

To do this, we have studied two levers of the structural capital (innovation and reputation) in order to identify their key determinants. So, we have conceptually mobilized the two main governance approaches (contractual and cognitive) and empirically tested a set of multiple linear regressions for panel data.

In addition to the governance variables, other exogenous factors were considered: the performance, the size of firms and the indicators of human capital. In order to enrich the interpretations, we have subdivided the compensation and we have varied the measures of the performance. The results appear to be reliable because they do not depend on the proposed measures. They indicate that the companies that invest so much in structural capital have higher returns and they are chaired by the youngest and most heterogeneous TMT. Then, the control variables related to the size of firms, the debt, the activity sector and the year of research also influence the structural capital.

Nevertheless, the more surprising result is the remarkable absence of the disciplinary effect of governance mechanisms on the firms' structural capital. This result supports the presumptions of the cognitive theory of governance and refutes the arguments of the financial theory (H_3 verified). The "R&D" intensity and the firms' reputation do not depend on the rigor of the control of board. The modern approaches of governance seem to be more suitable in explaining the managerial behavior. The classical theory (financial and stakeholder theory) failed to explain the importance of the structural capital because its arguments contradict the requirements and characteristics of the firms which have a tendency to innovate. Finally, the results highlight the foresight and the relevance of the market assessments: it is a long-term vision of the cognitive approach based on the challenges of innovation and organizational learning and not on the control and discipline of the managers advocated by the contractual theory.

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LARGE PENSION FUNDS AND THE CORPORATE GOVERNANCE PRACTICES OF BRAZILIAN COMPANIES

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Abstract

We do not find any consistent evidence that the presence of the largest Brazilian pension funds as relevant shareholders is associated to higher corporate governance scores by public Brazilian companies. Even though companies with institutional investors as relevant shareholders presented a higher average corporate governance score than other companies, they were also larger and had greater past profitability than other companies, which are common attributes of firms with better corporate governance according to the literature. The impact of Brazilian institutional investors on the corporate governance quality of their investees is either negligible or cannot be captured by the proxies we employed. Finally, we note that these two pension funds may represent the policy and political views of the incumbent Brazilian government and that the actions of their board appointees may or not reflect what is understood as good corporate governance practices.

Keywords: Institutional Investors, Pension Funds, Corporate Governance

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1. Introduction

Silveira et alli (2009) and Leal and Carvalhal-da-Silva (2007) examined the determinants of good corporate governance practices in Brazilian public companies. The presence of institutional investors as relevant shareholders may be one of them. The study of institutional investors as monitors of management is a fairly recent theme in Latin America. This article analyzes the correlation between the share ownership of the largest Brazilian pension funds and a measure of corporate governance quality of Brazilian public companies.

We concentrate on the three largest pension funds in Brazil, Previ, Petros, and Funcef, in this order, which also hold the largest relative allocations in equities. The vast majority of Brazilian pension funds invest very little in equities. These three pension funds are also indirect agents of the Brazilian government because their beneficiaries are the employees of Banco do Brasil (the largest Brazilian bank), Petrobras (the Brazilian energy giant, one of the largest companies in the world, and the largest in Latin America), and Caixa Economica Federal (the second largest Brazilian bank), all controlled by the Brazilian federal government. Crisóstomo and González (2006) report that these pension funds begin to play a more important role as shareholders during the Brazilian privatization process initiated in the 1990s. Their presence in the acquiring consortia made several privatizations possible. The agreements that materialized these consortia led them to a greater number of board seats and to a more salient role in corporate governance.

The investments of pension funds represented 15.2 percent of the Brazilian gross domestic product. Equity investments accounted for 32.5 percent of the total invested by Brazilian pension funds, with the largest ones holding relatively more. In December of 2010, Previ (US$ 91.7 billion), Petros (US$ 33.4 billion), and Funcef (US$ 26.2 billion) jointly represented 46.8 percent of the total investment value of 275 pension funds (US$ 323.1 billion), as informed by ABRAPP, the Brazilian association that represents company sponsored pension funds.

We do not find any consistently significant correlation between scores of corporate governance practices and the presence of institutional investors as relevant shareholders of public Brazilian companies, confirming the evidence in Punsuvo et

alli (2007), who find a negative relationship between the corporate governance practices of Brazilian companies and the participation of pension funds as relevant shareholders. Silveira et alli (2008) also found a positive but non-significant relationship between pension fund ownership and the quality of corporate governance practices. Leal and Carvalhal-da-Silva (2007) indicate a negative impact on the market value and on the dividend yield when an institutional investor was the largest ultimate shareholder of a company. This negative relationship is consistent with the findings presented here although it was not always significant. Crisóstomo and González (2006) do not find a difference in the performance of Brazilian companies with relevant pension fund ownership. Finally, recent preliminary evidence presented by Silveira (2011) also concludes that the presence of the largest pension funds is not related to better corporate governance practices.

Pension funds controlled by the government, which are the largest shareholders among Brazilian pension funds, may pursue a diverse agenda that includes political issues and the economic policy orientation of the incumbent government, and may enroll people who are not necessarily committed to better corporate governance practices, but that rather have political affinities with the government, as board representatives. Even though pension fund officials many times pose as champions of good corporate governance practices, we cannot present any solid evidence that ownership by the largest pension funds in Brazil translates into better corporate governance practices both from our own results and from the literature reviewed.

2. Background

Claessens and Fan (2002) and Gillan and Starks (2003) show that investors are willing to pay a premium for the stock of companies that have a more active and independent board of directors and that adopt good corporate governance practices. This premium is greater in Latin America and Asia and lower in Europe and in the US. A growing and important external control mechanism that is affecting corporate governance around the world is the presence of institutional investors as shareholders (Aggarwal et alli, 2011). Sternberg et alli (2011) point out that dilution of corporate control is in progress in Brazil, with a growing number of companies with shared control. They highlight the increasing importance of shareholder agreements, particularly among those companies that went public after 2004. The largest Brazilian pension funds are a frequent signatory of such agreements and their size grants them the potential role of monitoring controlling shareholders, even when they are not part of an agreement. Carvalhal-da-Silva and Leal (2006) and Sternberg et alli (2011), among others, on the other hand, assert that control still remains very concentrated in Brazil.

Aggarwal et alli (2011) argue that monitoring by institutional investors based in high investor protection countries is more effective and find a positive relationship between corporate governance practices and ownership by institutional investors. They also contend that monitoring by domestic institutional investors is less effective in low investor protection countries. Gillan and Starks (2000) pointed out that the long-term goals of pension fund investments creates an incentive to influence the performance of their investees. Aldrighi (2003), on the other hand, emphasized the lack of incentive that institutional investors have to exert a more active role in the US because regulation discourages excessive control by investors in general, increasing their accountability regarding the performance of companies. Gillan and Starks (2000) question the monitoring effectiveness of institutional investors because they do not have the expertise needed to advise managers. They also observe that institutional investors may be imperfect monitors due to their own internal agency problems. However, even the imperfect monitoring provided by institutional investors may be welcome by minority shareholders in low investor protection countries.

Gillan and Starks (2003) underline differences in the monitoring incentives and skills between institutional and major non-institutional shareholders. The incentive to monitor and maintain efficiency may vary among institutional investors as well. They may be pressure-sensitive, such as banks and insurance companies, or insensitive to pressure, such as mutual funds and pension funds. Pressure sensitive investors are those that have a business relationship, potential or current, with the companies in which they invest. They may be less active in monitoring these companies and friendlier to managers than those that are insensitive to pressure. Gillan and Starks (2003) note that even though banks could have a comparative monitoring advantage due to their access to company information, they typically hold larger debt than equity stakes in the company and, therefore, their ability to monitor in the interest of minority shareholders may be clouded by those issues. These authors also call attention to a considerable difference in the role of banks as shareholders in countries such as Germany and Japan in relation to the US and the UK.

Large institutional investors may convey reliable information to other investors and have several ways of influencing the governance of a company. They may establish policies on executive compensation, participate in the board of directors, sell their shares rather than trying to instigate changes, or express their opinions aggressively by means of press or media campaigns when their

suggestions are not accepted by the company. Becht et alli (2003) remind that holding a seat at the board of directors is, however, naturally limited by laws and regulations, which vary considerably across countries. They also note that the actions and the sizable stakes of institutional investors may affect the liquidity and the value of their shares. Gillan and Starks (2003) recount that the presence of institutional investors leads to more informative prices and, consequently, to lower monitoring costs. They observed that institutional investors have historically favored liquidity because their ability to monitor management may imply in being subject to less liquidity. This cost may be unacceptable for many institutional investors.

Becht et alli (2003) state that there are many difficulties to measure the effectiveness of the monitoring actions of institutional investors and to separate the effect of monitoring from other events, such as changes in the economy, in the market or in management, which is hard to observe. Institutional investors may also collude with management. These difficulties led to ambiguous empirical results. Seifert et alli (2005), for instance, found no conclusive results about the impact of the presence of institutional investors as shareholders in companies in the US, Japan, Germany, and the UK. Becht et alli (2003) report that there is little evidence that the presence of institutional investors is related to improvements in company operational performance.

3. Empirical Analysis Design and Results

We elected to use the three largest pension funds in Brazil in our study of institutional investors. Previc, the National Complementary Social Security Authority, under the Ministry of Social Security, supervises Brazilian pension funds. Pension funds are subject to prudential constraints in their asset allocation, such as equities not exceeding 70 percent of their portfolio (this ceiling was 50 percent before 2009). Crisóstomo and González (2006) point out that pension funds adopted policies that encourage more activism, such as attendance to general shareholder meetings, exercise of voting rights, board membership, and closer supervision of investee management.

Previ is over 100 years old and the largest pension fund of Latin America. It published a code of best corporate governance practices that sets guidelines regarding transparency, accountability, shareholder rights, and business ethics. The code guides its investment decisions and outlines what the Previ expects from company management. Previ has historically favored investments in equity, contrasting with most Brazilian pension funds. Our calculations from data available at their website indicated equity investments of about 62 percent of their total investments in June 2011. Petros is the second largest Brazilian pension fund in both investment asset value and number of participants. Like Previ, it produced a corporate governance code that guides its investment decisions. Petros has been much more conservative than Previ regarding its equity investments. Its Annual Report for 2010 showed a 33.8 percent share of equities relative to total investments, which, in any case, is much more than most pension funds. Finally, Funcef informed on their website that 36.1 percent of their total investments was in equities.

We obtained the firm-level corporate governance scores of public Brazilian companies computed by Leal and Carvalhal-da-Silva (2007) for 1998, 2000 and 2002. The scores of this Corporate Governance Index (CGI) were obtained through objective answers to a questionnaire comprised of 24 questions. The objective was to obtain yes or no answers to questions that could be answered from publicly available information in order to have the largest possible sample and to avoid subjectivity. The questionnaire is based on the Brazilian codes of good corporate governance practices produced by the Brazilian Institute of Corporate Governance (IBGC) and the Brazilian Securities Commission (CVM). An affirmative answer was recorded with a unit score and a negative answer with a null score. An affirmative answer denotes the presence of a good corporate governance practice. Naturally, a limitation of such device is that the presence of some corporate governance practices cannot be detected from publicly available information and no judgment can be made about the quality of the practices that the company reports. Leal and Carvalhal-da-Silva (2007) present the complete questionnaire and more details.

The index is divided into four sub-indices, each one comprised of six questions representing a dimension of corporate governance practices. The Disclosure dimension deals with transactions with related parties, compensation, charter sanctions for violations of corporate governance principles, auditors, and the adoption of international accounting practices. The Board Composition and Functioning dimension addresses the number and type of board members, the separation of chair and CEO positions, the use of committees, and the tenure of board members. The Ethics and Conflicts of Interest dimension considers inquiries and convictions by the authorities, the use of arbitration for dispute resolution, the presence of controlling shareholders, the percentage of non-voting shares, and deviations between control and cash flow rights. Finally, the Shareholder Rights dimension concentrates on easing the requirements to vote in general assemblies, granting voting rights to non-voting shares in relevant issues, conferring mandatory bid rights in control transfer transaction

beyond the legal requirements, minimum liquidity requirements, and the presence of indirect control structures and shareholder agreements.

Leal and Carvalhal-da-Silva (2007) present statistics for the CGI scores and its sub-indices. There was an increase in the average score from 1998 to 2002. They also show that good corporate governance practices are related to greater market valuations, of around 7 percent for each one point in the CGI score for the average leverage company. Silveira et alli (2009) show that scores have been increasing as well as dispersion. The market seems to have evolved into two different categories. Companies listed for a long time that have not improved their corporate governance practices much and companies that listed more recently in the more demanding premium listing segments of the Brazilian stock exchange.

We collected percentage equity holdings of Previ, Petros, and Funcef in the companies listed at the São Paulo Stock Exchange (Bovespa) in 1998, 2000 and 2002, the same years for which we had the CGI scores. The Brazilian law mandates that shareholders disclose ownership of five percent or more in the equity capital, voting or not. Only direct ownership rights were considered. For each relevant stake identified, we collected the percentage of voting and of all shares held by the three pension funds. The InfoInvest database was the source for this data as it contains the annual legal filings of companies. We also used a dummy variable to identify whether the controlling shareholder of the company is an institutional investor, of any kind, and other dummies to indicate if Previ or Petros have a relevant equity stake. Table 1 shows the definitions of all variables. A number of control variables have been included, as employed by Leal and Carvalhal-da-Silva (2007) and Silveira et alli (2009).

Table 1. Variable Definitions

Variable	Description
CGI	The score in the CGI (Corporate Governance Index) of a company, as described in Leal and Carvalhal-da-Silva (2007)
CGI-1	Disclosure portion of the CGI score
CGI-2	Board composition and functioning portion of the CGI score
CGI-3	Ethics and conflicts of interest portion of the CGI score
CGI-4	Shareholders Rights portion of the CGI score
INST	Dummy variable indicating whether the largest shareholder is an institutional investor (1), regardless if it is one of the three pension funds analyzed
Previ	Dummy variable indicating whether Previ has relevant (greater or equal to 5 percent) equity participation
Previ%	Percentage of all company shares belonging to Previ
Petros	Dummy variable indicating whether Petros has relevant (greater or equal to 5 percent) equity participation
NM	Dummy variable indicating whether the company is listed in one of the premium listing levels (New Market) created by Bovespa in 2000, those levels require increasing demands from companies in terms of corporate governance practices, shareholder rights, and transparency. More details in Leal and Carvalhal-da-Silva (2007) and Silveira et alli (2009). This variable is present only for 2002.
AGR	Dummy variable indicating the existence of a shareholders agreement (1)
Growth	Percentage growth in sales over the three preceding years
ROA	Return on assets, measured as earnings before interest and tax over total assets
Size	Natural logarithm of the book equity value

Tables 2 and 3 provide a summary of the relevant equity holdings of the three pension funds. The first fact that stands out is the limited relevant ownership of Funcef. Consequently, in the ensuing analysis we did not include Funcef. Previ, on the other hand, is a relevant shareholder in one out of every six or seven companies in the sample, with a median voting stake of 10.3 percent and a median total capital stake of 8.5 percent. This suggests that it may be the most influential of the three largest pension funds. Petros is situated somewhere between Funcef and Previ, with relevant equity ownership in one out of every 40 companies in the sample, with a six percent of the voting and 3.2 percent median of the total equity capital.

Table 2. Number of companies with relevant equity stakes from selected pension funds

	1998		2000		2002	
	No. Companies	% of Total	No. Companies	% of Total	No. Companies	% of Total
Previ						
As controlling shareholder	8	3.33%	8	3.39%	8	3.74%
Other holdings	26	10.83%	25	10.59%	26	12.15%
Total	34	14.17%	33	13.98%	34	15.89%
Petros						
As controlling shareholder	2	0.83%	2	0.85%	2	0.93%
Other holdings	5	2.08%	3	1.27%	3	1.40%
Total	7	2.92%	5	2.12%	5	2.34%
Funcef						
As controlling shareholder	0	0.00%	0	0.00%	0	0.00%
Other holdings	0	0.00%	1	0.42%	3	1.40%
Total	0	0.00%	1	0.42%	3	1.40%
No. companies in sample	240	100%	236	100%	214	100%

Source: InfoInvest and own calculations

Table 3. Relative share ownership of pension funds

	Voting Capital				Total Capital			
Year	Max	Min	Mean	Median	Max	Min	Mean	Median
Previ								
1998	55.6%	0.0%	13.4%	10.1%	50.4%	1.5%	12.1%	9.5%
2000	55.5%	0.0%	13.1%	10.0%	50.3%	1.5%	10.7%	8.0%
2002	55.5%	0.0%	13.3%	10.3%	50.3%	2.3%	11.7%	8.5%
Petros								
1998	16.8%	3.6%	10.5%	12.8%	11.1%	2.1%	6.4%	7.3%
2000	14.6%	3.6%	8.5%	6.0%	9.5%	2.1%	5.1%	3.3%
2002	14.6%	3.6%	8.5%	6.0%	9.5%	2.1%	5.2%	3.2%
Funcef								
1998	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2000	0.0%	0.0%	0.0%	0.0%	5.1%	5.1%	5.1%	5.1%
2002	6.0%	0.0%	2.0%	0.0%	9.3%	2.5%	5.6%	5.1%

Source: InfoInvest and own calculations

We proceeded to analyze an initial regression model of the CGI and its sub-indices as the dependent variables, considering the other variables as potential correlates. Table 4 shows an analysis of the bivariate correlations between all right-hand side variables. All significant correlations are positive. The results in Table 4 indicate that company size is correlated with the ROA and with the shareholders agreement, premium listing, and Previ dummies, which is also correlated with the ROA and the Petros dummy. The Petros dummy is correlated with the shareholders agreement and the relevant institutional investor shareholding dummies as well. Finally, the shareholders agreement dummy is correlated with the premium-listing dummy. Thus, several right-hand side variables are significantly correlated, which is a problem for multivariate linear regression models.

Regarding the dependent, left-hand side variables, naturally there are many positive and significant correlations between the CGI scores and its partial scores, represented by its four sub-indices. Once again, the significant correlations reported in Table 4 are all positive. The shareholders agreement dummy is correlated with the CGI and three of the four sub-indices. The ROA, company size, and the Previ, Petros, and premium listing dummies are also correlated with the CGI and to some of the sub-indices.

The correlation analysis suggests that corporate governance practices are better in larger companies, which also tend to be the ones with larger ROA.

Previ and Petros tend to be present as relevant shareholders in larger and better-governed companies. Self-selection problems may be important in the analysis of the potential influence of the large pension funds over the corporate governance practices of Brazilian listed companies.

Table 4. Correlation between variables

N	Variable	Year	AGR	1	2	3	4	5	6	7	8	9	10	11
1	Growth	1998	0.07											
		2000	0.10											
		2002	-0.03											
2	ROA	1998	0.04	0.00										
		2000	0.05	0.04										
		2002	-0.06	-0.04										
3	Size	1998	0.14	0.15	0.22									
		2000	0.18	0.12	0.28									
		2002	0.18	0.08	0.23									
4	CGI-1	1998	0.21	0.12	0.12	0.46								
		2000	0.18	0.03	0.20	0.53								
		2002	0.18	-0.04	0.26	0.53								
5	CGI-2	1998	0.06	-0.01	0.13	0.30	0.23							
		2000	0.18	0.07	0.19	0.32	0.24							
		2002	0.16	0.10	0.16	0.41	0.34							
6	CGI-3	1998	0.01	0.01	0.14	0.09	-0.05	0.09						
		2000	0.07	0.02	-0.03	0.06	-0.09	0.13						
		2002	0.05	-0.05	0.04	0.06	-0.01	0.19						
7	CGI-4	1998	0.58	-0.05	0.06	0.23	0.24	0.09	-0.08					
		2000	0.56	0.15	-0.04	0.19	0.22	0.14	-0.03					
		2002	0.57	0.06	-0.02	0.23	0.27	0.23	-0.04					
8	CGI	1998	0.37	0.03	0.20	0.48	0.63	0.70	0.36	0.54				
		2000	0.42	0.12	0.15	0.48	0.59	0.74	0.38	0.56				
		2002	0.40	0.04	0.18	0.52	0.66	0.78	0.40	0.60				
9	Previ	1998	0.07	0.05	0.14	0.16	0.14	0.12	-0.03	0.16	0.18			
		2000	0.05	0.02	0.07	0.18	0.16	0.08	-0.03	0.17	0.17			
		2002	0.11	0.05	0.19	0.23	0.24	0.05	-0.01	0.17	0.18			
10	Petros	1998	0.22	0.06	-0.02	0.07	0.19	0.08	-0.05	0.16	0.17	0.43		
		2000	0.15	0.00	0.03	0.07	0.16	0.09	-0.05	0.14	0.15	0.36		
		2002	0.14	-0.02	0.06	0.05	0.15	0.00	-0.10	0.14	0.08	0.36		
11	INST	1998	0.04	0.07	-0.06	0.03	0.06	0.14	0.04	-0.07	0.08	0.09	0.13	
		2000	0.12	0.00	0.02	0.09	0.08	0.24	0.08	-0.05	0.17	0.10	0.17	
		2002	0.04	-0.03	0.02	0.12	0.06	0.18	0.07	-0.03	0.12	0.09	0.17	
12	NM	1998	-	-	-	-	-	-	-	-	-	-	-	-
		2000	-	-	-	-	-	-	-	-	-	-	-	-
		2002	0.14	0.05	0.02	0.34	0.32	0.22	0.01	0.34	0.37	0.11	0.02	0.01

Source: InfoInvest, Leal and Carvalhal-da-Silva (2007) and own calculations. All variables were defined in Table 1. Figures in bold are significant at the 5% level.

Petros is present in a few companies as a relevant shareholder and its dummy is highly correlated with the Previ dummy. By and large, its relevant shareholdings were a subset of those of Previ. Thus, the analysis of Table 5 considered only the presence of Previ as a relevant shareholder. It also considers if an institutional investor is the largest shareholder. Table 5 shows the differences in means in the scores of the CGI and its sub-indices. The statistics reported in Table 5 refer only to 2002. The results for 1998 and 2000 are the same in terms of significance and are available upon request.

Table 5. Average corporate governance scores according to institutional investor shareholding in 2002

Index	Is Previ a relevant shareholder?	No. Obs.	Mean Score	Mean Difference
CGI	No	180	10.2	1.31
	Yes	34	11.5	
CGI-1 Disclosure	No	180	3.7	0.67
	Yes	34	4.4	
CGI-2 Board Composition and Functioning	No	180	2.2	0.17
	Yes	34	2.3	
CGI-3 Ethics and Conflicts of Interest	No	180	2.6	-0.03
	Yes	34	2.5	
CGI-4 Shareholder Rights	No	180	1.8	0.50
	Yes	34	2.3	
	Is the largest shareholder an institutional investor?	**No. Obs.**	**Mean Score**	**Mean Difference**
CGI	No	195	10.3	1.12
	Yes	19	11.4	
CGI-1 Disclosure	No	195	3.8	0.20
	Yes	19	4.0	
CGI-2 Board Composition and Functioning	No	195	2.1	0.84
	Yes	19	2.9	
CGI-3 Ethics and Conflicts of Interest	No	195	2.5	0.20
	Yes	19	2.0	
CGI-4 Shareholder Rights	No	195	1.9	-0.12
	Yes	19	1.7	

Source: InfoInvest, Leal and Carvalhal-da-Silva (2007) and own calculations. All variables were defined in Table 1. Figures in bold are significant at the five percent level.

The results in Table 5 suggest that the average corporate governance scores of the companies with a relevant participation of Previ and of those that have an institutional shareholder as their largest investor are significantly higher. The same is true for the *Disclosure* and *Shareholder Rights* sub-indices, but not for the *Board Composition and Functioning* and the *Ethics and Conflict of Interest* sub-indices. Thus, if present, the impact of relevant shareholding by large institutional investors is not uniform across all corporate governance dimensions. It may well be that institutional investors may have no impact at all, and that they may simply select companies that are larger, more liquid, and with better past profitability, which also present a positive correlation with the corporate governance scores. Nevertheless, it is interesting to note that institutional investors do not seem to select companies that score higher in board composition and functioning and that better address potential for conflicts of interest.

Table 6 presents the results of our regression models for 2002, even though the correlation results reported above render them unreliable. The results for 1998 and 2000 are qualitatively the same and are available upon request. The coefficients for the Previ dummy are not significant and their signs are not consistent across all corporate governance scores used as dependent variables. The same occurs for the dummy of an institutional investor as the largest shareholder. The coefficient for the percent share of Previ in the equity capital of companies is not significant as well. There is no evidence from Table 6 that suggests that an additional causality analysis should be performed for institutional ownership. Thus, we do not provide any additional tests to account for self-selection and endogeneity. The significant results for some of the control variables, such as size, the ROA, and the shareholders agreement and premium listing dummies are consistent with those found by Leal and Carvalhal-da-Silva (2007) and Silveira *et alli* (2009). The positive coefficients for the shareholders agreement dummy is not surprising given that Sternberg *et alli* (2011) indicated that they are more common among companies listed in the premium lists because they have more dispersed ownership.

Table 6. Linear regressions of institutional ownership on corporate governance scores in 2002

Variable	CGI	CGI-1	CGI-2	CGI-3	CGI-4	CGI	CGI	CGI-1	CGI-2	CGI-3	CGI-4
Constant	2.04	0.39	-1.56	2.14	1.07	1.93	2.09	0.29	-1.33	2.20	0.94
Previ	0.15	0.27	-0.27	-0.08	0.22	–	–	–	–	–	–
Previ%	–	–	–	–	–	-0.01	–	–	–	–	–
INST	–	–	–	–	–	–	0.55	-0.03	0.64	0.17	-0.22
Size	0.54	0.23	0.25	0.03	0.03	0.54	0.53	0.24	0.23	0.02	0.04
ROA	0.03	0.01	0.01	0.00	0.00	0.03	0.03	0.02	0.01	0.00	0.00
Growth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AGR	1.97	0.20	0.34	0.09	1.34	2.01	1.97	0.22	0.31	0.08	1.37
NM	1.49	0.47	0.32	-0.02	0.71	1.49	1.50	0.48	0.32	-0.02	0.72
Adj. R^2	0.39	0.33	0.18	-0.02	0.39	0.39	0.40	0.33	0.20	-0.02	0.39

Source: InfoInvest, Leal and Carvalhal-da-Silva (2007) and own calculations. The dependent variables are in the top row and the "explanatory" variables in the first column. All variables were defined in Table 1. Figures in bold are significant at the five percent level.

4. Final Remarks

Our results are consistent with those of Punsuvo et alli (2007) and Silveira et alli (2008), among others that have examined the impact of shareholding by institutional investors on corporate governance practices in Brazil. We provide no evidence of a potential impact of these investors in general, and of the two largest Brazilian pension funds, Previ and Petros, in particular, on the corporate governance scores of the companies they invest. We also detected that institutional investors do not seem to select companies that score higher in board composition and functioning and that address potential for conflicts of interest better.

A number of things could be happening. First of all, our corporate governance scores may not be refined enough to capture the influence of these investors or, alternatively, their influence is only felt over a longer time frame. Our corporate governance scores capture the presence or absence of certain practices that are reported in public documents and, thus, cannot ascertain many aspects of the quality of the corporate governance practices of a company, nor can it say anything about the quality of the practices it detects. Our scores, however, are highly correlated with listing in Bovespa premium listing segments and with company size. It is reasonable to expect that larger companies would have the means and incentives to pursue better corporate governance practices.

On the other hand, it is quite possible that Previ and Petros prefer to have their more relevant shareholdings in companies that are larger and that showed higher past profitability, which also happen to be the ones with greater corporate governance scores. Thus, it could well be that all of these variables are endogenous and that Previ and Petros, as well as other institutional investors, regard liquidity as a key characteristic their investees should have. Finally, it is quite possible that these two very large pension funds represent the interests of the incumbent Brazilian government regarding its economic policies and political views. Those appointed to represent Previ and Petros at company boards may be committed to these political and economic directives, which may or may not be consistent with corporate governance practices commonly regarded as good. If this is the case, then the impact of any relevant shareholding of these pension funds could have on the quality of the corporate governance of their investee firms might not be detected. It is certain that more research is needed about this topic, but so far the literature has not identified any consistent results about the positive impact of the larger Brazilian pension funds on the performance and the corporate governance quality of their investees.

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РАЗДЕЛ 2
КОРПОРАТИВНЫЙ КОНТРОЛЬ

SECTION 2
CORPORATE CONTROL

CORPORATE GOVERNANCE AND PERFORMANCE: EVIDENCE FROM CHINESE PRIVATE LISTED COMPANIES BASED ON CASH FLOW RIGHTS AND CONTROL RIGHTS

HU Dan*, ZHENG Haiyan**

Abstract

This paper investigates the relationship between control rights, cash flow rights, and firm performance across a sample of 276 China's private listed companies (CPC) from 2003 to 2008. This paper finds that the performance of firms with pyramid ownership structures (POS) is lower than that of firms with direct controlling ownership structures (DOS). The separation of control rights and cash flow rights, which is the main characteristic of POS, is negatively related to the firm performance. Furthermore, in order to reduce the negative influence of control rights, this paper proposes the following countermeasures: cash flow rights should be increased because it has a positive effect on the firm performance; the supervisory powers of shareholders meeting (SM) should be strengthened because it helps improve firm performance and overrule invalid decisions taken by independent directors in China. This is proved by the findings that show a positive correlation between the attendance rate at shareholders' meetings and firm performance; moreover, there is no positive relationship between independent directors and firm performance.

Keywords: Separation of Cash Flow Rights and Control Rights, Private Listed Companies, Pyramid Ownership Structures, Firm Performance

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1. Introduction

With the development of privatization reforms in China, the number of Chinese private listed companies (CPC) is on the rise. They have become an important economic entity in China, which can be witnessed by the role that they play in the fields of investment, exports, employment, and tax revenues in China. In 2010, the investment of CPC in fixed assets was more than RMB 12 trillion, accounting for 43% of the total investment in fixed assets in China. In addition, the investments made by CPC have continued to rise rapidly, and the average annual growth rate has reached 34.5%. CPC exports have grown by 200% in five years. The total sum of exports by CPC is over 450 billion, accounting for 30% of China's foreign trade. The total amount of tax paid by CPC is 1.1173 trillion, accounting for 16% of China's total tax revenue. The annual average increase in the tax paid by CPC is 22.2%. The employees of CPC number about 180 million, which was about 21.69% of total employment in 2010 (http://business.sohu.com/20110118/n278947335.shtml). Private listed companies out-perform state-owned companies (SOC; see Table 1). Hence, it is meaningful to study this vibrant economic entity.

Table 1. Performance Comparison of CPC and SOC in 2010

	Liquidity ratio	Turnover of total assets	Asset-liability ratio	Gross profit rate	Revenue growth rate
Private listed companies (CPC)	2.18	0.71	39.28	26.97	27.71
State-owned listed companies (SOE)	1.34	0.70	53.72	21.96	24.13
CPC-SOC	0.84	0.01	-14.44	5.01	3.58

Source: Official website of The All-China Federation of Industry and Commerce (ACFIC) (http://acfic.org.cn)

However, compared with state-owned companies (SOE), Chinese private companies face two major problems, namely, capital and management.

As far as capital is concerned, SOE find it easier to obtain loans and subsidies from banks and the government. For example, the subsidies obtained by SOE amounted to RMB 46.34 billion (http://www.nbd.com.cn) in 2010. However, it is difficult for CPC to apply for long-term loans, so they have to settle for the short-term option. From 2004 to 2008, the ratio of current liabilities to total liabilities of CPC was higher than that of SOE. Of this, more than 84% were short-term loans. Thus, CPC are confronted with urgent debt pressures. In addition, CPC were only able to obtain a small fraction of the total amount of short-term loans in China, less than 4% (See Table 2), and they are in great need of capital (see Table 3). Accordingly, they are motivated to opt for internal financing, that is, they obtain capital from the enterprise group that they control via pyramid ownership structures.

Table 2. Short-term loans obtained by private companies

Year	Total short-term loans	Private companies' short-term loans	Ratio (%)
2004	65748	654.5	1.00
2005	87449	2180.8	2.49
2006	98534	2667.6	2.71
2007	114478	3507.7	3.06
2008	125182	4221.2	3.37

Source: China Statistical Yearbook (2004–2008)

Table 3. The ratio of current liabilities to total liabilities (SOE and CPC)

	State-owned enterprises			Private listed companies		
Year	Total Current liabilities	Total liabilities	Ratio (%)	Total Current liabilities	Total liabilities	Ratio (%)
2004	16916	24014	70.44%	3539	4067	87.04%
2005	20914	28901	72.36%	4137	4762	86.88%
2006	26956	36545	73.76%	4838	5642	85.75%
2007	34558	46813	73.82%	5986	7092	84.40%
2008	39484	54746	72.12%	6133	7293	84.10%

Source: China Statistical Yearbook (2004–2008)

Pyramid ownership structure leads to the separation of control rights and cash rights (SOCC), which may lead to a conflict between controlling shareholders and minority shareholders (P-P conflict). This conflict is widespread in many countries, especially in emerging markets (La Porta et al., 1999; Lin, 2011; Gutierrez and Pombo, 2009; Chen et al., 2008; Faccio et al., 2002). In contrast, the separation of controlling rights and cash flow rights in CPC is more significant. An interesting finding is that the average degree of separation is on the rise and has reached 10.834%; however, the net assets per share (NAP) has shown a significant decrease from 2003 to 2008. NAP was 3.2143 in 2003; however, it fell to 2.7550 in 2008 (see Table 4).Hence, we may ask whether there is a relationship between firm performance and SOCC. This question may be solved using agency theory. Agency theory is often used to discuss two important conflicts that arise from SOCC and lead to agency costs in China. SOE and CPC both have different agency conflicts that lead to different agency costs. As SOE have fuzzy property rights, their agency costs arise mainly from the conflict between minority shareholders and managers (S-M conflict). However, as CPC have clear property rights and a concentrated ownership structure, its controlling shareholders not only have the motivation but also the ability to further their personal interests, rather than the demands of

minority shareholders. This causes the conflict between controlling shareholders and minority shareholders (S-S conflict).

In recent years, as the S-S conflict attracts scholars' attention, a new term "Tunneling behavior" has becomes a talking point. Many scholars find that the P-P conflict is more important than the P-A conflict in corporate governance (Shleifer and Vishny, 1986). Tunneling behavior refers to the asset appropriation by large shareholders. This behavior not only encroaches on the interests of minority shareholders, but also has an adverse influence on the stock markets (Johnson et al., 2000).This was the main reason for the Asian financial crisis from 1997 to 1999(Johnson et al., 2000). It is important to note that tunneling behavior is more severe in emerging markets than in mature markets (Gao and Kling, 2008).

As a fast developing country, China mainly supports SOE in order to retain its socialist characteristics and maintain the country's stability. CPC have to deal with a harsh external financing environment, and so current research on CPC mainly concentrates on the financing channels, financing environment and capital structure. It has been found that more and more private enterprises have become interested in equity financing and are buying a SOE listing qualification. However, we find that since China is also a large emerging market economy; the legal code that supervises the tunneling behavior is not mature, so once a private firm becomes a CPC, the main problem that arises is the tunneling behavior of controlling shareholders, who control large sums of capital. More importance should be attached to examining the root causes and results of this behavior. This paper is committed to investigate the relationship between the root cause (the separation of control rights and cash rights) and the result (firm performance), and extend prior research. This paper contributes to the literature in three ways:

First, this paper divides private listed companies into two types—firms with a pyramid ownership structure and firms with a direct ownership structure. This paper finds that the performance of private listed companies with a direct ownership structure is better than that of companies with a pyramid ownership structure. This finding has not been emphasized in previous research.

Second, this paper finds that independent directors do not play an active role in a firm's performance, which means that CPC pay more attention to internal supervision rather than to external supervision. The reason could be that CPC are mostly traditional family enterprises, and the level of corporate governance is not high and needs further improvement. This finding is at odds with western literature, in which independent directors are considered to positively influence a firm performance.

Third, we find that shareholders' meetings play an active role in CPC, and the attendance rate at shareholders' meetings is positively related to firm performance. Shareholders' meetings may make up for the weak supervisory function of independent directors. This finding is not commonly found in previous Chinese literature.

The paper is organized as follows. Section 2 summarizes the literature on the issues surrounding a corporate performance and ownership structure, and proposes four hypotheses. Section 3 describes the sample and methodology. Section 4 presents the major discussions and conclusion.

Table 4. Controlling rights, cash flow rights, and NAP (2003–2008)

	2003	2004	2005	2006	2007	2008	Average
Controlling rights (%)	33.338	33.275	33.032	32.648	32.589	32.594	32.912
Cash flow rights (%)	27.266	24.231	22.047	19.566	19.334	20.025	22.078
Separation (%)	6.072	9.0441	10.985	13.082	13.253	12.570	10.834
Net assets per share (NAP)	3.214	2.983	2.804	2.628	3.032	2.755	2.903

Data sourced and collated from the CSMAR database

2. Literature review and hypotheses

This paper investigates the relationship between the control rights, cash flow rights, and firm performance. After reviewing the literature related to our research, we developed four hypotheses.

2.1. Control rights, cash flow rights, and firm performance

The study on control rights is related to four key words: control rights, cash rights, control mode, and the separation of control and cash flow rights.

2.1.1. Cash flow rights and firm performance

Cash flow rights refer to the fraction of a firm's profits or losses that a shareholder should have

according to the amount of his investment (Jeremy and Edwards, 2009). Cash flow rights are an incentive for Controlling shareholders to supervise the managers and decrease the agency cost that arise between shareholders and managers. Corporate value is higher when the largest shareholder owns more cash flow rights; however, the negative entrenchment effect becomes evident when the largest shareholder's cash flow rights are less than the median (Yeh, 2005).

Controlling shareholders' cash flow rights act as an incentive to align the interests of the ultimate controller to the firm performance (Hughes, 2009).The reasons are as follows:

First, according to the alignment effects theory, the more funds a firm gets from controlling shareholders, the closer is the relationship between the interests of individual controlling shareholders. Once a firm goes bankrupt, controlling shareholders are burdened with greater losses than are other minority shareholders. Second, according to the asset specificity theory, unlike debt capital, companies need not repay equity capital. It is difficult for a large shareholder to take back his investment. Therefore, once a firm goes bankrupt, controlling shareholders have to face higher risks and costs during the process of share transfer. Hence, the incentive effect of cash flow rights plays an important role in firm performance. Based on the above theoretical analysis, we make the following assumptions:

H1: The cash flow rights of ultimate controlling shareholders are positively related to the performance of Chinese private listed companies.

H2: The control rights of ultimate controlling shareholders are negatively related to the performance of Chinese private listed companies.

2.1.2. The separation of control rights from cash flow rights, and firm performance

The separation of ownership refers to the separation of control rights and cash flow rights. Control rights of ownership refer to an owner's ability to influence the way a firm operates.

In theory, control rights are equal to cash flow rights, and controlling shareholders will not have any motive for entrenchment behavior. However, as more and more firms adopt complex business models characterized by pyramid ownership structures (La Porta et al., 1999; Claessens et al., 2000), controlling shareholders gain more control rights than cash flow rights (Claessens et al., 2000; La Porta et al., 1999). For example, firm A holds a certain number of shares of firm B, firm B holds a certain number of shares of firm C, and so on. The ultimate controlling shareholder is firm D, which controls firm A, and thereby the lower-level firms B and C. Firm D can exert control over lower-level firms belonging to the pyramid chain without holding the majority of the cash flow rights. That is, firm D has control over its subsidiaries without making much of an investment. When cash flow rights are fixed, excess control rights increase the likelihood of expropriation from other investors (Lin et al., 2011). The excess control enhances the misalignment of interests between the ultimate controlling shareholder and minority shareholders. In family-controlled companies, the corporate value will conspicuously decrease if the largest shareholder enhances their controlling rights through pyramid ownership structures (Yeh, 2005).Why does the separation of controlling rights and cash flows rights influence firm performance? This can be explained from the behavior of controlling shareholders.

The separation of control rights and cash flow rights causes two types of behavior in controlling shareholders—tunneling behavior and propping behavior. Tunneling behavior refers to related-party transactions which move funds from a lower-level firm to a higher-level firm in the pyramid chain, while propping behavior refers to the transfers of funds in the opposite direction (Friedman et al., 2003).The choice of behavior depends on the financial state of firms, the legal and economic environment, and the maturity of investors. By financial state, we mean that a firm can be either in a state of financial distress, or in a financially healthy state. For firms in financial distress, controlling shareholders resort to propping behavior in order to obtain a long-term interest. However, in most healthy firms, controlling shareholders resort to tunneling behavior. In China, as the stock market was established only twenty years ago, the legal and economic environment still needs further improvement. Investors pay more attention to short-term rather than long-term interests. If the private investors are irrational, they do not concern themselves with supervision of the firms; hence, controlling shareholders prefer the pyramid ownership structure and implement tunneling behavior. This behavior decreases the firm performance. Thus, irrational investors enable the adverse effect of separation of controlling rights. The separation of cash flow rights and control rights motivate controlling shareholders to choose tunneling behaviors. One important point worth mentioning is the financial environment of Chinese private enterprises. Compared to state -owned enterprises, it is very difficult for Chinese private enterprises to apply for loans from banks and other financial institutions. Controlling shareholders can take advantage of the internal capital market of the pyramid structure to compensate for insufficient funds. Given the difficult macro capital market

environment, the internal capital market is an important way to raise funds.

Controlling shareholders usually engage in related party transactions, including internal asset sales, equity sales, and transfer pricing contracts, to transfer funds of lower-level firms in the pyramid ownership structure (Johnson et al., 2000). The more control rights the ultimate controlling shareholder has, the higher their capacity to expropriate other shareholders and harm firm performance (Bennedsen and Nielsen, 2010). Based on the above theoretical analysis, we make the following assumptions:

H3: The degree of separation of cash flow rights from control rights of ultimate shareholders is negatively related to the performance of Chinese private listed companies.

H4: The performance of firms with pyramid ownership structures is lower than that of firms with direct controlling ownership structures.

3. Methodology

This paper investigates the relationship between control rights, cash flow rights, and firm performance using panel data analysis. In this section, we describe the sample, data sources and ownership structures of the sample firms, and test hypotheses developed in the prior section.

3.1. Sample selection

We obtained our dataset from the WIND database and the China Stock Market Accounting Research (CSMAR) database. For data not available in the WIND and CSMAR databases, we manually collected data from the audited annual reports of sample companies. The industries in our sample included agriculture, non-metallic mining, manufacturing, heating and hot water industry, civil engineering construction, auxiliary transportation industry, computer application services industry, retail industry, financial trust industry, real estate development industry, tourist industry, and other industries. In order to ensure the consistency of the caliber of study, we excluded the following special samples: (1)Private listed companies with missing data; (2) Firms labeled "ST" (Special Treatment)[14] on the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) (3) The financial private listed companies. Finally, we chose 276 private listed companies from 2003 to 2008.

3.2. Variables

3.2.1. Dependent variables

Net assets per share (NAP) = total owner's equity /total shares. This indicator reflects the book value of the net assets (BVNA). BVNA is equal to total assets minus total liabilities, that is, the total owner's equity. NAP reflects firm performance and investment risk. If the net asset per share is on the decrease, it means that the firm faces the danger of bankruptcy.

NAP is widely used in Chinese literature to evaluate firm performance. NAP is an important index because investors always use it to evaluate firm performance (Chen, 2008; Yuan 2009). Investors evaluate firm performance by analyzing the separation between NAP and stock price (Li and Shao, 2011). Based on the previous research, we also utilize NAP to estimate firm performance.

3.2.2. Independent variables

All the independent variables and controlling variables are defined in Table 5.

3.2.3. Control variables

In order to assess the influence of the board of directors, we use the percentage of independent directors who had no prior relationship with the company before being appointed as board members. These directors come from diverse backgrounds. Some scholars hold that the existence of independent directors can influence the performance of firms (Yermack, 1996). Hence, we should take this factor into consideration. This variable is named "ddbl." The rate of attendance at the shareholders' meetings indicates the importance of the shareholders in the firm's decision making. Thus, a higher attendance rate would indicate that the more attention shareholders to the future development of firms, the higher the possibility of preventing asset appropriation by managers and large shareholders. We name this variable "gdcx." We believe that size may influence the performance of firm, and use the natural log of a firm's total assets as a proxy for firm size. This variable is named "gsgm." In order to control the influence of the property of industries, we create a dummy variable named "sshy." In Chinese private listed firms, controlling shareholders monitor the managers actively. These shareholders often work

[14] Chinese listed companies are labeled as Special Treatment (ST) firms and face termination of their listings in the Chinese stock market if: (1) External auditors express a negative opinion or state that they are unable to issue an audit opinion in a listed company's annual report. (2) The company's financial conditions are considered abnormal by the stock exchange or the CSRC. (3) The company has a negative net income over two consecutive years or net asset value per share falls below its par value.(4) The audited report shows that shareholders' equity is lower than the registered capital.

as managers or nominate their representatives as the CEO or chairman of the listed firm (Chen et al., 2008). However, when the chairman and general manager is the same person, the supervisory role is not significant. This phenomenon is called the "insider control effect" and is helpful for ultimate controlling shareholders to gain undue personal benefits via entrenchment behavior. We hold that the insider control exercised by ultimate shareholders may influence the performance of Chinese private listed companies. We define a variable "jzqk" to describe the situation where a person works as both chairman and general manager.

We also consider differences among industries and specify 12 dummy variables that include agriculture, non-metallic mining, manufacturing, heating and hot water industry, civil engineering construction, auxiliary transportation industry, computer application services industry, retail industry, financial trust industry, real estate development industry, tourism industry, and other industries.

All the variables can be seen in Table 5 below.

Table 5. Definitions of variables

Name	Variables	Calculating formulae
Performance	mgjzc	mgjzc = total owner's equity/total shares
Control rights	kzqb	$\text{kzqb}=\sum_{i=1}^{n}\min_i(a_{i1},a_{i2},a_{i3}...a_{it})$, $a_{i1}...a_{it}$ are the control rights in the control chain
Cash flow rights	syqb	$\text{syqb}=\sum_{i=1}^{n}\prod_{t=1}^{t}a_{it}$, $a_{i1}...a_{it}$ are the cash flow rights in the control chain
The separation of control rights and cash flow rights	pld	$\text{pld}=\text{kzqb}-\text{syqb}$. SEPR is the separation of cash rights and control rights.
Control mode	kzfs	kzfs refers to the control mode; kzfs = 0 means direct control mode; kzfs = 1 means pyramid mode
The ratio of independent directors	ddsb	ddsb = the number of independent directors/the number of total directors
The attendance rate of shareholders' meetings	gdcx	gdcx = shares of attendance/ total shares
The condition of chairman and general manager	jzqk	jzqk = 1 means that the chairman and general manager is the same person jzqk = 0 means that the chairman and general manager is not the same person
The size of firms	gsgm	gsgm = Ln (total assets)
Industry	sshy	sshy = 1 implies that the firm belongs to the industry j sshy = 0 implies that the firm does not belong to the industry j

Based on the theoretical and empirical evidence, we hypothesize the signs of the coefficients (see Table 5).

3.3 Regression analysis

3.3.1. Model constructing

We use the general least squares (GLS) method to test proposed hypotheses and construct a panel regression model. Using a cross-sectional time series sample as the dataset of this study, the pooled GLS technique allows for cross-sectional heterogeneity and serial correlation. Based on the research hypotheses mentioned above, we construct the following random effects model.

$$mgjzc_{it}=\alpha_i+\beta_i x_{it}+\beta_2\gamma_{it}con_{it}+\varepsilon_{it}$$

$$mgjzc_{it}=\alpha_0+\beta_1 syqb_{it}+\beta_2 ddbl_{it}+\beta_3 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (1)$$

$$mgjzc_{it}=\alpha_0+\beta_1 kzqb_{it}+\beta_2 ddbl_{it}+\beta_3 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (2)$$

$$mgjzc_{it}=\alpha_0+\beta_1 pld_{it}+\beta_2 ddbl_{it}+\beta_3 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (3)$$

$$mgjzc_{it}=\alpha_0+\beta_1 kzfs_{it}+\beta_2 ddbl_{it}+\beta_3 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (4)$$

$$mgjzc_{it}=\alpha_0+\beta_1 syqb_{it}+\beta_2 kzqb_{it}+\beta_3 pld_{it}+\beta_4 ddbl_{it}+\beta_5 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (5)$$

$$mgjzc_{it}=\alpha_0+\beta_1 syqb_{it}+\beta_2 pld_{it}+\beta_4 ddbl_{it}+\beta_5 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (6)$$

$$mgjzc_{it}=\alpha_0+\beta_1 pld_{it}+\beta_2 gddhcx_{it}+\beta_3 jzqk_{it}+\beta_4 gsgm_{it}+\beta_5 inds_{it}+\varepsilon_{it} \quad (7)$$

where the NAPS is the firm performance; Xit represents a group of explanatory variables which include: control ratio (CONR), cash flow right ratio (CASR), the separation of control and cash flow right (SEPR), the control mode of controlling shareholders (KZFS), the attendance rate at shareholders' meeting (GDCX). conit represents a group of control variables including independent directors' ratio (DDBL), the condition of chairman of the board and general manager being the same person (JZQK), the size of firms (GSGM) and industry (SSHY). Concrete definitions of these variables can be seen in Table 5. αi represents the individual effect of section data. If the difference between individuals is random and αi is a random variable, the random effects model should be adopted; if the difference between individuals is systematic and αi is a constant, the fixed effects model should be adopted.

By using the Hausman test, this study adopts the random effects model. ε_{it} refers to the model of random errors.

3.3.2. Regression results

The regression results are shown in Table 6.

As can be seen in table 6, model 1 and model 6 indicates that the ratio of cash flow rights has a significant positive effect on the firm performance. Model 2 suggests that the ratio of control rights has a negative influence on firm performance. Models 3 and 7 indicate that the separation of control model and cash flow rights has a significant negative influence on firm performance. Model 4 shows that the control mode has a significant negative influence on firm performance; that is, the performance of firms with pyramid ownership structures is lower than that of firms with direct controlling ownership structures. Models 1, 2, 3, 4, 5, and 6 commonly indicate that there is no significant relationship between independent directors and firm performance. Models 5 and 7 indicate that the attendance rate at shareholders' meetings has a significant positive influence on firm performance.

Table 6. The relationship between control rights, cash flow rights, and firm performance

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)
constant	-11.156** (-8.437)	-11.326*** (-8.134)	-9.106*** (-4.959)	-6.275*** (-4.689)	-13.100*** (-9.717)	-11.193*** (-8.448)	-12.332*** (-6.404)
syqb	0.010** (3.289)				0.007 (1.527)	0.010*** (3.003)	
kzqb		-0.01*** (-2.588)			-0.005 (-0.894)		
pld			-0.011** (-1.995)			-0.001 (-0.312)	-0.011** (-1.976)
kzfs				-0.375*** (-3.585)			
gddhcx					0.016*** (5.370)		0.017*** (5.352)
ddbl	0.337 (0.511)	0.505 (0.725)	0.467 (0.706)	0.300 (0.451)	0.127 (0.195)	0.360 (0.545)	0.099 (0.147)
jzqk	-0.132 (-1.153)	-0.190 (-1.559)	-0.144 (-1.098)	-0.188 (-1.533)	-0.129 (-1.131)	-0.134 (-1.161)	-0.144 (0.268)
gsgm	0.587*** (6.917)	0.657*** (10.457)	0.586*** (6.920)	0.421*** (7.000)	0.716 *** (11.846)	0.653*** (10.868)	0.670*** (8.072)
R^2	0.094	0.094	0.090	0.119	0.109	0.095	0.112
Adjustment R^2	0.084	0.083	0.080	0.102	0.100	0.084	0.102
F	9.600***	8.368***	8.991***	7.104***	11.236***	9.060***	10.936***
Chi-Sq	16.234	13.078	19.863	20.028	19.318	18.224	15.570

Notes: ***, ** and * denote significance at the < 0.01, < 0.05 and < 0.10 levels, respectively, for the two-tailed test.

The regression coefficient of syqb is 0.01 in Model 1, which means that the increase of cash flow rights helps to increase the performance of Chinese private companies, which supports Hypothesis 1. The regression coefficient of kzqb is -0.01 in Model 2, showing that excessive kzqb does

not help to increase the performance of Chinese private companies, which supports Hypothesis 2. The regression coefficients of pld and kzfs in Models 3 and 4 are -0.011 and -0.375, showing that the separation of control rights and cash flow rights negatively influences performance, and the performance of firms with direct controlling structures is better than that of firms with pyramid structures. From Model 1 to Model 7, we find that the relationship between ddbl and firm performance is not significant, which means that independent directors do not have a significant influence on the performance of Chinese private companies. The relationship between the regression results and hypotheses tests can be seen in Table 7.

Table 7. Panel data regression：relationship between ownership structure and firm performance

Variables	Expected sign	Actual sign	Model	Research results
syqb	positive	positive	Model (1) Model (5) Model (6)	The cash flow rights of ultimate shareholders are positively related to the performance of Chinese private listed companies. (H1)
kzqb	negative	negative	Model (2) Model (5)	The control rights of ultimate shareholders are negatively related to the performance of Chinese private listed companies. (H2)
pld	negative	negative	Model (3) Model (6) Model (7)	The degree of separation of cash flow rights from control rights of ultimate shareholders is negatively related to the performance of Chinese private listed companies. (H3)
kzfs	negative	negative	Model (4)	The performance of firms with pyramid ownership structures is lower than that of firms with direct controlling ownership structures. (H4)

From Table 7, we find that the research hypotheses are tested in Models 1–7. The actual signs are in accordance with the expected signs.

4. Conclusion and discussion

This paper investigates the relationship between control rights, cash flow rights, and the performance of China's private listed companies. Samples are taken from the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) from 2003 to 2008. Our results are as follows.

(1) In private listed companies in China, the separation of control rights and cash rights is high. The average ratio of cash flow right and control rights is 22.078% and 32.912% respectively, and the average ratio of the separation is 10.834%, indicating that the individual gains of controlling shareholders are more than their investment risk. This result is consistent with previous studies that found that the separation of cash flow rights and control rights adversely influences the long-term performance of Chinese state-owned listed companies. We conclude that the separation of cash flow rights and control rights is not beneficial for both private listed companies and state-owned listed companies in China.

(2) As the capital market and financing environment are not mature, controlling shareholders of Chinese private companies prefer pyramid ownership structure. However, we find that the performance of firms with pyramid ownership structures is lower than that of firms with direct controlling ownership structures. This conclusion seems to contradict the rational choice of the shareholder. However, the big problem for Chinese private firms is access to external finance; therefore, they may choose pyramid ownership to create an internal financing market and opt for tunnel behavior that may not be beneficial to firm performance. It is important for the Chinese government to create a capital market that supports the long-term development of private companies.

(3) Independent directors do not have any obvious effect on the performance of Chinese private firms at present. The reason may lie in the fact that CPC are mostly traditional family enterprises, and they mainly depend on internal rather than external supervision.

(4) This paper finds that shareholders' meetings play an active role in CPC, and the attendance rate at shareholders' meetings positively influences firm performance. This finding further proves that CPC pay more attention to internal rather than external supervision. The system of independent directors should be improved in the long term; however, we can take good advantage of shareholders' meetings to make up for the weak supervision of independent directors at present.

(5) Private enterprises play an increasingly important role in the Chinese market economy, which is why the Chinese government should build a strong economic and policy environment and promote fair competition between state-owned and private enterprises.

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IMPACT OF CORPORATE OWNERSHIP AND CONTROL ON FIRM PERFORMANCE: THE NIGERIAN EXPERIENCE

Ioraver Nyenger Tsegba*, John Iorpenda Sar**

Abstract

The main purpose of this study is to ascertain whether alternative corporate ownership and control structures give rise to significant differential firm performance in light of Nigeria's conflicting polices regarding the ownership structure of the state owned enterprises. The data obtained from a sample of 73 companies listed on the Nigerian Stock Exchange is analyzed through the Wilcoxon ranks tests for two independent samples. The evidence obtained suggests that firms with foreign ownership and control outperform their indigenous counterparts. However, firms controlled by single shareholders do not perform better than those controlled by multiple shareholders. The study recommends that foreign ownership and control of Nigerian firms be encouraged due to their affirmative features, while single shareholder control of firms, embedded in the core investor mode of ownership, be reconsidered.

Keywords: Corporate Control, Corporate Governance, Core Investor, Concentrated Ownership, Corporate Ownership, Domestic Ownership, Foreign Ownership, Single Shareholder Control, Multiple Shareholder Control, Firm Performance, Nigeria

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1. Introduction

The rising number of corporate failures and/or scandals, such as Enron, WorldCom, Global Crossing, HIH Insurance, Ansett, Pan Pharmaceuticals, Lever Brothers, Cadbury, and Afribank, and their association with corporate governance failure, has precipitated the growing interest in the governance structures of firms by researchers in accounting, finance, and economics. Exemplar studies that have examined the related contextual issues on corporate governance include Dockery and Herbert (2000); La Porta et al. (2000); Yakasai (2001); Detomasi (2002); Fort and Schipani (2003); Sanda, Mikailu, and Garba (2005); and Barako and Tower (2006).

Corporate governance is concerned with the ways in which all parties interested in the way the firm is run (the stakeholders) attempt to ensure that managers/directors and other insiders take measures or adopt mechanisms that safeguard the interests of the stakeholders (Sanda, Mikailu and Garba, 2005; Javed and Iqbal, 2007). One of the corporate governance mechanisms that has received considerable attention in the literature is the use of a monitoring board appointed by the company's shareholders (see John and Senbet, 1998; Abdullah, 2006; Kyereboah-Coleman and Biekpe, 2006a &b; Nguyen and Faff, 2006; Filatotchev and Wright, 2011). However, the collapse of Enron and other large multinationals demonstrates the limits of the monitoring board; it is also a testimony to the complexity of the monitoring task (Deakin and Konzelmann, 2004). The failure of the board of directors (BoD) to adequately address the agency problem created by the separation of ownership and management in a modern corporation alerted by Berle and Means (1932) has refocused attention to corporate ownership as an increasingly influential form of corporate governance (Connelly et al., 2010).

The efficacy of ownership structure as a corporate governance mechanism is succinctly captured by Pedersen and Thomsen (1999) who advance three reasons why corporate ownership structure matters: first, potential owners differ (with respect to goals, economic competence, information access, risk preference, etc); second, legal ownership modes differ (with respect to the bundle of rights allocated to the owner); and third, the level of ownership concentration determines the tradeoff between monitoring efficiency (high concentration) and diversification of risk. Other factors that further support the importance of ownership structure as a

governance mechanism include the number of shareholders, and regional spread of ownership.

An extensive empirical literature exists on the relation between corporate ownership structure and firm performance/value but the results are rather conflicting (see, for example, Demsetz and Lehn, 1985; McConnel and Servaes, 1990; Demsetz and Villalonga, 2001; Pivovarsky, 2003; Welch, 2003; Chu and Cheah, 2006; Farooque et al., 2007). Moreover, the literature tilts towards examination of the relationship between ownership structure and firm performance or value, at the detriment of whether ownership and control could jointly affect performance. Furthermore, the investigations into the relationship are predicated on data from developed economies such as Anglo-America, Europe and Japan. Those that utilize data from emerging economies are rather sparse. Notable exceptions include Adenikinju and Ayorinde (2001), Bai et al. (2005), Barako and Tower (2006), Farooque et al. (2007), Javed and Iqbal (2007), Sanda, Mikailu and Garba (2005), and Tsegba and Herbert (2011). Despite the geopolitical and economic importance of Nigeria as an emerging economy and the second largest economy in Sub-Saharan Africa, the scant empirical assessment of the phenomenon of interest suggests that a lacuna exists in this area. Moreover, the few reported studies that have examined the relationship between ownership structure and firm performance in Nigeria have produced conflicting results (see Adenikinju and Ayorinde, 2001; Sanda, Mikailu and Garba, 2005; Tsegba and Herbert, 2011).

In spite of the conflicting results, Nigeria has, over the decades adopted different, and sometimes conflicting, policies regarding the ownership and control of the state owned enterprises (SOEs) in order to mitigate the dismal performances of the enterprises. For instance, Nigeria inherited corporate ownership structure that was predominantly foreign at independence in 1960. In the early 1970s, an indigenization programme was pursued which encouraged domestic ownership (see Federal Government of Nigeria, 1972). In the late 1980s, a diffuse ownership structure was pursued in the process of the privatization and commercialization programmes embarked upon by the federal government. In the late 1990s till date, the policy initiative is tilted toward promoting concentrated and foreign ownership (Federal Government of Nigeria, 1999). These differing and conflicting policies beg the question of whether alternative corporate ownership and control structures possess higher affirmative features.

This study seeks to bridge the gap in the literature by providing an empirical evaluation of the effect of alternative corporate ownership and control structures on firm performance in Nigeria. The main objective of this paper, therefore, is to ascertain the effect of two sets of alternative corporate ownership and control structures on firm performance, namely foreign ownership and control versus domestic ownership and control; and single shareholder control versus multiple shareholder control. The remainder of the paper is divided into four sections. The next section presents a review of the related literature while section three sets forth the methodology adopted for the study. Section four analyses the data and section five contains the conclusions and recommendations.

2. Review of related literature

Concerns over the adverse consequences of the separation of ownership and management in a modern corporation are traced to Smith (1776). However, Berle and Means (1932) are widely cited to be the first to document the adverse consequences of the separation of ownership and control in a modern corporation on firm performance (see Jensen and Meckling, 1976; Demsetz, 1983; Dockery, Herbert and Taylor, 2000; Demsetz and Villalonga, 2001; Javed and Iqbal, 2007; Connelly et al., 2010). Berle and Means see diffuseness in ownership structure as undermining the role of profit maximization as a guide to resource allocation and as having the potential to render owners of shares powerless to constrain professional management from abusing their vantage position in the corporation. They (Berle and Means) argue further that since the interest of management need not, and generally does not perfectly cohere with those of owners, this would imply that corporate resources are not used entirely in pursuit of shareholder profit.

Demsetz and Lehn (1985) assert that Berle and Means' work was anticipated by Thorstein Veblem's (1924) volume. Vemblem believed that he was witnessing the transfer of control from capitalist owners to engineer-managers and that the consequences of this transfer were to become more pronounced as diffusely owned corporations grew in economic importance. One of such consequences was the end of the type of profit seeking associated with capitalists, who as owners sought neither efficiency nor increased output so much as monopolistic restrictions to raise prices. The fears expressed over the adverse consequences of separation of ownership from control have generated a lot of research interest particularly with respect to how variations in the ownership structure and hence control affect firm performance or value. Exemplar studies on the phenomenon under discussion include Demsetz and Lehn (1985), Demsetz and Villolanga (2001), Welch (2003), Sanda, Mikailu and Garba (2005), Farooque et al. (2007), and Tsegba and Herbert (2011). Such investigations have been affected by conceptual issues related to corporate ownership and control, and the ownership structures that need

investigation. The remainder of this review addresses these and other related issues that have the potential to affect the outcome of this study.

2.1. Corporate Ownership and Control

The study of who owns and controls the use of capital and how this control affects the creation and distribution of wealth in society has long been an important line of intellectual inquiry by economists, originating with Marx (1867) (see Kang and Sorensen, 1999). The confusion stems from the question of who owns a firm because property law initially defined ownership in terms of physical possession of assets (Berle and Means, 1932), whereas in the modern corporation, it is not the shareholders, but rather the managers and workers who come closest to physically "possessing" the firm's assets. This is underscored by the fact that the assets of the modern corporation are often complex, such as in the case of large-scale production facilities and research laboratories, thereby making it difficult for most shareholders to determine whether the assets are used correctly or efficiently, lacking both the information and expertise needed to monitor their usage (Kang and Sorensen, 1999). Furthermore, a majority of shareholders individually own a small fraction of the total number of shares issued by the firm and face considerable costs in conducting effective monitoring.

Kang and Sorensen's (1999) grouping of the main actors in the firm with their roles clarifies issues particularly with respect to who owns the firm. They consider the modern firm as a large organization with four main groups of actors: shareholders, board of directors, top executives and other managers, and workers. The shareholders are construed as the owners of the firm; they provide financial capital and in return receive a contractual promise of financial returns from the operations of the firm. Directors act as fiduciaries of the corporation who may formulate or approve certain strategy and investment decisions but whose main responsibility appears to be to hire and fire top managers. Managers operate the firm and make most business decisions and employ and supervise workers. Workers carry out the necessary activities that create the firm's output which translates into financial and economic returns.

Control has been defined by Tannenbaun (1962) as any process in which a person or group of persons or organization of persons determines what another person or group or organization will do. The definition infers that a person or group of persons possesses power to determine what actions are to be taken in a given situation. The literature seems to support the contention that the shareholders, and not professional managers as envisioned by Veblem (1924) and Berle and Means (1932) control the modern corporation. In this vein, control is achieved through shareholder representation on the board of directors, board committees, shareholder audit committees and active participation by shareholders in annual general meetings (AGMs) where broad policies affecting the corporation are considered and approved.

The decisions by shareholders to alter the ownership structure of the firm from one level to another might have the consequences of loosing or tightening control over professional management. Demsetz and Lehn (1985) argue that the higher cost and reduced profit that would be associated with loosening of owner control should be offset by lower capital acquisition cost or other profit enhancing aspect of diffuse ownership if shareholders chose to broaden ownership, vice versa. Control, as conventionally construed, suggests substantial voting rights in a corporation, preferably above 50% of the issued equity for both the individual and group of investors who may wish to team up for effective monitoring of management. Turnbull (1997), however, recognizes two models through which control may be exercised outside the extreme situation postulated above. He recognizes that the political model attributes the allocation of corporate power, privileges and profits between owners, managers and other stakeholders in a corporation through how governments favour their various constituencies. This viewpoint is supported by the argument that the ability of corporate stakeholders to influence allocations between themselves at the micro level is subject to the general macro framework over which the corporate sector has strong influence.

Pound (1993) defines the political model of corporate governance as an approach in which active investors seek to change corporate policy by developing voting support from dispersed shareholders rather than by simply purchasing voting power and control. He believes that the new form of governance based on politics rather than finance will provide a means of oversight that is both far more effective and far less expensive than the takeovers of the 1980s. The political model is also concerned with the related issue of trading off investor voice to investment exit, and institutional agents monitoring corporate agents i.e. 'watching the watchers' (see Monk and Minow, 1995). These issues are influenced by government laws and regulations and could be a subject of public policy debate as is done in the US (Turnbull, 1997). In Nigeria, the political process is mainly consummated under the auspices of shareholder associations and alliances among institutional investors. For instance, the Association of Nigerian Development Finance Institutions (ANDFI) coordinates the activities of all development finance institutions in the country and influences decisions

taken at board levels and AGMs by companies in which members collectively have substantial voting rights.

The model of corporate governance based on power perspective refers to the ability of individuals or groups to take action when required. Turnbull (1997) has noted, however, that the explicit use of power seems to be a neglected area, in spite of the truism that even when shareholders, directors, management or any other stakeholder have the knowledge and the will to act, they may not possess the necessary power to do so. For instance, there are various inhibitions on the power of shareholders to act arising from security laws, agenda setting by management at general meetings, proxy procedures, voting arrangements and the corporate by-laws. Turnbull (1997) states further that the power of directors to control management is contingent on there being sufficient number of directors who also have the requisite knowledge of the subject matter and the will to act to form a board majority. Moreover, even if independent directors have the knowledge to act, they many not have the will and power to act because they are loyal or obligated to management and /or hold their board position at the grace and favour of management.

2.2. Theoretical Framework

Ownership structure can, theoretically, help to promote good corporate governance practices and firm performance, but there exists no robust empirical evidence to support this assertion (Tsegba and Herbert, 2011). The theoretical framework upon which most research on the relationship between ownership structure and firm performance/value is based is rooted in the agency theory which presumes fundamental tension between shareholders and corporate managers (Jensen and Meckling, 1976; Farooque et al., 2007). The modern corporation is depicted as a largely autonomous entity where executives and managers successfully pursue their own objectives of growth and stability rather than maximizing the returns to the shareholders (Dockery, Herbert and Taylor, 2000). The agency theory is, therefore, used in the organizational economics and management literature as a theoretical framework for structuring and managing contract relationships and explaining the behaviours of principals and agents (van Slyke, 2007). A basic assumption of the agency theory, therefore, is that managers will act opportunistically to further their own interest before shareholders; and the basic conclusion is that the performance/value of the firm cannot be maximized because managers possess discretions which allow them to expropriate wealth to themselves (Turnbull, 1997).

The agency model presents a particular problem within the context of the development and dissemination of social science theories: a collection of strictly self-interested actors may occasion conflicts of interest which may be resolved through incentives, monitoring, or regulatory action (Cohen and Holder-Webb, 2006). The transaction conditions and the incentive mechanisms postulated in the literature to address costs related to managerial transactions or agency costs include remuneration systems, stock ownership, product market competition, and market for corporate control. The costs to the organization include monitoring costs, perquisites consumption, pet projects, free cash flow dispersion, hampered capital access, replacement resistance, resistance to profitable liquidation or merger, power struggles, excessive risk taking, self-dealing transfer pricing, excessive diversification and excessive growth. Jensen and Meckling (1976) summarize these agency costs as being the sum of the cost of: monitoring management (the agent); bonding the agent to the principal (stockholder/'residual claimant'); and residual losses. The focus of corporate governance is to minimize these costs and enhance firm performance. It becomes imperative that management is constantly monitored to ensure it does not pursue policies that are inimical to the prosperity of the enterprise. This monitoring task rests squarely with the board whose composition reflects the ownership structure of the firm.

2.3. Corporate Ownership Structure

A number of corporate ownership structures and their relationship with firm performance/value have been identified and investigated in prior studies (see Demsetz and Villolanga, 2001; Welch, 2003; Pivovarsky, 2003; Farooque et al., 2007; Tsegba and Herbert, 2011). Such structures include the largest/dominant shareholder, concentrated ownership, insider (board or management) ownership, foreign ownership, institutional ownership and government ownership. A purview of some of these ownership structures investigated, particularly those that have been on the agenda of Nigeria's indigenization and privatization programmes is necessary if we are to efficiently develop, construct, test and implement new approaches to the assessment of the impact of ownership structure and control on firm performance. However, the central tenet of this study is to examine the differential impact of alternative corporate ownership and control structures on firm performance. Accordingly, the corporate ownership structures that evidently have inbuilt control mechanisms manifest in dominant/largest and hence controlling shareholding, ownership concentration, and foreign ownership with control capabilities. These control

capabilities are measured in terms of percentage holdings that exceed 50% of the issued equity of the firm.

The issue of corporate control appears to revolve around the question: 'who is in control of the firm: is it the owners or the managers? In a diffuse ownership structure that person is practically the manager and the fears in prior literature are that he may make operating decisions that benefit his interest rather than maximizing returns to the shareholders (see Jensen and Meckling, 1976; Dockery, Herbert and Taylor, 2000; Javed and Iqbal, 2007). Extant literature therefore favours a dominant/largest and hence controlling shareholder structure. For instance, Bebchuk and Roe (1999, p.129) suggest that the presence or absence of a controlling shareholder "affects substantially the way in which, and the ends towards which, a corporation will be governed". They report that eighty-five percent of the largest German firms have a dominant shareholder (usually family, sometimes financial) with twenty-five percent or more of the firms voting rights. The authors argue that countries that differ in their incidence of controlling shareholders have corporate structures that differ from each other, substantially.

The presence of the dominant/controlling shareholder in a firm is supported by two main arguments in prior literature. The first is that if ownership starts as diffuse, the emergence of a dominant/largest shareholder with substantial interest in the firm may mitigate the free-rider problem (Barako and Tower, 2006). The free-rider problem emerges in highly disperse shareholder structures due to the imbalance existing between the effort required to control management behavior and the benefits such monitoring entails (Jensen, 1986).The second argument relates to the potential of a dominant/largest shareholder to curb 'tunneling', a term that is used to describe the transfer of resources out of the firm for the benefit of the controlling shareholders (see Johnson et al., 2000). It is argued that since tunneling is not healthy for the firm as a whole, the existence of a dominant/largest shareholder whose interest and that of the firm cohere may have little incentive to engage in tunneling. The implication of these arguments is that a firm with a dominant/largest controlling shareholder will post higher performance over those with multiple controlling shareholders.

The Nigerian privatization framework has brought to the fore the concept of 'core investor' or group of 'core investors' which is a modified version of a dominant/largest controlling shareholder who exercises absolute control with less than 50% stake in the company (see National Council on Privatization, 2000). The concept of core investor is, therefore, quite alien in the extant literature on corporate ownership structure and control. It does not also appear to have received empirical evaluation even though it has, indeed, been practiced in other jurisdictions. For instance, in China, listed companies normally have one ultimate owner who holds a significant percentage of total shares of the firm and control its operations (Bai et al., 2005). The National Council on Privatization (2000 p.55) precisely spells out the major distinguishing characteristics of strategic/core group investors:

"They must possess the technical know-how in relation to the activities of the enterprise they wish to invest in….The core investors must possess the financial muscle, not only to pay competitive price for the enterprise they wish to buy into but also to turn around its fortune, using their own resources without relying on the Government for funds. The core investor must have the managerial know-how to run a business profitably in a competitive environment where market forces dictate the business environment".

In effect, the 'core investor' is an idiosyncratic concept in relation to the revival of failing or failed SOEs under a programme or policy of privatization or commercialization. In this respect, 'core investors' are perceived as economic agents, usually of the multinational genre, with three defining features: (1) expertise or technical know-how in the enterprise they seek to invest in; (2) financial capacity to not only purchase or acquire the required interest in the slated SOE, but also to revive or turnaround the fortunes of the company; and (3) managerial competence to inject and sustain the profitability of the enterprise in a competitive market environment.

The theory of concentrated ownership structure seeks to explain the bahaviour of corporate managers and invariably corporate performance when a given number of shareholders control the firm. Prior literature segments concentrated ownership in terms of the percentage of shares held by the largest five, ten, fifteen, or twenty shareholders (see, for example, Bai et al., 2005; Sanda, Mikailu and Garba, 2005). Pedersen and Themsen (1999), however, divide concentration into three: (1) dispersed structure if the largest shareholder holds less than 20% of its issued equity; (2) dominant minority if the largest shareholder holds between 20 percent to 50 percent; and (3) majority ownership in which case the largest shareholder holds more than 50 per cent of its issued equity. They argue that the study of ownership concentration is meaningful only when it is possible to compare the efficacy of these structures in extracting cost and benefits from a firm's economic function. Demsetz and Lehn (1985) further note that the more concentrated the ownership, the greater the degree to which benefits and costs are borne by the same owner. For

instance, in the case of a firm owned entirely by one individual, all benefits and costs of shirking are borne by the owner, in which case 'externalities' confound his decision about attending to the tasks of ownership.

Four main arguments are advanced to support ownership concentration. First, Pivovarsky (2003) argues that a high concentration of shares into the hands of a few large shareholders tends to create more pressure on managers to behave in ways that are value-maximizing. This is underscored by the proposition that owners can hire and fire management. Second, Shleifer and Vishny (1997) argue that a combination of legal rules and ownership concentration could be used to mitigate governance problems of expropriation of wealth by controlling shareholders. They (Shleifer and Vishny) state further that shareholders with effective control over firms are not afraid that their firms will be expropriated and, thus, they can afford to sell shares to raise new capital to diversify risk. Furthermore, small investors can afford to take minority ownership interests in firms when they know that managers or controlling shareholders will not expropriate their ownership stakes. Third, it is argued that weak legal systems and capital markets increase risk and cost of capital and depress asset values (see La Porta et al., 2002). Consequently, Shleifer and Vishny (1997) suggest that firms can limit cost associated with legal systems and inefficient capital markets by adopting concentrated ownership structures. Jandik and Rennie (2004) provide evidence which is consistent with this view: that concentrated ownership is optimal in economies with weak legal systems and underdeveloped capital markets.

Fourth, Demsetz and Lehn (1985) support ownership concentration in terms of its control potentials which is the wealth gain achievable through more effective monitoring of managerial performance by firm owners. They argue that if the market for corporate control and managerial labour market perfectly aligned the interest of managers and shareholders, then control potential would play no role in explaining corporate ownership structure but in the presence of costs associated with the maintenance of corporate control, the market imperfectly disciplines corporate managers who work contrary to the wishes of shareholders. Concentrated ownership could, therefore, serve as a governance mechanism that disciplines entrenched managers towards firm value maximization.

A major literature contrarian argument against concentrated ownership highlighted by Bai et al. (2005) is that it gives the largest shareholders too much discretionary powers of using firm resources in ways that serve their own interest at the detriment of other shareholders. In other words, the controlling shareholders are able to obtain more control at minimal capital expense, thereby making tunneling much easier. Tunneling is a term used to describe the transfer of resources out of the firm for the benefit of the controlling shareholders (see Johnson et al., 2000). Bai et al. (2005) report that several corporate scandals disclosed in China's capital markets were all about unconstrained large shareholders misusing firm resources. The possibility of tunneling by controlling shareholders portrays concentrated ownership as double edged and may affect the performance of firms in either direction.

The literature on foreign ownership, which signifies equity participation in a firm by non nationals, is rather sparse. However, there are two main arguments that support foreign ownership of firms in emerging or transition economies. First, foreign firms are adjudged to possess more business experience and entrepreneurship than domestic firms and are, therefore, more dynamic in their management style. For instance, Laing and Weir (1999) contend that firms managed by dynamic foreign chief executives (CEOs) tend to perform better than other categories of firms. Second, extant literature on international business has long demonstrated that foreign firms possess a range of advantages that prospectively lead to and/or sustain successful multinationalization, and these allow them to outperform their domestic counterparts.

Herbert (1995) identifies and classifies the sources of these advantages into privileged, ownership-specific advantages (due to common governance), and corollary advantages of multinationality. He (Herbert) states further that essentially, foreign firms enjoy advantages of proprietary technology, managerial, marketing or other skills specific to organizational function, large size, reflecting scale and scope economies, and large capital (or capacity to raise it). In spite of the advantages accorded foreign ownership in the literature, the relationship between foreign ownership and firm performance has received little systematic investigation, notable exceptions being the works of Laing and Weir (1999), and Estrin et al. (2001). Furthermore, there appears to be no known study that has investigated the contextual issue of the comparative performance of firms with foreign ownership and control and their domestic counterparts. This study seeks to augment the stock of empirical knowledge in this area.

2.4. Hypotheses Formulation

This study empirically determines our conjectures about the comparative performances of two sets of ownership and control structures, namely foreign ownership and control versus domestic ownership and control, and single shareholder control versus multiple shareholder control. Specifically, the following hypotheses are tested in this study:

Ho1: The performance of firms controlled by foreign owners is not significantly different from those controlled by domestic owners.

Ho2: The performance of firms controlled by single shareholders does not vary significantly from the performance of firms controlled by multiple shareholders.

3. Methofology

3.1. Sample

The sample for this study comprises of 73 firms listed on the Nigerian Stock Exchange (NSE) for the period 2001 to 2007. The non-probability sampling technique is used to draw up the sample from a population of 201 firms listed on the NSE based on two main criteria. First, the firm must be listed on the NSE prior to the commencement of year 2001. Second, the firm must be in operation for the entire study period i.e. 2001 to 2007. Firms with incomplete data, such as financial performance indices and shareholding structure, and firms that underwent major reorganizations within the study period, such as the banks, are excluded from the sample.

The strict criteria used for sample selection portend possible bias. First, the sample firms are those with complete information germane to the investigation rather than by any technical analysis. Second, the selection of firms was restricted to those with uninterrupted operations throughout the study period. However, overcoming sample selection bias is empirically difficult for studies focusing on the impact of corporate governance mechanisms, such as ownership structure, on ex post firm financial performance measures reported by management. The main argument is that researchers cannot generate firm performance measures on their own; they have to rely on what is available in the public domain, which is an indication of good corporate governance practices (Tsegba and Herbert, 2011).

3.2. Variable Definitions and Measurement

Two sets of variables are employed in this study, one relating to ownership structure and control and the other to firm performance. As a comparative study which seeks to provide evidence on whether or not alternative corporate ownership and control structures give rise to differential firm performances, two sets of ownership and control are specified. These corporate ownership and control structures include foreign ownership and control (FOC), domestic ownership and control (DOC), single shareholder control (SSC), and multiple shareholder control (MSC). FOC firms are construed to be those in which foreign owners hold more than 50% of the issued equity. DOC firms are defined as firms in which Nigerians hold more than 50% of the issued equity. SSC firms are defined as those in which a single shareholder (irrespective of nationality) holds more than 50% of the issued equity. MSC firms represent those firms in which two or more shareholders hold more than 50% of the issued equity. As stated earlier, the issue of corporate control by foreigners and a single shareholder (amplified by the concept of a core investor) has remained a focal point of reference in the ongoing Nigerian privatization exercise. There is, therefore, need to test whether this policy is achieving the objective of maximizing firm performance.

For market economies, it has been proved that the appropriate measures of firm performance could be the market price of share (MPS), Tobin's Q, and profits (see, for example, Demsetz and Lehn, 1985; Shleifer and Vishny, 1986). This study, however, uses firm performance measures which utilize share price and profits, but does not use Tobin's Q for two main reasons. First, information on replacement cost, which is required for the computation of Tobin's Q, is not available on the firms investigated in this study. Second, since Tobin's Q is the ratio of valuation of shareholders to the market value of the firm's assets, at the margin, the shareholders' valuation will approximate to, and will be shown by, the firm's share price. Thus, it is postulated here that the MPS, which is already available and published, will yield the same, if not better, results as Tobin's Q (Tsegba and Herbert, 2011).

Three measures of firm performance are adopted in this study, namely, market price per share (MPS), earnings per share (EPS) and return on assets (ROA). Each measure of performance addresses a certain clientele. For instance, the MPS is a measure of how the market assesses the firm based on its performance. The EPS is targeted at existing shareholders who would like to gauge the earning capabilities of their firms. The ROA is an overall measure of how the firm is utilizing the assets in its hold and is targeted at all stakeholders. Table 1 below sets out how the variables are measured and sourced.

Table 1. Variable Measurement and Sources

Variable	Measurement	Source
Foreign ownership and control (FOC)	A dichotomous variable given the value of 1 (one) if the firm has foreign ownership and control.	Annual reports and accounts/Company Registrars.
Domestic ownership and control (DOC)	A dichotomous variable given the value of 0 (zero) if the firm has domestic ownership and control.	Annual reports and accounts/Company Registrars
Single shareholder control (SSC)	A dichotomous variable given the value of 1 (one) if the firm has a single shareholder who exercises control rights over it.	Annual reports and accounts/Company Registrars
Multiple shareholder control (MSC)	A dichotomous variable given the value of 0 (zero) if the firm has two or more shareholders who control it.	Annual reports and accounts/Company Registrars
Market price per share (MPS)	The quoted price of the firm on the Nigerian Stock Exchange.	Nigerian Stock Exchange daily performance reports.
Earnings per share (EPS)	Net profit after tax divided by the number of shares in issue.	Annual reports and accounts.
Return on assets (ROA)	Net profit after tax divided by total assets.	Annual reports and accounts.

3.3. Specification of the Models for Data Analysis

This study utilizes the z-test for the rank sum of two independent samples (also known as the Wilcoxon W-test) as the main tool for data analyses. The Wilcoxon rank tests are non-parametric tests which are suited for studies with small sample sizes (Jerome, 2008). The tests are two-tailed, at 5 percent confidence level.

The model for the z-value that is the test statistic is given as:

$$Zsample = (W - \mu w)\backslash \sigma w$$

and

$$\sigma\omega = \sqrt{\frac{1}{12}} n_1 n_2 (n_1 + n_2 + 1)$$

where:
n1 is the sample with the fewest cases
n2 is the sample with the most cases
μw is the rank order sums, and
w is the smallest of the rank order sums.

4. Data Analysis and Results

4.1. Checks for data reliability and validity

The starting point for data analyses is to check for the reliability and validity of data. The data utilized in this study has been examined for errors and omissions. The examination has not revealed anything that would adversely affect the reliability of the results obtained in this study. Furthermore, chi-square goodness-of-fit test for normality is conducted to test the null hypothesis that there is no significant difference between the sample firms and the target population. Table 2 presents the results of the chi-square goodness-of-fit test. The calculated value for chi-square is 16.52. At 19 degrees of freedom, the critical value of the chi-square distribution falls between 0.5 and 0.7, which suggests that the null hypothesis be accepted. In other words, the selected sample is a valid representation of the population under investigation.

4.2. Empirical Results

The empirical results are obtained through the Wilcoxon W-tests. The results of the test for Ho_1, which seeks to ascertain whether the performance of firms with foreign ownership and control is not significantly different from those with domestic ownership and control, are reported in Table 3 below.

The results suggest that foreign ownership and control (FOC) firms exhibit higher mean rank performances over the domestic ownership and control (DOC) firms. The mean rank difference ranges from 6.73 (for ROA) to 10.87 (for MPS). However, the z-statistics indicate that only the MPS variable is significant at the 5% level and could be used to reject the null hypothesis that foreign ownership and control of Nigerian firms does not yield higher firm performance. The z-statistics are also significant but at the 10% for EPS. A major conclusion that may be drawn from this result is that investors seem to have more confidence, and so are ready to pay higher prices, for the shares of firms with foreign ownership and control than for firms with domestic ownership and control.

Table 2. Chi-Square Goodness –of- Fit Test Computations

Sector Classification	Actual (Fo)	Expected (Fe)	Fo-Fe	$\frac{(Fo-Fe)^2}{Fe}$
Agriculture	1	2.77	-1.77	1.13
Automobile & Tyre	3	2.31	0.69	0.21
Breweries	3	3.23	-0.23	0.02
Building Materials	4	3.70	0.30	0.02
Chemicals & Paints	5	3.23	1.77	0.96
Conglomerates	8	4.16	3.84	3.55
Commercial/Services	1	0.46	0.54	0.63
Computer & Office Equipment	2	2.77	-0.77	0.22
Construction	3	2.77	0.23	0.02
Engineering Technology	1	1.39	-0.39	0.11
Food/Beverages/Tobacco	5	6.01	-1.01	0.17
Industrial/Domestic Products	7	5.54	1.46	0.38
Insurance	9	11.09	-2.09	0.39
Machinery (Marketing)	1	1.39	-0.39	0.11
Packaging	3	3.70	-0.70	0.13
Petroleum Products (Marketing)	6	3.70	2.30	1.44
Healthcare	6	5.08	0.92	0.17
Printing & Publishing	3	1.85	1.15	0.72
Real Estate	1	0.46	0.54	0.63
Emerging Markets	1	7.39	-6.39	5.53
TOTAL	73	73	0	16.52

Table 3. Comparison of Firm Performance: FOC versus DOC Firms

Firm Performance	Mean Rank (FOC)	Mean Rank (DOC)	Mean Rank Difference	Z-statistics For Difference
MPS	43.85	32.98	10.87	-2.11**
EPS	42.69	33.66	9.03	-1.75*
ROA	41.24	34.51	6.73	-1.31

*Significant at 10% level; **Significant at 5% level; ***Significant at 1% level.

These results support the assertion in the extant literature that firms with foreign ownership and control are expected to perform better than their domestic counterparts in emerging or transition economies because the foreign firms possess more business acumen and entrepreneurship, and have easier access to technical expertise, capital, and spare parts, amongst others (Laing & Weir, 1999; Estrin et al., 2001). The results are also consistent with the evidence provided by Estrin et al. (2001) which suggests that firms with foreign ownership perform better than those with domestic ownership in Bulgarian.

The results of the test for Ho2, which seeks to confirm whether single shareholder in control (SSC) firms perform significantly different from those controlled by multiple shareholders (MSC) are contained in Table 4 below.

Table 4. Comparison of Firm Performance: SSC versus MSC Firms

Firm Performance	Mean Rank (SSC)	Mean Rank (MSC)	Mean Rank Difference	Z-statistics For Difference
MPS	41.08	34.74	6.34	-1.22
EPS	40.96	34.81	6.15	-1.19
ROA	41.15	34.70	6.45	-1.24

*Significant at 10% level; **Significant at 5% level; ***Significant at 1% level.

The results suggest that all the mean values of firms with single controlling shareholders (SSC) are higher than those with multiple controlling shareholders (MSC). However, the mean rank differences are not statistically significant, even at 10% level, to warrant the rejection of $H_{o2.}$ The a priori expectation, however, is that a single controlling shareholder in a firm overcomes the

free-rider problem and also curbs tunneling (see Barako and Tower, 2006; Johnson et al., 2000). A single controlling shareholder structure also supports the goal congruence argument advanced by Jensen and Meckling (1976). Accordingly, a firm with a single controlling shareholder is expected to perform better than one with multiple controlling shareholders. A possible explanation why this study does not find evidence to support a significant higher performance for single shareholder control firms in Nigeria may lie in the propensity of such shareholders to expropriate wealth for personal aggrandizement at the detriment of pursuing strategies that would enhance overall company performance (see Dockery, Hebert and Taylor, 2000; Javed and Iqbal, 2007).

5. Conclusions and recommendations

This study sought to ascertain whether alternative corporate ownership and control structures could achieve higher firm performance. This broad objective is demarcated into two subsidiary objectives. First is the desire to ascertain whether or not foreign ownership and control of Nigerian firms promote higher firm performance over their indigenous counterparts. The second object is to ascertain whether single shareholder control firms post higher performance over multiple shareholder control firms. Both objects have been inspired by Nigeria's changing, and sometimes conflicting, policies over the ownership structure of the SOEs since independence in 1960. In particular, the adoption of the core investor mode of corporate ownership in the current privatization programmee encourages both foreign ownership of, and single shareholder control of Nigerian firms.

The findings of this study can be compactly summarized as follows: (1) the performance of firms with foreign ownership and control is significantly higher than those with indigenous or domestic ownership and control. (2) Single shareholder control firms do not post significant higher performance over those controlled by two or more shareholders. These results have two policy implications for corporate Nigeria. First, given that foreign ownership and control of Nigerian firms promote higher firm performance, policy initiatives that encourage foreign ownership and control of Nigerian firms or foreign direct investments in the country should be pursued. Second, lack of evidence that single shareholder control firms perform better than those controlled by multiple shareholders, the core investor mode of corporate ownership which rests control in the hands of single shareholders should be reconsidered in Nigeria's privatization strategy. The paper, however, calls for further investigation into the phenomenon of interest, since the impact of corporate ownership and control on firm performance is very important, far too important for corporate Nigeria, to be left to the conclusions of one or a few studies. Such studies should include the banking sector that is the engine of economic growth.

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РАЗДЕЛ 3 КОРПОРАТИВНОЕ УПРАВЛЕНИЕ В АВСТРАЛИИ

SECTION 3 CORPORATE GOVERNANCE IN AUSTRALIA

RELATING FIRM PERFORMANCE TO CORPORATE GOVERNANCE CHARACTERISTICS: A RESEARCH PERSPECTIVE ON THE PUBLICLY LISTED INFORMATION TECHNOLOGY COMPANIES IN AUSTRALIA

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Abstract

The objective of this research is to relate company performance (in terms of different measures) to corporate governance characteristics (like board size, internal or external majority governance) for the publicly listed information technology (IT) companies in Australia. A sample of 55 such companies are considered. Results reveal that, contrary to the popular belief in respect to positive influence of external board members, performance of the IT companies tend to worse with higher degree of board independence. We attribute the characteristics of these outcomes to the dynamic properties of the IT industrial sector in Australia. Linear regression models relating the performance measures to board characteristics along with other financial information have also been developed. The number of senior management members has been identified as the key board characteristic factor in these models, implying the importance of major internal control over highly independent board for the publicly listed Australian IT companies.

Keywords: Corporate Governance, Board Composition, Board Structure, Balance Ratio, Linear Model, Firm Performance, IT industry, Australia

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1. Introduction

The structure of a company's governing board and its effect on the company's performance is a well pursued research area (Shleifer and Vishny, 1997; Van der Walt et al., 2006; Shijun, 2008; Bowen, 1994). A company's business effectiveness is influenced by a number of factors including the economy in which the company primarily operates,

the characteristics of the company and governing laws of the countries in context. A number of different studies, so, have been conducted to relate firm performance measures to corporate governance characteristics for companies at varied industrial sectors and economies (Abidin et al., 2009; Aggarwal et al., 2007; Bai et al., 2004; Black and Kim, 2011; Chamberlain, 2010; Charny, 1998; Chen et al., 2009; Goswami, 2002). The conclusions achieved from these studies have also differed considerably.

Generally good and well designed corporate governance policies are advocated for high performance. Emphasis is given on the inclusion of a number of outside directors in the governing body, with a view that their independence from interests attached to the company would lead to better management and performance. In this regard, it is notable that the necessity of good corporate governance practices has recently attracted the attention of wide range of communities, particularly due to the collapse of big reputable firms from mismanagement of resources.

A prominent contemporary example is the enormous financial loss sustained by the Swiss bank UBS as a result of rouge trading and lack of proper supervision (Wright et al., 2011; Thomasson and Koltrowitz, 2011). Similar detrimental impacts on economy from failure of large corporates have also occurred in Australia. In 2001, OneTel, then a major Australian telecommunications company, collapsed due to ambitious undertakings and erroneous decision makings (Legard, 2001; Avison and Wilson, 2002). In the same year, HIH, a major insurer, collapsed due to poor corporate governance and caused a $5.3 billion deficiency in the economy (Lipton, 2003). Another recent example, also concerning improper corporate governance practices, is the failure of Lehman Brothers (Bris, 2010). With such history of large corporation failures and the current economic turmoil, adequate corporate governance principles particularly in the area of robust risk management have been prescribed (Kirkpatrick, 2009).

Information Technology (IT) is a relatively new industrial sector, comprising of companies primarily dealing with (but not limited to) software development, provision of web services, database management, hardware and communication equipments design and marketing, and information processing. The sector is very dynamic with quickly changing business environment, fast scientific development, rapid variations in consumer demand and high competitions. Effective management and well considered corporate government policies are, hence, very important for survival and operations of the IT companies. Considering the differing characteristics of the IT business sector from other industrial areas, it is of interest to examine how corporate governance characteristics relates specifically to performance of the IT companies, a research area yet to be well explored.

In recent years, Australia has posed itself as a leading entity in the global economy and the IT sector forms an important part of its economic structure. This article reflects on this particular area of Australian economy and empirically relate corporate governance characteristics to firm performance. More specifically, focus is made on the board composition and characteristics of a sample of 55 publicly listed Australian IT companies, and performance in terms of a number of measures is statistically analyzed. Further, a linear regression model for these performance measures, with board characteristics and other company information as the control variables, are developed. The importance of board characteristics on these linear regression models is also examined.

The rest of the article is organized as follows. Section 2 focuses on relevant literature, followed by a summarized overview of the board structure for the Australian publicly listed IT companies in Section 3. Section 4 provides details of the data used in this research, while Section 5 presents statistical analysis and regression model development. Lastly Section 6 concludes the article with summarized discussions and potential future directions.

2. Related Literature

Corporate governance establishes the legal, cultural and institutional guidelines, allowing the owners and other stakeholders exercising authority over a company's management and thereby creates a system of accountability with a view to interest protection for all the concerned entities (Bowen, 1994; Shleifer and Vishny, 1997; John and Senbet, 1998; Pearce and Osmond, 1999; Oxelheim and Randy, 2003). The key component within this system is a governing board comprising of personnel both internal and external to the company. There is, however, no common structure, and the board composition and governing principles vary considerably among the companies.

There are also noticeable disagreements among the researchers in regards to effective model of corporate governance. For example, the US corporate governance model has been optimistically viewed by a number of scholars (Fischel and Easterbrook, 1991; Romano, 1993; Easterbrook and Fischel, 1996; Holmstrom and Kaplan, 2003), while the same system has been criticized and questioned in other studies (Jensen, 1989, 1993). The model employed in other countries have also come under severe scrutinies, and those adopted at one geographical location have been claimed to be ineffective for firms at the other geographical localities (Roe, 1993; Charny, 1998; Goswami,

2002; Husted and Serrano, 2002; Roche, 2005; Wenger and Kaserer, 1997; Paredes, 2003).

A considerable number of studies have examined the impact of board characteristics and corporate governance principles on the performance measures. Bello (2011), for instance, identifies poor corporate governance as a key factor behind financial distress sustained by firms, and recommends auditing and accounting resolution. Hermalin and Weisbach (1988) promote increased participation of outside directors for improved management. McIntyre et al. (2007) find correlation between firm performance and governing body characteristics (including composition, age and experience of the board members) for a dataset comprising of all companies in the S&P/TSX Composite Index. Larmou and Vafeas (2010) claim that increase in board size is positively associated with the share price performance for a number of small firms having poor performance history. Chamberlain (2010) investigates the relationship between financial performance and board member characteristics of the largest 100 Canadian firms. The study concludes that positive and significant relation exists between firm performance and external component of the governing body. Abidin et al. (2009) investigate the association between board structure and corporate performance in Malaysian context, and agree on the importance of outside directors for long term success.

There have also been studies arguing the influence of board characteristics on firm performance. For instance, Ahmed et al. (2006) note, for a sample of listed New Zealand firms, that earnings informativeness is negatively related to board size and unrelated to the proportion of external directors. Adams and Ferreira (2009) examine the impact of gender diversity in the governing body and find the average effect on firm performance to be negative. Bhagat and Black (2001) challenge the US corporate governance practices of public companies being dominated by the outside directors. The study reveals that firms having higher board independence do not perform better than the other firms. Shujin (Shijun, 2008) reports that firms possessing larger board size have lower variability in performance. Frick and Bermig (2010) analyze the impact of board composition and size on the valuation and performance for 294 German firms and fail to find any effect of these on the performance. Another recent research by Guest (2009) has also observed strong negative influence of board size on performance in terms of profitability, Tobin's Q and share returns. Duchin et al. (2010) point out that the effectiveness of external monitoring is dependent on the information cost. The study reveals that for low information cost firms outside directors have positive impacts on performance, while for high information cost firms performance decreases with increased board size.

The importance of understanding effective corporate governance characteristics have been recognized within the Australian context as well. A well-organized guideline in this regard is provided by the ASX Corporate Governance Council (ASXCGC, 2007). The council considers that the Australian companies need to be equipped with good corporate governance policies to compete in global market. So a set of principles in respect to board operations, size and composition, ethical issues, integrity in financial reporting, timely disclosure, preservation of shareholders' rights, risk management and remuneration level are recommended. Fleming (2003) categorizes the principles recommended by the ASX Corporate Governance Council into structural, behavioural and disclosure principles, and studies the corporate governance practices for the Australian companies in terms of these principles over a period of forty years. The article concludes that improvement in the state of corporate governance over the period is unclear and recommends slow changes in practices in this regard. Kang et al. (2007) point out that most of the existing works in corporate governance are based on the US data and may not be applicable to Australia due to regulatory and economic variations. The article also analyzes information on board composition for 100 Australian companies in terms of various diversity criteria and independence. Setia-Atmaja (2008) investigates the influence of board size on firm performance in terms of Tobin's Q. The study identifies positive relationship for the larger sized firms. Lau et al. (2006) reveal the negative relation between corporate performance and the probability of Chief Executive Officer (CEO) dismissal within the Australian context. Chen et al. (2009) study 101 Australian publicly listed companies and indicate that increased board independence does not necessarily lead to promotion of the shareholder's interest. Christensen et al. (2010) examine the impact of corporate governance practices on financial performance in terms of return on assets (ROA) and Tobin's Q. The results show that emphasis on board independence have a negative effect on these measures. Windsor and Cybinski (2007) associate the executive remuneration, firm performance and corporate governance control within Australian voluntary corporate governance arena. This study also does not identify any significant impact of board independence in this context.

Overall, it is observed that researchers are in disagreement over the impact of board characteristics on the firm performance and other properties. A notable observation is, contrary to popular belief and recommendations, several studies have revealed the negative impact of

increased board independence on the Australian firms' performances. Further, majority of these studies have focused on institutions ranging from a wide variety of sectors. Comprehensive study of relating corporate governance characteristics to firm performance in context specific to particular industrial sectors, like the Australian IT industry, is still lacking.

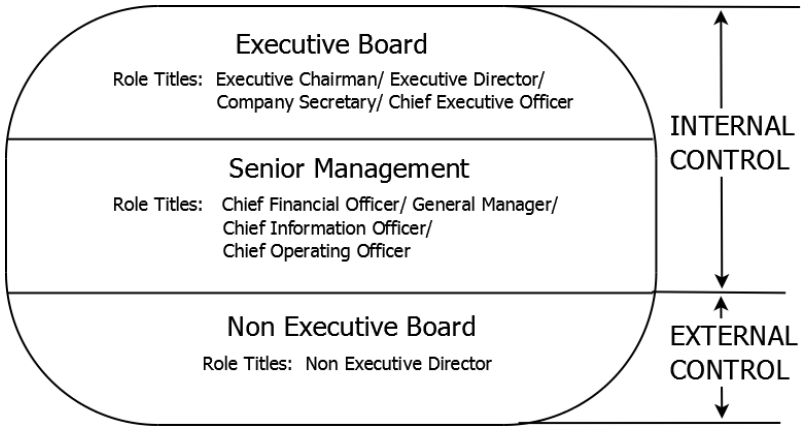
3. Corporate Governance for IT Companies in Australia

IT industries, particularly software development and computing services, have sustained a considerable growth in the recent years in Australia. As per a report from Datamonitor (Datamonitor, 2011), the software industry market value in Australia has reached to 6.2 billion Australian Dollar (AUD), a 10% increase from that in 2009 and a 29% increase from that in 2006. The report also predicts the market to grow to 8.3 billion AUD, a 34% increase, by the year 2015. Another recent report by the House Standing Committee on Economics of the Parliament of the Commonwealth of Australia (HSCE, 2010) has identified the IT industry as a sector where significant investment would lead to considerable future growth in productivity.

The IT industry, however, is very dynamic with rapid scientific development, fast changes in business environment and, particularly in the Australian context, a sector with lack of skilled personnel. With such potential positive influence of the industry on the overall economy and the inherent challenges, it is imperative to conceptualize how the companies within this sector are governed and what impact the governance characteristics have on the performance of these companies. To the best of the investigators' knowledge, this issue is still unexplored in the Australian context. This article aims to bridge this gap through empirical analysis on the publicly listed Australian IT companies in the subsequent discussions.

While the exact nature of business and operational strategies for the publicly listed IT companies in Australia vary considerably, the governing board structure can be generalized as shown in Figure 1. The board is composed of personnel in three roles: Executive Board Members, Senior Management Members and Non-executive Board Members. Executive members are personnel on the company payroll and are involved in administering the total operations of the company. The role title of executive members varies from company to company, though commonly they are referred to as the Chief Executive Officers (CEO). Senior Management members are also employee of the company, involved in administering day to day activities of the company and also participating in the governing board's activities as defined by the institution's policies. The role title of senior management members also vary from company to company, and are often referred to as the Chief Financial Officer, General Manager, Chief Information Officer and Chief Operating Officer. Non-executive members are directors in the board who do not hold any monetary interest with the company. They are usually personnel with reasonable knowledge of the company's business operation, and bring forth their experiences to influence and monitor the activity of the governing body from an outside perspective. Overall, the executive members and the senior management personnel comprise the internal control, while the non-executive members constitute the external control over the governing body.

Figure 1. Corporate governance structure for publicly listed Australian IT companies



4. Data Description

A sample of 55 publicly listed Australian companies is selected for this research. The company names are as shown in Table 1. Three data sources are used and a database for computational processing is developed by combining information from these sources. The

data sources used are: Datamonitor360 (http://www.datamonitor360.com), Company360 (http://www.company360.com.au/) and Yahoo!7 Finance (http://au.finance.yahoo.com/).

Datamonitor360 provides financial details on a number of companies located across the world and belonging to the major industry sectors. The source also reflects on governing board structure of the companies, and particularly reflects on the role played by each of the board members. Company360 is based on the commercial database provided by the Dun & Bradstreet (Australia) Pty Ltd, and comprise details and analysis on the leading 50,000 Australian companies. A particular information provide by this database is the (SIC), reflecting principal business of the companies. Also, the source provides information about the number of employees in the companies along with other financial details. Yahoo!7 Finance is an online service delivering up-to-date information on varied financial statistics of Australian companies and stock market status.

In addition to these data sources, information from the Australian Stock Exchange is used to identify the companies belonging to the information technology area and companies for which active trading information are available.

For the 55 companies thus selected, a set of information (as up-to-date on the 17th Nov 2011) reflecting the varied characteristics are collected and processed. The information considered are as shown in Table 2. General information are collected from Company360, while Corporate governance information are collected from Datamonitor360. The rest of the information are collected from Yahoo!7 Finance. Of these other information, five variables reflect a company's valuation, two the profitability, two the management effectiveness, and the rest varied financial measures. Table 2 also presents explanation on the variables considered. In Table 3, summary statistics for the different variables are detailed.

Figure 2, further, shows the number of companies grouped by location and primary SIC. For the companies selected, most are located/head-quartered in New South Wales, followed by Victoria, Western Australia and Queensland. Only few IT companies are quartered in the other localities. While the activities of all these companies fall within the IT industrial sector, the specific nature of primary business for these companies varies. Of the 55 companies, majority of the companies are engaged principally in delivering computer programming and related services (SIC 7371). A number of companies also design and publish pre-packaged software as their principal business (SIC 7372), while a few focus on the wholesale distribution of computing peripherals, equipment, and software (SIC 5045), and the development of customized integrated systems (SIC 7373). A minor number of companies are also engaged in other industrial sectors with information technology based products and services as their key business. There are also a noticeable number of companies that operate within the information technology contexts elsewhere unclassified (SIC 7379). Thus, the companies chosen for this research pose a wide range of samples with varied business activities and governance by varied state laws within the Australian economy.

Table 1. Publicly listed IT companies considered in this research

Companies	
3Q Holdings Limited	IRESS Market Technology Limited
Adacel Technologies Limited	ISS Group Limited
Altium Limited	LongReach Group Limited
Ambertech Limited	MDS Financial Group Limited
Aristocrat Leisure Limited	Melbourne IT Ltd.
ASG Group Limited	MGM Wireless Limited
Bravura Solutions Ltd	MIKOH Corporation Limited
Byte Power Group Limited	Mooter Media Limited
CCK Financial Solutions Ltd.	NetComm Limited
Cellnet Group Ltd.	Oakton Limited
ComOps Limited	Objective Corporation Limited
Compumedics Limited	pieNETWORKS Limited
Corum Group Limited	Powerlan Limited
CPT Global Limited	PRO Medicus Limited
CSG Limited	Prophecy International Holdings Limited
Data#3 Ltd.	QMASTOR Limited
DataMotion Asia Pacific Limited	Razor Risk Technologies Ltd.
DWS Advanced Business Solutions Ltd	Reckon Limited
Empired Limited	Senetas Corporation Limited
Energy One Limited	Sirius Corporation Limited
eServGlobal Ltd.	SmartTrans Holdings Limited
GBST Holdings Limited	SMS Management & Technology Limited
Global Health Limited	Stratatel Limited
GoConnect Limited	Technology One Ltd
Hansen Technologies Ltd.	Transol Corporation Limited
Ideas International Limited	UXC Limited
Infomedia Limited	Webfirm Group Limited
Integrated Research Ltd	

Table 2. Information considered for each of the companies and explanations (Brigham and Houston, 2009; Cagan and Shank, 2009; Yahoo!7, 2011)

Information Category	Variable	Explanation
General	*State*	Australian state where the company is headquartered
	Primary SIC	Primary Standard Industrial Classification, expressing principal business
	No. of Employees	Total number of Employees
Corporate Governance	*No. of Executive Board Members*	Number of persons playing executive roles in the governing body
	No. of Non Executive Board Members	Number of persons playing external director roles in the governing body
	No. of Senior Management Members	Number of senior management level personnel in the governing body
	Total Board Size	Total number of personnel in the governing body
Valuation	*Market Capitalization*	*(current market price per share) X (the number of outstanding shares).* Indicates the corporate size.
	Price/Sales Ratio	*(current market price) / (total revenues per share).* An index for valuation of the company stock.
	Price/Book Ratio	*(current market price) / (book values per share).* Reflects the market value of tangible assets.
	Enterprise Value/Revenue	*Enterprise Value* denotes the business's market value. *(Enterprise Value) / (total revenue)* is an indicator of company value, removing capitalization effects.
	Enterprise Value/EBITDA	*(Enterprise Value) / (Earnings Before Interest, Taxes, Depreciation, and Amortisation).* It is a valuation unaffected by the company's capital structure
Profitability	*Profit Margin*	*(net income) / (total revenues)*, expressed in percentage
	Operating Margin	*(total revenues -total operating costs) / (total revenues)*, expressed in percentage. Represents a company's business operation efficiency
Management Performance	*Return on Assets*	*(earnings from continuing operations) / (average total equity)*, as percentage. Indicates the effectiveness of company assets utilization in generating earnings.
	Return on Equity	*(earnings from continuing operations) / (total common equity)*, as percentage. Provides indication to the return on shareholder's equity.
Income	*Revenue Per Share*	*(Total Revenues) / (Weighted Average Shares Outstanding)*
	Quarterly Revenue Growth	The increase of quarterly total revenues compared to that same quarter in the previous year, expressed in percentage.
	Net Income Avl to Common	*(percentage of net income) / (common)*, indicating amount accrued by common shareholders in dividends and share earnings
Balance Sheet	*Total Cash*	Total cash, as indicated in the balance sheet for the most recent quarter
	Total Debt	Total debt including both short and long term debts, as indicated in the balance sheet for the most recent quarter
	Current Ratio	*(total current assets) / (total current liabilities).* Indicates the ability of the company to meet its short-term obligations
	Book Value Per Share	*(total common equity) / (total common shares outstanding)*
	Total Debt/Equity	*(total debt) / (total equity)*
	Total Cash Per Share	*(Total Cash + Short Term Investments) / (Shares Outstanding at the end of the most recent fiscal quarter)*
Cash Flow	*Operating Cash Flow*	Indicates the net cash utilized or generated due to operating activities
	Levered Free Cash Flow	Indicates cash available to stockholders after interest payments on debt.
Unit Share Price	*Adjusted Closing Price 1 Jul 2010*	Adjusted Closing Price unit share price as at 01 Jul 2010
	Adjusted Closing Price 30 Jun 2011	Adjusted Closing Price unit share price as at 30 Jun 2011

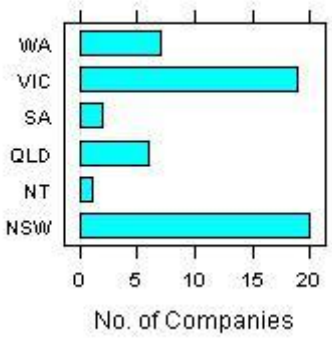
Source: Company360 (General Information), Datamonitor360 (Corporate Governance information), Yahoo!7 Finance (Other Information)

Table 3. Summary statistics for the variables considered (St.Dev. denotes standard deviation)

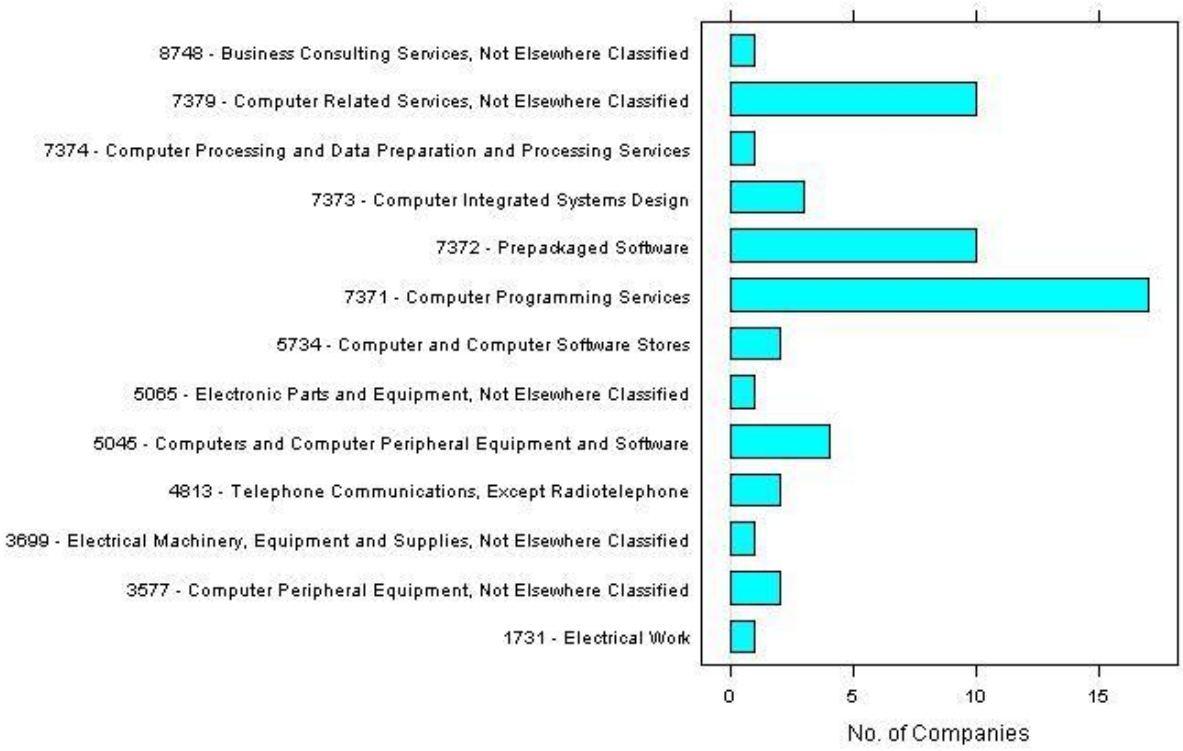
Variable	Minimum	Median	Mean	St.Dev	Maximum
No. of Employee	6	125	278	437.56	2181
No. of Executive Board Members	0	1	1.47	0.90	4
No. of Non Executive Board Members	1	3	3.02	1.31	7
No. of Senior Management Members	0	4	4.22	2.67	10
Total Board Size	3	9	8.71	3.35	16
Market Capitalization (in Million AUD)	1.15	18.40	100.49	223.80	1280.00
Enterprise Value (in Million AUD)	-1.06	18.41	106.50	253.76	1550.00
Price/Sales Ratio	0.10	0.840	3.93	9.18	46.22
Price/Book Ratio	0.12	1.56	2.76	3.16	18
Enterprise Value/Revenue	-9.58	0.84	3.24	9.56	55.90
Enterprise Value/EBITDA	-647.18	4.54	-8.85	90.26	100.23
Profit Margin (%)	-191.57	1.72	-9.13	44.64	91.13
Operating Margin (%)	-1259.18	3.76	-66.79	227.72	34.17
Return on Assets (%)	-84.27	3.07	-5.51	24.99	24.50
Return on Equity (%)	-365.98	3.23	-18.08	78.44	60.65
Revenue (in Million AUD)	0.11	23.38	84.68	152.38	696.25
Revenue Per Share	0.00	0.19	0.63	0.97	4.54
Quarterly Revenue Growth (%)	-59.8	-0.1	16.1	84.55	524.8
Gross Profit (in Million AUD)	-1.0	15.0	40.9	92.73	495.0
EBITDA (in Million AUD)	-22.88	1.12	10.14	23.48	121.76
Net Income Avl to Common (in Million AUD)	-21.09	0.20	5.03	13.96	52.80
Total Cash (in Million AUD)	0.00326	3.27	9.44	13.92	61.93
Total Debt (in Million AUD)	0.00	0.05	13.16	46.91	303.49
Current Ratio	0.05	1.58	1.89	1.38	7.19
Book Value Per Share	-0.03	0.14	0.27	0.35	1.56
Total Debt/Equity	0.00	0.39	17.12	34.15	163.78
Total Cash Per Share	0.0033	3.27	9.44	0.11	61.93
Operating Cash Flow (in Million AUD)	-204.71	1.93	1.95	30.56	58.13
Levered Free Cash Flow (in Million AUD)	-275.92	1.08	-2.40	38.25	26.52
Adjusted Closing Price 1 Jul 2010	0.00	0.21	0.80	1.68	8.25
Adjusted Closing Price 30 Jun 2011	0.00	0.17	0.89	2.23	12.85

Figure 2. Number of companies grouped by - (a) location (b) primary SIC

(a)



(b)



5. Analysis and Outcomes

This section presents our analytical approach and the outcomes in regards to relating the firm performance with the corporate governance characteristics for the chosen companies. The research framework adopted is shown in Figure 3. After information has been collected and combined from the data sources indicated in the previous section, the variables are processed for subsequent steps. Statistical analysis is then undertaken based on the governing board characteristics. The final step comprises a linear regression model development to relate firm performance with the board characteristics and other variables. The following subsections focus on each of these steps in details.

5.1. Process Information

The information collected is augmented by the introduction of a new variable termed *Balance Ratio*. Let, BS, EB, and SM indicate the total board size, the number of executive board members and the number of senior management members in the governing body. Then *Balance Ratio (BR)* is as defined in Eq. 1.

$$BR = \frac{(EB + SM)}{BS} \quad (1)$$

Thus, *BR* represents the weight of Internal body in the governing body. *BR = 0* means the governing board consists only of external executive members, while *BR = 1* means the governing board consists only of internal members (in Executive and Senior Management roles). *BR = 0.5* implies a board having equal number of internal and external representations.

In Figure 4 (a), we show the cumulative distribution function for BR. As notable, only few companies have BR ≤0.45, a number of companies have BR within the range of 0.45 and 0.55, and majority of the companies have BR ≥ 0.55. To aid subsequent statistical analysis, we group the companies based on the values of BR. Eq. 2 indicates the labels of this grouping.

$$0.00 \le BR < 0.45 \Rightarrow EXTERNAL$$
$$0.45 \le BR \le 0.55 \Rightarrow BALANCED$$
$$0.55 < BR < 0.70 \Rightarrow MODERATELY\ INTERNAL$$
$$0.70 \le BR \le 1.00 \Rightarrow HEAVILY\ INTERNAL \quad (2)$$

We presume that, for $0.00 \le BR < 0.45$, activities of the governing board are heavily influenced by the external members due to their numbers exceeding that of the internal members (comprising of internal executives and senior management roles). So, we label these companies as *EXTERNAL*. For $0.45 \le BR \le 0.55$, the governing body comprises about equal number of internal and external members. So, these companies are labelled as *BALANCED*. All other companies are presumed to be influenced by the internal board members. We consider a further arbitrary threshold *0.7* for these companies. For companies having $0.55 < BR < 0.70$, we presume that the governing body is

generally impacted by the internal board members with the external members having some considerable influence. These companies are labelled as *MODERATELY INTERNAL*. On the other hand, for companies having BR $\geq$ 0.70, the governing body is presumed to be significantly impacted by the internal executive members and senior managements. So, these companies are labelled as *HEAVILY INTERNAL*.

Figure 4 (b) shows the number of companies in each of these groups. As notable, majority of the companies are *MODERATELY INTERNAL*. A considerable number of companies are *HEAVILY INTERNAL*. Only few companies are *EXTERNAL*, while the rest are *BALANCED*. In other words, for the publicly listed Australian IT companies, the governing bodies are generally influenced by the internal management. This is also indicated in Figure 4 (c), that indicates the mean and the median of *BR* to be respectively *0.63* and *0.67*. In addition to augmenting the dataset with the introduction of *BR*, we consider a set of variables as the firm-performance variables (i.e., response variables) for subsequent statistical analysis and model development. The variables are as shown in Table 4. As indicated, we consider the two Profitability information (*Profit Margin* and *Operating Margin*) and the two Management Performance information (*Return on Assets* and *Return on Equity*) as the firm-performance variables (response variables) in our research. The rest of the variables are considered as control variables. We recognize that the numerical values for the measured control variables (*Market Capitalization*, *Net Income Avl to Common*, *Total Cash*, *Total Debt*, *Book Value Per Share*, *Operating Cash Flow*, *Levered Free Cash Flow*) and the board structure (corporate governance) information vary considerably. So, to reduce bias in the model development, we normalize these variables for subsequent model development. For model development, we also use a new variable reflecting the 52 weeks percentage change in unit share price over the period 1 Jul 2010 to 30 Jun 2011, in lieu of the adjusted closing unit share price for these dates. For brevity, all the variables are referred to by a set of symbols in subsequent discussions. Table 4 also shows these symbols.

5.2. Statistical Analysis based on Balance Ratio Group

We consider the grouping based on *BR* and examine whether any statistically significant difference exists between these groups. As notable in Fig. 4 (b), the number of companies in these categories varies considerable, with majority of the companies belonging to the *MODERATELY INTERNAL* and *HEAVILY INTERNAL* groups. To aid statistical analysis, we combine the *EXTERNAL* and the *BALANCED* companies as one group (thus the group represents companies with *BR* $\leq$ *0.55*), and compare this combined group against the other groups.

Based on this modified grouping, statistically significant differences in values for the four response variables (*Profit Margin*, *Operating Margin*, *Return on Assets*, and *Return on Equity*; as indicated in Table 4) are considered. We also recognize that the number of available samples is low and a parametric test is not well-suited. So, the non-parametric Wilcoxon Signed Rank Test is utilized to identify statistically significant difference in median among these groups.

In Table 5, statistical significance for difference in median for the groups based on the two sided non-parametric Wilcoxon Signed Rank Test is presented. Difference significant at least 90% confidence levels are noted. For measures significant in two sided test, further test is performed to determine the sign. In Table 5, the '*' sign beside statistically significant outcomes indicates that the median for first group is significantly less than the second group. The numbers in bracket indicate the confidence levels at which the outcomes are significant.

We observe that, in terms of Profit Margin, the median value for the companies in the EXTERNAL and the BALANCED group are significantly lower (at 90% confidence level) than that for the HEAVILY INTERNAL group. In terms of Operating Margin and Return on Assets, the median values for the companies in the EXTERNAL and the BALANCED are also significantly lower than both the MODERATELY INTERNAL and HEAVILY INTERNAL groups, but at a stronger confidence level (95%). No significant difference exists among the internally controlled groups. Thus, for the chosen sample, the internally controlled companies appear to have performed significantly better, in terms of Operating Margin and Return on Assets, than the balanced and the externally controlled companies (having BR $\leq$ 0.55). In other words, the Australian IT companies having notable influence of external members in the governing body have tended to perform worse than the internally governed counterparts. We presume that this difference comes from the characteristics of IT industry. As indicated previously, the IT industry is a dynamically changing sector, imposing the need of rapid executive decision making to cope with the fast changing market environment. The companies having internal majority in the governing body are well-suited to this sort of sector, and we assume that this has been reflected in the test outcomes.

5.3. Linear Regression Model Development

In this section, we focus on relating the chosen performance variables to the control variables through a set of linear regression models. The goal is to examine which performance variables are influenced by any of the board characteristics information along with other information for a linear model assumption. The symbols indicated in the Table 4 are used to refer to these variables in subsequent discussion. The model is developed in two steps.

As indicated in Table 4, there are 22 control variables. In the first step of model development, we determine which of these 22 factors are important in influencing the values for each of the response variables. In other words, we perform a selection of predictors (control variables) for each of the predictands (response variables) in a linear regression model. For this, a model selection approach based on Akaike's Information Criteria (AIC) (Varmuza and Filzmoser, 2009; Venables and Ripley, 2002) is employed. The implementation in R (R Development Core Team, 2011) is used in this regard. The process is based on a combination of forward selection and backward selection strategy, and iteratively add predictors in the model or drop predictors from the model until a final model possessing the optimal reduction in AIC has been achieved.

In Table 6, the predictors thus chosen for each of the response variables (and a linear regression model structure) have been shown. As notable, different predictors have appeared in the final model for the different response variables. We particularly focus on the response variables for which the predictor set contains at least one of the board structure information. This is due to our objective of relating firm performance with the corporate governance characteristics. We observe that the response variable RA (Return on Assets) do not consider any of the corporate governance information, while all the other 3 response variables contains at least one of the corporate governance characteristics in the predictor sets. We conclude that, for a linear parametric model assumption and the Australian IT companies, the Return on Assets is negligibly impacted by the firm's board characteristics. We note that the number of senior management members in the governing body (SM), a board characteristic information, has appeared in the predictor set of all the other 3 response variables. This implies, the number of members in such role has a notable impact in characterizing the firm's performance in terms of Profit Margin, Operating Margin and Return on Equity. The number of external members and the Balance Ratio also appear in the predictor sets for Operating Margin and Return on Equity, implying stronger effect of board characteristics on these two performance measures.

In the second step of model development, we determine the parameters of the linear regression models relating each of the response variables with the predictor set determined in the previous step. We consider only the three response variables influenced by board characteristics. Thus, we derive coefficients for the following 3 linear models:

Figure 3. Research framework utilized in analysis

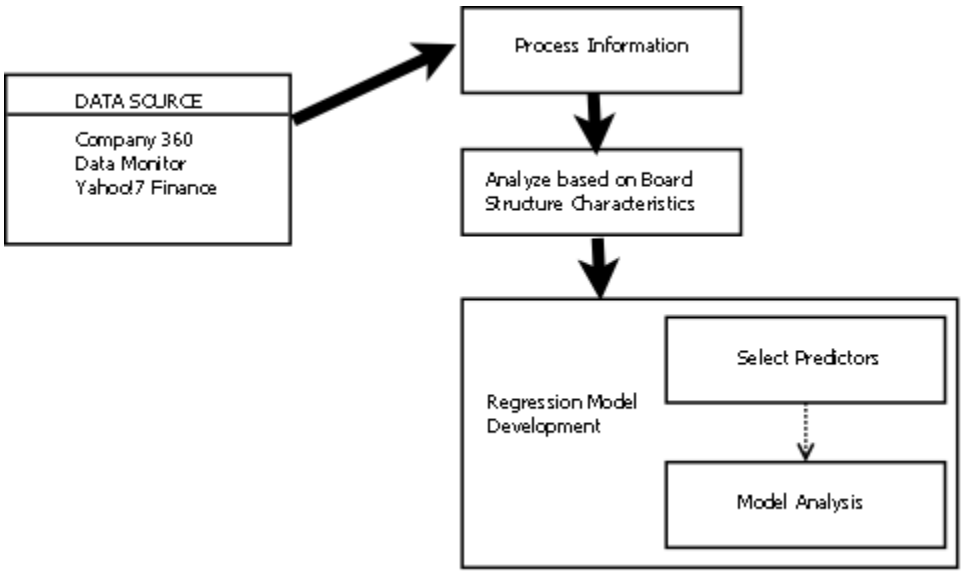
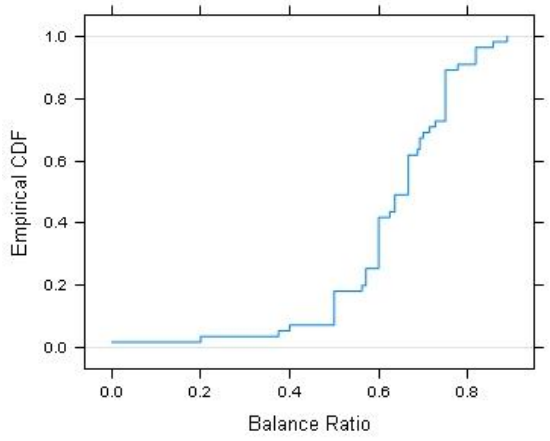
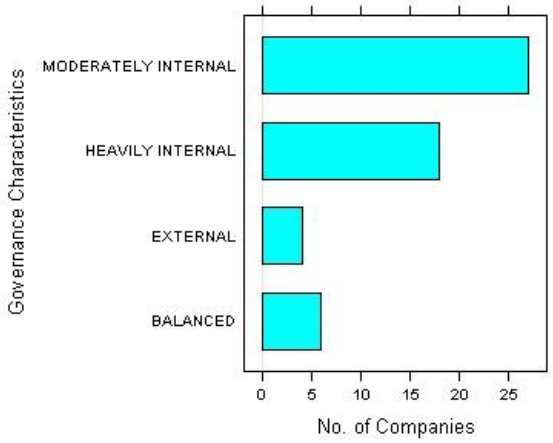


Figure 4. (a) Empirical Cumulative Distribution Function (CDF) for *Balance Ratio* (*BR*);
(b) Number of companies grouped by board governance characteristics (as per Eq. 2);
(c) Summary statistics for *Balance Ratio*



(a)



(b)

Minimum	1st Quartile	Median	Mean	Standard Deviation	3rd Quartile	Maximum
0.00	0.59	0.67	0.63	0.15	0.75	0.89

(c)

Table 4. Variables considered as control variables (predictors) and response variables (predictand) in regression model along with the symbols used to denote in subsequent analysis

Control Variables		Response Variables	
Variable	*Symbol*	*Variable*	*Symbol*
Market Capitalization (normalized)	*MCap*	Profit Margin	*PM*
No. of Employees (normalized)	*NEmp*	Operating Margin	*OM*
No. of Executive Board Members (normalized)	*EB*	Return on Assets	*RA*
No. of Non Executive Board Members (normalized)	*NEB*	Return on Equity	*RE*
No. of Senior Management Members (normalized)	*SM*		
Total Board Size (normalized)	*BS*		
Balance Ratio	*BR*		
Price/Sales Ratio	*PbS*		
Price/Book Ratio	*PbB*		
Enterprise Value/Revenue	*EVbR*		
Enterprise Value/EBITDA	*EVbE*		
Revenue Per Share	*RvS*		
Quarterly Revenue Growth	*QR*		
Net Income Avl to Common (normalized)	*NI*		
Current Ratio	*CR*		
Total Cash (normalized)	*TC*		
Total Debt (normalized)	*TD*		
Total Debt/Equity	*TDbE*		
Book Value Per Share (normalized)	*BvS*		
Operating Cash Flow (normalized)	*OC*		
Levered Free Cash Flow (normalized)	*LC*		
52 Weeks Percentage Change in Share Price	*SP*		

Table 5. Statistical significance test outcomes; '*' indicates that the median for first group is significantly less than that for the second group

	EXTERNAL + BALANCED *MODERATELY INTERNAL*	*EXTERNAL + BALANCED* *HEAVILY INTERNAL*	*MODERATELY INTERNAL* *HEAVILY INTERNAL*
Profit Margin	insignificant	significant (90%) *	insignificant
Operating Margin	significant (95%) *	significant (95%) *	insignificant
Return on Assets	significant (95%) *	significant (95%) *	insignificant
Return on Equity	insignificant	insignificant	insignificant

Table 6. Important predictors based on Akaike's Information Criteria in linear predictive models for the response variables

Initial Predictors	Response Variable	Final Predictors
NEmp, EB, NEB, SM, BS, MCap, PbS, PbB, EVbR, EVbE, RvS, QR, NI, TC, TDbE, TD, CR, BvS, OC, LC, SP, BI	*PM*	*SM, PbS, PbB, RvS, QR, NI, TD, BvS, SP*
	OM	*NEB, SM, MCap, PbB, EVbR, TDbE, CR, BI*
	RA	*MCap, PbS, PbB, EVbR, RvS, QR, NI, TC, BvS, OC, SP*
	RE	*NEB, SM, PbB, RvS, QR, NI, TD, BvS, OC, LC, SP, BI*

Profit Margin is found to be related with the number of senior management personnel, along with two valuation information (Price/Sales Ratio, Price/Book Ratio), all income information (Revenue Per Share, Quarterly Revenue Growth, Net Income Avl to Common), two balance sheet information (Total Debt, Book Value Per Share) and 52 weeks change in share price. The model is as follows:

$$PM = \alpha_1 SM + \alpha_2 PbS + \alpha_3 PbB + \alpha RvS + \alpha_5 QR + \alpha_6 NI + \alpha_7 TD + \alpha_8 BvS + \alpha_9 SP + \beta \quad (3)$$

Operating Margin is found to be related with three board characteristics (number of senior management and non-executive personnel, balance ratio) along with three valuation information (Market Capitalization, Price/Book Ratio, Enterprise Value/Revenue) and two balance sheet information (Total Debt/Equity, Current Ratio) and 52 week change in share price. The model is as follows:

$$OM = \gamma_1 NEB + \gamma_2 SM + \gamma_3 MCap + \gamma_4 PbB + \gamma_5 EVbR + \gamma_6 TDbE + \gamma_7 CR + \gamma_8 BI + \delta \quad (4)$$

Return on Equity is related with three board characteristics (number of senior management and non-executive personnel, balance ratio) along with one valuation information (Price/Book Ratio), all income information (Revenue Per Share, Quarterly Revenue Growth, Net Income Avl to Common), two balance sheet information (Total Debt, Book Value Per Share), both the cash flow information

(Operating Cash Flow, Levered Free Cash Flow) and 52 weeks change in share price. The model is as follows:

$$RE = \eta_1 NEB + \eta_2 SM + \eta_3 PbB + \eta_4 RvS + \eta_5 QR + \eta_6 NI + \eta_7 TD + \eta_8 BvS + \eta_9 OC + \eta_{10} LC + \eta_{11} SP + \eta_{12} BI + \zeta \quad (5)$$

For each of these models, the parameters are learnt using the Ordinary Least Squares strategy implemented in R (R Development Core Team, 2011). The coefficients determined are respectively as shown in Table 7, 8 and 9. The tables also report the standard error, t-statistics and p-value associated with each of the coefficient estimates. We observe that:

For Profit Margin model (Eq. 3, Table 7), of the 10 estimates, 8 are significant at the 90% confidence level. Particularly noticeable is the p-value associated with the Price/Sales Ratio. The corresponding coefficient estimate is significant at 99.9% confidence level, implying that Price/Sales Ratio impose a significant contribution in characterizing Profit Margin. Revenue Per Share, Net Income Avl to Common and Total Debt are also significant at 99% confidence level, while 52 weeks change in share price is significant at 95% confidence level. The only board characteristic in the model, the number of senior management members (SM), is significant at the 90% confidence level. The multiple R-squared value for the model is 0.752, implying that 75.2% variance in the dependent variable (Profit Margin) is explained by the estimated model.

For Operating Margin model (Eq. 4, Table 8), a notable observation is all the estimates are significant at 95% confidence level, with the estimates for Market Capitalization, and Enterprise Value/
Revenue significant at 99.9% confidence, and Total Debt/Equity and Price/Book Ratio significant at 99% confidence levels. The estimates of all the three board characteristics (number of senior management members, number of non-executive personnel, and Balance Ratio) are significant at the 95% confidence level. We further observe that the multiple R-squared value for the model is 0.927, implying that 92.7% variance in the dependent variable (Operating Margin) is explained by the estimated model.

Table 7. Estimates for the linear predictive model of profit margin (PM) as in Eq. 3

Variable	Coefficients (β, α_1, α_2, . . . , α_9)	Std. Error	t-statistics	Prob. (>|t|)
(Intercept)	12.1694	6.9141	1.76	0.0880 ^
SM	8.2775	4.7115	1.76	0.0885 ^
PbS	-19.5626	3.0726	-6.37	3.8e-07 ***
PbB	4.5075	3.0476	1.48	0.1489
RvS	-20.2346	5.9977	-3.37	0.0020 **
QR	0.0929	0.0468	1.98	0.0559 ^
NI	23.6806	6.5925	3.59	0.0011 **
TD	-0.2508	0.0895	-2.80	0.0085 **
BvS	11.0220	6.8011	1.62	0.1149
SP	0.1837	0.0727	2.53	0.0167 *
Multiple R-squared: 0.752				

***p < 0:001,** p < 0:01,*p < 0:05,^p < 0:1

Table 8. Estimates for the linear predictive model of operating margin (*OM*) as in Eq. 4

Variable	Coefficients (δ, γ_1, γ_2, . . . , γ_8)	Std. Error	t-statistics	Prob. (>|t|)
(Intercept)	282.83	92.46	3.06	0.00418 **
NEB	40.75	18.77	2.17	0.03661 *
SM	40.10	17.76	2.26	0.03008 *
MCap	51.14	10.93	4.68	4.0e05 ***
PbB	17.75	6.02	2.95	0.00555 **
EVbR	8.89	1.97	4.51	6.6e05 ***
TDbE	35.12	9.48	3.70	0.00071 ***
CR	16.38	6.18	2.65	0.01188 *
BI	321.50	140.26	2.29	0.02785 *
Multiple R-squared: 0.927				

***p < 0:001,** p < 0:01,*p < 0:05,^p < 0:1

For *Return on Equity* model (Eq. 5, Table 9), of the 13 estimates, 11 are significant at the 90% confidence level. Estimates for *Price/Book Ratio*,*Net Income Avl to Common* and both the cash flow information (*Operating Cash Flow*,*Levered Free Cash Flow*) are significant at 99.9% confidence level, while Total Debt and 52 weeks change in share price (*SP*) are significant at 99% confidence level. Thus, these variables have a strong influence in characterizing Return on Equity. Of the three board characteristics in the model, estimates for both the number of senior

management members and number of non-executive personnel are significant at 95% confidence, while *Balance Ratio* is significant at 90% confidence levels. The multiple R-squared value for the model is 0.882, implying that 88.2% variance in the Return on Equity is explained by the estimated model.

We explore the model analysis further by taking advantage of a recently proposed robust method to conceptualize the relative importance of the predictors in a linear regression model. The method, termed *CAR* (Zuber and Strimmer, 2010, 2011), decomposes the variance explained by the model into relative contribution for each of the predictors, and also group correlated and down-weigh contrasting explanatory variables, resulting in a robust canonical reordering of the predictors. Table 10 reports the relative importance for the predictors for each of the response variables.

We observe that the number of senior management members in the internal governing body has at least 2% importance in characterizing all the three linear models. The model for *Profit Margin* comprises only this board characteristic variable in its set of predictors and the relative importance of this control variable is 14%. The importance of the other two board characteristics in the other two models, however, are negligible, with *Balance Ratio* having more influence than the number of non-executive members.

Overall, the outcomes indicate that, for the publicly listed Australian IT companies, the number of members in the senior management role have greater influence on firm performance than the board composition structure. Further, the number of non-executive members has very minor influence. The results are consistent with the analysis outcomes in Section 5.2, and we attribute the characteristics of these outcomes to the dynamic properties of the IT industrial sector.

6. Conclusion

This article has related the board characteristics of publicly listed Australian IT companies to the firms' performance. Four performance measures: *Profit Margin*, *Operating Margin*, *Return on Assets* and *Return on Equity* have been considered. *Balance Ratio*, a proposed statistic reflecting the weight of internal management personnel in the governing body, has been utilized in categorizing the chosen companies. Performance difference among the groups have been examined. The results reveal that companies with higher degree of board independence (i.e., *EXTERNAL* and *BALANCED* companies, as defined in Section 5.1) have performed significantly worse than companies with more internal control (i.e., *MODERATELY INTERNAL* and *HEAVILY INTERNAL* companies, as defined in Section 5.1) in terms of *Operating Margin* and *Return on Assets*. Also, in terms of *Profit Margin*, the *EXTERNAL* and *BALANCED* companies have performed significantly worse (at 90% confidence level) than the *HEAVILY INTERNAL* companies. The results, therefore, reflect that increased presence of external auditors negatively affect the performance of Australian publicly listed IT companies. It is notable that, this result also coincides with similar outcomes from investigations carried out for firms at different sectors within the Australian context (as highlighted in Section 2).The article, further, relates the firm performance measures to the board characteristics (in terms of board composition and *Balance Ratio*) and other information through a set of linear regression models. As there are a number of predictors, a model selection strategy based on Akaike's Information Criteria has been performed and the performance measures that are parametrically related to the board composition and *Balance Ratio* have been considered. Based on this, parametric linear model for the *Profit Margin*, *Operating Margin*, and *Return on Equity* have been developed. Relative importances of the predictors in the final models have also been analyzed. The analysis reveals that the number of personnel in *Senior Management* role is a considerable board characteristic factors in all the regression models. The number of independent members and the *Balance Ratio*, however, have negligible impact. The other board characteristics like the number of executive board members and the total board-size do not appear as significant predictors in any of the models. The analysis results again highlight the limited impact of board independence on firm performance for the publicly listed Australian companies. We presume that the dynamic nature of IT sector, that requires rapid decision making in a fast changing operational environment and are well-suited for internally controlled business operations, have caused these outcomes.

Table 9. Estimates for the linear predictive model of return on equity (RE) as in Eq. 5

Variable	Coefficients (ζ, η_1, η_2, . . . , η_{12})	Std. Error	t-statistics	Prob. (>|t|)
(Intercept)	155.4315	61.0776	2.54	0.01613 *
NEB	-26.6372	11.7698	-2.26	0.03077 *
SM	25.8928	9.8971	2.62	0.01362 *
PbB	-13.7644	1.3682	-10.06	2.8e-11 ***
RvS	7.9115	5.7534	1.38	0.17895
QR	-0.0753	0.0593	-1.27	0.21401
NI	38.2189	6.2183	6.15	8.1e-07 ***
TD	-0.5347	0.1864	-2.87	0.00737 **
BvS	-13.4692	7.7499	-1.74	0.09214 ^
OC	42.9309	11.8045	3.64	0.00099 ***
LC	-59.6697	14.8107	-4.03	0.00034 ***
SP	0.2464	0.0798	3.09	0.00424 **
BI	-183.2472	93.8199	-1.95	0.05988 ^
Multiple R-squared: 0.882				

***p < 0:001,** p < 0:01,*p < 0:05,^p < 0:1

Table 10. Relative importance for the predictors in the linear regression models

Response Variable	Relative Importance		Proportion of Variance Explained (%)
	Control Variable	Importance (%)	
PM	*SM*	14.51	75.20
	PbS	34.89	
	PbB	2.18	
	RvS	1.98	
	QR	0.18	
	NI	28.84	
	TD	1.40	
	BvS	5.69	
	SP	10.34	
OM	*NEB*	0.01	92.75
	SM	2.00	
	MCap	5.47	
	PbB	29.45	
	EVbR	51.99	
	TDbE	10.08	
	CR	0.47	
	BI	0.54	
RE	*NEB*	0.002	88.20
	SM	5.92	
	PbB	48.48	
	RvS	3.96	
	QR	4.48	
	NI	20.16	
	TD	0.10	
	BvS	0.81	
	OC	2.76	
	LC	3.33	
	SP	9.82	
	BI	0.18	

The results suggest that there exist no convincing evidence of a strong positive and significant relationship between independent directors and corporate performance in IT sector in Australia. Our finding is consistent with a number of other Australia studies such as Lawrence and Stapledon (1999) who argue that more independent board members could perform some functions better but possibly destroy value in many other ways; resulting no net benefit to the company in terms of better monitoring, quick response and/or effective decision making. It could also be argued that fast growing companies in IT may benefit from lower proportion of independent directors but with higher number of senior management and executives who can facilitate quick decision making and provide expert advice in a short period of time. As opposed to this, Bhagat and Black (1998) note that low-growing companies may require high proportion of independent director to control abuses related to free cash flow by executives and to ensure that such funds are reinvested back into the company.

Overall, the article has contributed an understanding of the impact of governing board composition and structure on performance for the publicly listed Australian companies. In a later research, we expect to investigate the negative or

limited influence of board independence on performance for companies within this sector in further details.

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IPO RETURNS, BOARD COMPOSITION AND COMMITTEE CHARACTERISTICS: SOME AUSTRALIAN EVIDENCE OF SIGNALLING ATTRIBUTES

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Abstract

This study considers the association between corporate governance attributes and IPO return behaviour in the Australian share market. Strong, significant associations are reported between IPO initial returns and board size, board independence and leadership structure. The board size effect appears contextual and increases with larger entity size. Audit committee formation per se was not a discriminating factor but committee conformity with exchange guidelines was of marginal significance. Overall, the results are consistent with the premise that governance attributes can offer signals to investors concerning the likely effectiveness of management actions in serving shareholder interests and enhancing firm prospects.

Keywords: Committee, Governance, IPO, Pricing, Returns, Signal

JEL Classification: G12, G39, M41

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1. Introduction

The association between corporate governance attributes and firm value has been considered in the literature yet there appears good scope to further clarify the relationship within particular contexts that provide a contrast with the more conventional research. This paper investigates corporate governance attributes disclosed during the initial public offer (IPO) process and the extent to which such attributes may be associated with the perceived value of the firm as reflected by pricing and return behaviour at the time of listing. Information about board size, composition or other governance attributes may serve to signal firm qualities not otherwise readily observable with unseasoned share floats and thus provide a mechanism for investors to better gauge the underlying uncertainties or future prospects of such firms. Other things being equal, differences in the perceived quality of governance amongst firms should be reflected into differential effects upon share price, firm value and returns.

Corporate governance attributes and IPO return behaviour are investigated using a sample of IPO firms listing on the Australian Securities Exchange (ASX). A number of governance attributes are modelled to investigate their possible association with IPO initial returns. The size of the board of directors, the proportion of independent directors on the board, the relationship between chief executive officer (CEO) and board chairman, and the nature of audit committee constitution are the key indicators of governance reported upon in this study.

Using a multiple linear regression modelling framework with controls for other key factors of potential IPO pricing relevance described previously in the literature, the results indicate that particular corporate governance features are associated with IPO initial returns. Strong, significant associations are reported between IPO initial returns and board size, board independence and separation of CEO/chairman. Board size effects increase with firm size. Audit committee existence is not shown to be a relevant factor *per se*, but the results do suggest that audit committee propriety is relevant in the broader context of compliance with stock exchange guidelines regarding audit committees.

Overall, the results are consistent with the premise that particular corporate governance attributes serve to mitigate information asymmetries and are perceived by investors to offer signals concerning the likely effectiveness of management actions in serving shareholder interests and enhancing the future prospects of the firm. Consequently this study contributes to the

literature by (i) documenting a contemporary analysis of corporate governance attributes disclosed in a particular institutional context, namely the corporate primary equities market in Australia (ii) offering further insight into the IPO mispricing phenomenon by reporting the relevance of certain corporate governance attributes to the IPO valuation process as reflected through initial returns at listing and (iii) informing the generality or otherwise of various research outcomes reported in the prior corporate governance literature but within settings distinguishable from the present study of IPOs, such prior studies involving seasoned share issues or the ongoing performance of mature firms.

The remainder of the paper has four main sections. First, the background literature is reviewed and hypotheses formulated. Second, data and methodology are explained. Third, the study's results are presented and discussed. Finally, limitations and conclusions are summarised.

2. Background and Hypotheses

Various economic models have proposed that firms with news considered favourable to market value will publish and emphasise such information when the perceived benefit exceeds the cost and a net upward value revision is expected. Lesser-disclosing firms will be judged of lower quality and valued downwards (Verrecchia, 1983; Trueman, 1986). Theoretical models pertaining to the signalling role of specific types of information have been explored, such as the positive signal of higher retained equity by owners floating a firm (Leland and Pyle, 1977; Hughes, 1986) and the possible role of earnings forecast disclosure in reducing information asymmetries during the IPO process (notably Verrecchia, 1983; Trueman, 1986; Clarkson et al., 1992; Firth, 1998; How and Yeo, 2001; Jog and McConomy, 2003; Hartnett, 2010). Further empirical evidence of the association between disclosure levels, reduced information asymmetry and equity returns can be observed in the literature across a range of contexts, such as with Marquardt and Wiedman (1998), Lang and Lundholm (2000), Healy and Palepu (1993, 2001), Zhang and Ding (2006) and Eaton et al. (2007).

Information asymmetry and signalling phenomenon have also been linked to the nature of firms' corporate governance structures, whereby information about the board of directors, audit committee, CEO role or other elements of governance has been posited to signal a range of underlying company characteristics of relevance to investors and thereby help to reduce such asymmetry. For example, associations have been reported between board and audit committee attributes and the underlying quality of financial reporting (Haniffa and Cook, 2002; Felo et al., 2003; Peasnell et al., 2005), reliability of earnings forecasts (Karamanou and Vafeas, 2005), risk of earnings manipulation (Dechow et al., 1996; Klein, 2002b; Koh et al. 2007), propensity towards company fraud (Beasley, 1996; Farber, 2005) and level of debtholder risk (Anderson et al., 2004).

The relationship between corporate governance attributes and a company's economic wellbeing is not overly clear and the literature has documented conflicting research findings. Regarding the relevance of board size, Yermack (1996), Eisenberg et al. (1998) and Mak and Kusnadi (2005) report a negative association between board size and firm performance as measured through various financial ratios, supportive of the notion that larger boards may actually hinder a director's effective contribution to firm governance because they become more cumbersome, they reduce individual opportunity to discuss matters during the limited time available at meetings and they increase the likely dominance of executives (notably the CEO) when key resolutions are required. Nevertheless, others have concluded a positive or neutral relationship between board size and the firm's economic wellbeing. A positive association is inferred from the observed link between board size and lower propensity towards financial statement fraud (Beasley, 1996). Also, Klein (2002a) indicates that larger boards should permit more optimal board and sub-committee work allocation and thus better monitoring, whilst Xie (2010) reports a positive association between board size and return on assets for 'moderate'-sized boards of Tokyo-listed firms.[15] No significant relationship could be found between board size and abnormal share returns associated with seasoned issues of USA-listed firms (Becker-Blease and Irani, 2008), nor between board size and return on assets for Dhaka-listed firms studied by Rouf (2011). Other research has suggested that board size 'optimality' may be contextual and perhaps contingent upon such things as advising or monitoring needs of the firm so that, for example, larger boards might tend to benefit rather than hinder larger or more highly levered firms in need of greater advisory support from their boards (Coles et al., 2006; Raheja, 2005).

Regarding board independence and economic performance, the reported evidence is again mixed. Some studies have found support for the premise that greater independence signals better

[15] Xie distinguished 'moderate' and 'larger' board sizes, with 'moderate' modelled as less than 25 members and thus these boards are of an order consistent with the studies of Yermack (1996), Eisenberg et al. (1998) and Mak and Kusnadi (2005) noted above [with maximum board sizes 24, effectively 9 (maximum not reported), and 14 members, respectively in those three studies]. For larger boards (greater than 25 members), Xie reports a negative association between board size and return on assets.

management and company performance (Byrd and Hickman, 1992; Beasley, 1996; Cotter et al., 1997; Farber, 2005; Becker-Blease and Irani, 2008) yet others have reported either a negative relationship (Klein, 1998; Kiel and Nicholson, 2003) or no relationship (Hermalin and Weisbach, 1991; Bhagat and Black, 2002).

Leadership structure has been considered in the literature via the 'duality' of chief executive officer (CEO) and board chairman roles (that is, separation of leadership as distinct from a unitary leadership structure). Some researchers have reported a positive association between separation of the roles, reduced agency conflicts and thus likely better firm performance (Yermack, 1996; Collier and Gregory, 1999; Farber, 2005; Rouf, 2011). Other research has not been able to confirm an association (Daily and Dalton, 1992; Kajola, 2008).

The possible relevance of audit committee attributes has also been explored in the literature. Notably, Becker-Bleese and Irani (2008) report a significant association between audit committee size and abnormal returns of equity during seasoned share issues, but no association with committee independence. Rouf (2011) reports no significant association between a firm's financial performance and the existence of an audit committee. The studies by McMullen (1996), Klein (2002b), Anderson et al. (2004), Davidson et al. (2005) and Farber (2005) each provide evidence to support the premise that audit committee propriety (via independence) can signal the lower likelihood of earnings manipulation, fraudulent behaviour and/or lower debtholder risk.

This literature has focussed predominantly upon firms that possess an established trading history and the research has been conducted in the context of their annual or other periodic financial performance and the nature of the corporate governance structures in place. Some other studies have investigated the incidence of corporate governance features in the context of IPOs but they do not address pricing or valuation, such as Mak and Roush (2000) and Dimovski and Brooks (2004). Of the apparent few studies considering corporate governance and value relationships in the context of the equity issuance process, the focus has been upon seasoned issues, not IPOs. For example, Becker-Blease and Irani (2008) find governance attributes such as board independence and audit committee size to be relevant in mitigating the negative effects of equity offering announcements in seasoned-offer firms.

Thus the literature appears far less informed about the possible relationship between corporate governance attributes and firm value in the context of unseasoned (IPO) equity issues. The broader IPO pricing literature has sought to resolve questions associated with information asymmetry and float valuation and it is generally accepted that the ex-ante uncertainty surrounding an unseasoned share float is closely associated with the extent to which float market values differ from the firm's prospectus pre-listing subscription or 'book' value (i.e. the mispricing of the float), with market values at listing generally materially higher than subscription book values where ex-ante uncertainty is relatively high (Ritter, 1984; Rock, 1986; Beatty and Ritter, 1986). Numerous studies have investigated a range of firm characteristics and potential signalling behaviours that may help to discriminate differential float uncertainty and so help to explain cross-sectional variation in IPO mispricing. These factors have not included conventional corporate governance attributes such as those discussed earlier in this section, but have usually included IPO features such as firm size, business age, listing delay, vendor retained ownership and growth prospects, amongst others. This broader IPO pricing literature is acknowledged more fully in the next section during our discussion of modelling control variables and associated methodology in our study.

Our paper investigates the possible association between IPO mispricing (and thus a float's first-day returns upon listing) and five attributes of corporate governance discernible from the firm's offer document published during the issuance process. These attributes are: the size of the board of directors, the duality (separation) of CEO and board chairperson roles, degree of board independence, audit committee formation and audit committee propriety (i.e. whether the committee accords with stock-exchange guidelines[16]).[17] Stated in null form the hypotheses are as follows:

H1: There is no association between float returns and board size.

[16] The ASX recommends all firms admitted to the list should establish an audit committee and that committee composition should preferably comprise at least three members, only non-executive directors, a majority of independent directors and an independent chairman who is not chairman of the board (ASX Corporate Governance Principles and Recommendations 4.2 and 4.3). If the firm ultimately forms part of the top-500 listed entities after admission, it will be required to establish an audit committee and will be required to comply with composition requirements if part of the top-300.

[17] A number of other governance attributes were considered for investigation during the preliminary stages of this research yet they proved unremarkable in their associations with float pricing and for brevity have not been elaborated upon. Such attributes include audit committee size and the type and number of audit committee departures from stock exchange guidelines. These attributes are simply noted here and do not form part of the more detailed modelling or analyses.

H2: There is no association between float returns and the duality of CEO and board chairman roles.

H3: There is no association between float returns and board member independence.

H4: There is no association between float returns and existence of an audit committee.

H5: There is no association between float returns and propriety of audit committee formation.

3. Data and Method

IPO financial data was derived in the first instance from a 2003-2004 IPO data set compiled by Hartnett and Crawford (2011).[18] This data records IPOs registering with the Australian Securities and Investments Commission over the two year period from 2003 to 2004. The financial data was then augmented with corporate governance data for the purposes of this study. Database providers Connect4, Aspect FinAnalysis and Bridge DFS were used to source prospectus and share price data.

Consistent with many studies of IPO pricing behaviour in the Australian context (such as How and Yeo, 2001; Lee et al., 2003; Chapple et al., 2005; Hartnett, 2010), only companies ultimately listing on the ASX were included. Also, mining and utility firms were excluded from the sample for they typically supply little financial or trading data and their pricing behaviour is often determined by quite specific commodity-market factors (42 firms). Exchange-traded trusts, previously listed firms, foreign-listed firms and debt or hybrid issues were excluded for they did not truly represent corporate, unseasoned, equity issues (28 entities). A number of other firms with incomplete or otherwise anomalous data were also excluded (24 firms where financial or governance features were alluded to, yet were not ultimately verifiable, such as the age of the underlying business, audit committee formation or composition, etc). Thus from an overall 196 IPOs initially identified, 102 IPOs were studied here. This sample is not large yet the data was revealed to be well-distributed across the categories or values for each variable and a number of diagnostic tests corroborated the veracity of modelling assumptions. These are discussed in more detail later in this section. The period of study also benefits from its natural filtering effects (for example, the sample positioned outside periods of broader market aberrations that might otherwise unduly influence return behaviour, such as the dot.com bubble of 1999-2000 and the global financial turmoil observed since 2008).

A number of control variables were considered for inclusion to assist with better isolating the return effects peculiar to the governance factors modelled in this study. IPO listing returns might be driven by a number of specific factors affecting the subscription 'book' price and/or the actual listing price achieved on the day. Reasons for differences between the two prices have been explored and a number of theories or propositions discussed in the literature. For example, higher returns might result from a lower subscription price orchestrated by float promoters to compensate investors for risk, or from heightened listing price pressure brought about by an unexpectedly high confidence or popularity in the float deriving from other signals of quality perceived to be relevant by investors. A discussion of the key control variables follows.

It is generally accepted that ex-ante uncertainty is associated with float pricing (Ritter, 1984; Rock, 1986; Beatty and Ritter, 1986) and in this study key proxies for ex-ante uncertainty include growth potential (Lee et al., 1996; How and Yeo, 2001) and length of trading history (How et al., 1995; Chapple et al., 2005). In addition and consistent with Downes and Heinkel (1982), Clarkson et al. (1992), How and Yeo (2001) and Chapple et al. (2005), float 'book value' (i.e. total shares on issue after the float *x* subscription price) is included as a control for issue size. Auditor reputation (Titman and Trueman, 1986; Beatty, 1989; Lee et al., 2003; Micahely and Shaw, 1995; How and Yeo 2001), underwriting the float (Beatty and Ritter, 1986; How et al., 1995) and proportions of vendor/management retained ownership (Clarkson et al., 1992; Hughes, 1986; Lee et al., 2003; Li and McConomy, 2004) have been posited in the prior literature to signal float quality and thus controls were included here when formulating the model. Industry type has also proxied for float uncertainty in prior studies (Jog and McConomy, 2003) and so controls were initiated for the major industry groups in the sample: Industrials, Discretionary Consumables, Financials, and Information Technology. A control for float motive was also included for we posit that the purpose of the capital-raising (e.g. funding new ventures or simply a capital restructure) should help to inform investors as they assess the risk associated with the business' future revenue and earnings streams (Jog and Riding, 1987; Hartnett and Römcke, 2000; Jog and McConomy, 2003).

Listing delay between prospectus lodgement date and the firm's actual listing date serves to proxy subscription demand, for shorter listing times imply higher-demand and potentially higher initial market valuation whereas the reverse is posited for longer listing times (Rock, 1986; Lee et al., 1996; How and Yeo, 2001). This control also serves to

[18] The data derives from material compiled by them for other unpublished share float research in progress. Access to this financial data subset is acknowledged and appreciated.

proxy shorter-term 'hot issue' styled effects that may be present. We also model a dummy variable to control for the treatment of possible oversubscriptions, as floats not permitting oversubscription should, ceteris paribus, experience higher upward pricing pressures than those floats where oversubscriptions are permitted and additional shares are issued. Finally, the study also controls for market sentiment effects by modelling an adjustment for market rates of return observed over the period from prospectus lodgement date to end of trade on the first day of listing, (How et al., 1995; Hartnett, 2010).[19]

Multiple linear regression techniques were used to test the hypotheses. Preliminary analyses revealed several of the selected control variables to be unremarkable contributors to the explanatory power of the regression model in this study and so effectively had no bearing upon the associations reported for the corporate governance variables or remaining control variables. Further analyses via step-wise and other alternative regression models indicated these variables could be omitted from the final regression modelling reported in Table 4, thereby reducing the number of variables, tightening the regression and enabling a more succinct explication of results. To this end, the auditor, underwriter and industry variables were omitted. The regression output remained qualitatively the same yet offered a more concise 'parsimonious' account of the study and with a higher adjusted-R^2. Specification of the final regression model variables is provided in Table 1 and univariate, descriptive statistics for the reported regression models are summarised in Table 2.[20]

Table 2 shows the mean and median IPO first-day market-adjusted returns were 12.9% and 8.1% respectively, indicating that the floats were generally underpriced and so exhibiting the mispricing behaviour commonly documented in the IPO literature. Whilst the sample is not particularly large in this study, Table 2 reveals the variables to be well-distributed across categories or values, facilitating confidence in a robust regression model amenable to serviceable regression output. Further, *p*-values are reported after using heteroskedasticity-corrected 'robust' standard errors to derive Student-t statistics (White, 1980). Diagnostic tests also confirmed the tenability of assumed residual normality. Multicollinearity problems were not indicated, with pair-wise correlations only low to moderate and well within thresholds of acceptability. These are reported in Table 3.[21]

4. Regression Results and Discussion

Table 4 summarises the regression output. Regression coefficients and two-tailed *p*-values are shown for the variable included in each model. The results for six alternative models are shown, starting with a basic model where no corporate governance attributes are explicitly modelled (Model 1). The first regression model's F-statistic is statistically significant. The adjusted-R^2 of 0.275 is not immaterial but the lowest of the six models. Regression coefficients for the size of the issue (SIZE), business age (AGE), listing delay (DELAY), provision for oversubscription (OVER) and float motive (MOTIVE) are all statistically significant. The retained ownership (RETAIN) and growth prospects (GROW) variables are not significant. The intercept term is statistically significant in this model (i.e. inferring the intercept is different from zero) and thus represents a material, fixed component of IPO returns not 'explained' through cross-sectional variation in that particular regression.

[19] In the absence of trading data and thus beta proxies for each float prior to listing, unadjusted market returns are applied rather than risk-adjusted returns.

[20] A number of other variations to the model were tested. The modelling of the auditor reputation, underwriter and industry variables were noted earlier. In addition, alternative regressions included controls for forecast publication, float tendering (e.g. book-building approaches versus set price) and leverage effects. Statistical significance was not observed amongst these variables and the key regression outcomes remained qualitatively the same as those reported in this paper.

[21] Regarding multicollinearity, low variance inflation factors and correlation eigenvalues corroborated the robustness of the model here. For more on these multicollinearity tests, see Chatterjee and Price (1977, pp.155-163, 182-183, 199-200) and Bowerman et. al. (1986, pp. 300-315).

Table 1. Specification of Variables

Variable	Denoted by	Specification
Dependent Variable		
Market-adjusted Rate of Return of the Equity Offering at Listing	RETURN	Float firm's ordinary equity rate of return modelled from offer price and first-day listing closing price, adjusted for market rate of return from prospectus date to listing date as proxied by All Ordinaries Accumulation index and assuming continuous compounded returns.
Independent Variables		
Issue size	SIZE	Natural log of [(Total number of shares x offer price per share) i.e. 'book value' of the floated company equity in $m].
Operating history	AGE	Natural logarithm of number of years from the commencement of the underlying business to lodgement of the prospectus.
Listing delay	DELAY	Natural logarithm of number of days between prospectus date and listing on ASX.
Provision for oversubscription	OVER	Categorical variable of value 1 if the float permitted oversubscription (otherwise 0).
Float motive	MOTIVE	Categorical variable of value 1 if primary purpose of float was expansion (otherwise 0 e.g. capital restructure).
Retained ownership	RETAIN	1 - (Total shares offered to the public ÷ Total shares post-listing).
Growth prospects	GROW	1 – (Net tangible assets per share ÷ Offer price).
Board size	BOARD	Number of directors on the firm's board.
Relationship between CEO and board chair	CEO	Categorical variable of value 1 if chief executive officer also board chairman at listing (otherwise 0).
Independence of directors	INDEP	Proportion of board of directors deemed independent (as reported or otherwise proxied by non-executive status).
Audit committee exists	CMTEE	Categorical variable of value 1 if audit committee has been formed (otherwise 0).
Audit committee propriety	CMPLY	Categorical variable of value 1 if audit committee constituted according to ASX guidelines (otherwise 0).

Table 2. Descriptive Statistics*

Variable	Mean	Median	Std Dev
RETURN	0.129	0.0813	0.280
SIZE	130.111	36.000	351.784
AGE	20.587	9.000	31.410
DELAY	49.402	45.000	19.911
OVER (1=22, 0=80)	0.216	0.000	0.413
MOTIVE (1=13, 0=89)	0.127	0.000	0.335
RETAIN	0.573	0.631	0.264
GROW	0.194	0.049	0.287
BOARD (<5 = 44, 5-6 = 48, >6 = 10)	4.863	5.000	1.267
CEO (1=8, 0=94)	0.078	0.000	0.270
INDEP (1=28, 2=37, 3=30, 4=7)	0.460	0.500	0.200
CMTEE (1=74, 0=28)	0.735	1.000	0.448
CMPLY (1=27, 0=75)	0.265	0.000	0.443

* The independent variables in this table are summarised before any logarithmic transformations (notably SIZE, AGE and DELAY). Categorical variables display count data (counts of when the variable code = 1 as described in Table 1, otherwise 0) as well as code category distribution data. For specification of variables, see Table 1.

Table 3. Pair-wise Correlations amongst Variables*

Variable	SIZE	AGE	DELAY	OVER	MOTIVE	RETAIN	GROW	BOARD	CEO	INDEP	CMTEE	CMPLY
RETURN	-0.173 (0.082)	0.060 (0.548)	-0.186 (0.062)	-0.262 (0.008)	-0.371 (<0.001)	-0.008 (0.940)	-0.005 (0.959)	0.037 (0.714)	0.171 (0.086)	0.108 (0.278)	-0.070 (0.487)	-0.107 (0.284)
SIZE		0.460 (<0.001)	-0.344 (<0.001)	-0.242 (0.014)	0.027 (0.790)	-0.314 (0.001)	0.148 (0.137)	0.505 (<0.001)	-0.103 (0.301)	-0.096 (0.335)	0.472 (<0.001)	0.416 (<0.001)
AGE			-0.081 (0.417)	-0.110 (0.271)	-0.055 (0.582)	-0.327 (<0.001)	0.193 (0.052)	0.281 (0.004)	-0.108 (0.280)	-0.050 (0.621)	0.354 (<0.001)	0.258 (0.009)
DELAY				0.347 (<0.001)	0.071 (0.478)	0.238 (0.016)	-0.189 (0.057)	-0.315 (0.001)	0.080 (0.427)	0.132 (0.187)	-0.208 (0.036)	-0.253 (0.010)
OVER					0.014 (0.889)	0.167 (0.094)	-0.236 (0.017)	-0.094 (0.346)	0.113 (0.258)	-0.097 (0.331)	-0.265 (0.007)	-0.099 (0.325)
MOTIVE						0.261 (0.008)	-0.070 (0.482)	0.088 (0.378)	-0.002 (0.983)	-0.068 (0.499)	0.169 (0.089)	0.037 (0.710)
RETAIN							-0.208 (0.036)	0.024 (0.810)	0.050 (0.620)	-0.229 (0.021)	-0.179 (0.073)	-0.192 (0.053)
GROW								0.103 (0.304)	-0.104 (0.297)	0.123 (0.218)	0.061 (0.542)	0.109 (0.276)
BOARD									-0.113 (0.259)	-0.357 (<0.001)	0.404 (<0.001)	0.365 (<0.001)
CEO										0.027 (0.787)	-0.066 (0.512)	-0.092 (0.356)
INDEP											-0.111 (0.267)	0.175 (0.078)
CMTEE												0.369 (<0.001)

* Pearson pair-wise correlations reported, corroborated by Spearman rank correlations (not reported). Probability shown in brackets. For specification of variables, see Table 1.

Table 4. Multiple Regression of IPO Returns at Listing*

Variable	MODEL 1 (Control variables only) Coefficient *(p-value)*	MODEL 2 (All primary variables, no interactions) Coefficient *(p-value)*	MODEL 3 (MODEL 2, but excluding CMPLY) Coefficient *(p-value)*	MODEL 4 (MODEL 2, but excluding CMTEE) Coefficient *(p-value)*	MODEL 5 (MODEL 4, plus interaction BOARD x SIZE) Coefficient *(p-value)*	MODEL 6 (MODEL 5, but excluding RETAIN & GROW) Coefficient *(p-value)*
Intercept	0.675 *(0.032)*	0.372 *(0.261)*	0.436 *(0.188)*	0.375 *(0.254)*	0.379 *(0.231)*	0.384 *(0.226)*
SIZE	-0.072 *(0.001)*	-0.080 *(<0.001)*	-0.086 *(<0.001)*	-0.081 *(<0.001)*	-0.098 *(<0.001)*	-0.103 *(<0.001)*
AGE	0.038 *(0.036)*	0.041 *(0.020)*	0.040 *(0.025)*	0.041 *(0.019)*	0.049 *(0.005)*	0.042 *(0.013)*
DELAY	-0.153 *(0.031)*	-0.164 *(0.022)*	-0.147 *(0.039)*	-0.165 *(0.021)*	-0.151 *(0.029)*	-0.125 *(0.064)*
OVER	-0.098 *(0.002)*	-0.098 *(0.002)*	-0.104 *(0.001)*	-0.097 *(0.002)*	-0.107 *(<0.001)*	-0.101 *(<0.001)*
MOTIVE	-0.155 *(<0.001)*	-0.154 *(<0.001)*	-0.155 *(<0.001)*	-0.155 *(<0.001)*	-0.155 *(<0.001)*	-0.133 *(<0.001)*
RETAIN	0.134 *(0.195)*	0.128 *(0.224)*	0.128 *(0.227)*	0.130 *(0.213)*	0.109 *(0.279)*	-
GROW	-0.100 *(0.256)*	-0.118 *(0.165)*	-0.116 *(0.176)*	-0.117 *(0.166)*	-0.114 *(0.165)*	-
BOARD	-	0.061 *(0.014)*	0.052 *(0.033)*	0.060 *(0.014)*	0.052 *(0.028)*	0.054 *(0.021)*
CEO	-	0.102 *(0.019)*	0.105 *(0.017)*	0.102 *(0.019)*	0.070 *(0.102)*	0.073 *(0.092)*
INDEP	-	0.309 *(0.026)*	0.233 *(0.074)*	0.311 *(0.024)*	0.286 *(0.032)*	0.229 *(0.077)*
CMTEE	-	-0.006 *(0.858)*	-0.015 *(0.629)*	-	-	-
CMPLY	-	-0.049 *(0.121)*	-	-0.050 *(0.105)*	-0.050 *(0.099)*	-0.049 *(0.106)*
BOARD x SIZE	-	-	-	-	0.031 *(0.008)*	0.032 *(0.006)*
Adj R^2	0.275	0.341	0.331	0.349	0.392	0.383
F-Stat	6.465	5.364	5.539	5.912	6.428	7.261
p-value	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*

* For specification of the dependent variable (market-adjusted rate of return) and independent variables, see Table 1.

The introduction of the governance variables for Models 2 to 6 again results in statistically significant regression models, but with higher measures of adjusted-R^2 than those reported in Model 1 and with intercept terms that are not significantly different from zero. Model 2 includes each of the five governance variables and reports statistically significant associations between IPO initial returns and board size (BOARD), leadership structure (CEO) and degree of board independence (INDEP). Null Hypotheses 1 to 3 are able to be rejected. Whilst non-directional (two-tailed) hypotheses and *p*-values are reported upon, the direction of coefficient signs is certainly consistent with propositions that larger and more independent boards enhance the attractiveness of share floats (manifested here through higher market share price vis-à-vis subscription price), and that the potentially unfavourable signals conveyed by a combined 'unitary' CEO/chairman leadership structure (vis-à-vis separation of roles) are actively managed by float promoters through a greater underpricing of the subscription price to help placate investors.

Existence of an audit committee (CMTEE) *per se* was not shown to be a discriminating factor and thus Hypothesis 4 could not be rejected. However, resolution of Hypothesis 5 was more equivocal and compliance with ASX recommendations regarding audit committee constitution (CMPLY) approached the 0.10 significance threshold in Model 2 (as well as in Models 4 and 6 and achieved significance in Model 5).

It is noted that with regards to the CMPLY variable, 'non-compliance' was defined to include non-existence of an audit committee as well instances where committees had been formed yet did not fulfil all recommendations contained in the ASX guideline (as outlined earlier in footnote 2). Statistical significance is consistent with audit committee propriety rather than committee existence *per se* (i.e. not simply committee existence but whether it complies with best practice guidelines) being perceived as an important, favourable signal to investors. Acknowledging that the CMPLY variable is based partially upon audit committee existence (and thus CMTEE), Models 3 and 4 provide alternative modelling treatments for the audit committee variables CMTEE and CMPLY, with only one of each variable included in turn. The non-significance of CMTEE is maintained and the significance of CMPLY improves marginally.

Model 5 adds an interactive term (BOARD x SIZE) to Model 4 with the purpose of revealing any evidence of whether the relevance or optimality of board size changes with context, as proposed in the prior literature (discussed earlier, see Yermack, 1996; Eisenberg et al., 1998; Mak and Kusnadi, 2005; Raheja, 2005; Coles et al., 2006; Xie, 2010). The coefficient is statistically significant and is interpreted as indicating that the positive elements of a larger board are heightened for larger entities. This provides some support for the notion of contextual board size optimality. Model 6 reiterates these findings using a more parsimonious regression model of only 10 independent variables by omitting RETAIN and GROW.

5. Limitations and Concluding Comments

Corporate governance attributes and IPO pricing behaviour are investigated using a sample of IPO firms listing on the Australian Securities Exchange (ASX). A number of governance attributes are modelled to investigate their association with IPO initial returns. The size of the board of directors, the proportion of independent directors on the board, the relationship between chief executive officer and board chairman (leadership structure) and audit committee formation and constitution propriety are investigated. Strong, statistically significant associations are observed between returns and each of the variables board size, board independence and leadership structure. The board size effect increases with firm size, consistent with the notion that optimal board size will vary amongst firms and thus is contextual. Marginal significance is observed for the broader test of audit committee propriety yet not for audit committee existence *per se*.

The study sample was regarded as sufficiently large and varied to facilitate a robust modelling environment and statistical tests and controls were employed to corroborate the tenability of key statistical assumptions. Nevertheless, the conventional caveats regarding statistical sampling and inference are acknowledged. It is also acknowledged that the period and institutional setting within which this study was framed may not reflect the behaviour of IPO returns or corporate governance activity in other contexts. In the absence of evidence to the contrary the study certainly maintains its relevance and contributes to the quest for better understanding IPO valuation behaviour and the possible signalling attributes of corporate governance practice. Future research may wish to consider whether these results are indeed context-specific or more broadly applicable. It is only with such further research that IPO pricing, governance signalling and information asymmetry issues will be more clearly resolved.

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BUILDING HUMAN CAPITAL IN DEVELOPING NATIONS THROUGH SMEs: A STRATEGIC AND COMPLEMENTARY ROLE FOR UNIVERSITIES AND SMALL SCALE ACCOUNTING AND CONSULTING FIRMS

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Abstract

This paper introduces an SME development model, based on a case study of the Malaysian SME enabling environment. It proposes a structure of institutions that specifically addresses the different challenges faced by SMEs (including a lack of technological know-how, market and trade intelligence, advice on quality and capacity enhancements and financing), encased within supporting regulatory policies and synergistically linked with small scale accounting and consulting firms. It proposes establishing small business development units (SBDUs), within comprehensive universities, to strategically harness and deploy the universities' internal brainpower for boosting nationwide SME development. It also suggests harnessing the power of the free market by promoting small scale accounting and consulting firms, that will serve as information intermediaries between SMEs, SBDUs and various institutions set in place to help SME development. A national human resource accounting policy is proposed to help in the governance of the SME sector. This policy would help to measure, manage and promote human capital development at the level of firms, economic sub sectors and the nation. Various incentives, such as tax exemptions and national level recognition and awards for successful consultants, will further promote SME development. These measures can also be promoted at regional levels, such as the ASEAN and APEC. Given that SMEs are major sources of employment, these measures that help to create robust SMEs that would support sustained long-term economic growth, which would in turn help sustain low unemployment rates and combat poverty.

Keywords: SMEs, Human Capital, Strategic Role, Small business Development Units

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Introduction

Human capital is now seen to be vital for the progress of firms and nations, especially in the emerging knowledge-based global economy (Davis and Meyer, 2000; Al-Suwaidi, 2003). In many nations, the vast majority of business firms are small and medium scale enterprises (SMEs). For example, in Japan, Korea, Taiwan, Thailand, Philippines, Indonesia and Malaysia, SMEs comprise over 99 percent of all business enterprises (Census, 2005).

In 2003, Malaysian SMEs employed over three million workers and created a value-added volume of RM 54 billion. This is consistent with figures in other nations, where SMEs have been found to be major sources of employment. In the Philippines, China, Thailand, Japan and Malaysia, SMEs employ about two-thirds of the national workforce (Census, 2005). Considering the importance of human capital and the position of SMEs as major employers, it appears that building human capital via SMEs would be a good approach to uplifting the national human capital stock and addressing the challenges of the global economy.

In Malaysia, SMEs have been found to be challenged by a shortage of relevant human capital and slow adoption of technology, which is further aggravated by the limited training undertaken by SMEs as compared with larger enterprises (Tan, 2001; UNDP, 2007). This limited training has occurred despite extensive government regulatory and institutional support (SME Annual Report 2005; 2006). Research on improving the processes that could enable SMEs to take better advantage of the government's enabling institutional infrastructures would help to address this gap between help available and the aid that has actually been accessed by SMEs.

While published research on SMEs in developed nations is plentiful, similar research on SMEs in developing nations is relatively scarce. Research on SMEs in Malaysia, specifically, is even rarer. The few papers available to date on

Malaysian SMEs (such as Tan, 2001; Saleh and Ndubisi, 2006) tend to explore various aspects of the SME sector in a piecemeal fashion, with little attention being paid to the holistic nature of the overall SME enabling policy and institutional structure. No paper has yet analysed the entire SME enabling framework comprehensively, within a holistic framework that fits all the disparate pieces of institutional structures and policy frameworks into an integrated structure that reveals an underlying system. Such a structure could suggest complementary processes to enhance and boost national level SME development. This paper undertakes to fill this gap in the literature.

This paper offers a conceptual structure that systematically aligns the different SME support mechanisms and systems in Malaysia in a logical, interdependent format, termed the SME enabling framework. Based on this framework, it addresses the issue of human capital shortage by proposing a model to develop the relevant human capital in SMEs, in the form of a complementary structure of university level small business development units (SBDUs) and supporting small accounting and consulting firms. This proposed structure would complement the existing governmental SME support systems, and help SMEs to take full advantage of the SME enabling framework in Malaysia. The proposed mechanisms, that include a national human capital accounting policy, would also help to keep track of this human capital based training and growing stock of human capital. The tracking mechanism, based on published human capital accounting principles, would help policy makers to quickly identify and rectify areas where there are critical shortages, so the growth of the SME sectors is not held back by such shortages.

The rest of this paper is organised as follows. The next section discusses the human capital theory and various theoretical issues related to training. The following section discusses human resource accounting (HRA) concepts and techniques, which are designed to scientifically capture and record human capital in organizational records. This is followed by a discussion of critical accounting theory that explains why, despite the importance given to human capital development and the availability of HRA techniques for recording this capital as assets, the accounting profession and associated bodies are reluctant to include this asset on balance sheets. Following this, a human capital valuation framework is presented to help plan, implement and assess various projects for developing SMEs. A case study of Malaysia is then presented. Based on the analysis of the case study, a conceptual framework is derived, that suggests a university level structure that can complement the national efforts in developing SMEs. Various proposals are then provided to overcome the lack of generally accepted accounting principles in HRA, in the form of a recommended national HRA policy. The final part provides a summary and conclusions.

Human Capital Theory

According to the human capital theory, investments in improving the skills of people can lead to improvements in productivity and wages (Fleischhauer, 2007). Human capital is defined as the knowledge, skills, attitudes, aptitudes and other acquired traits that contribute to production Goode (1959). Human capital is seen to have two complementary components. The first is innate or acquired early ability and the second pertains to formal education or on the job training (Blundell et al, 1999). This paper is concerned with only the on the job training component, since it considers the development of human capital in SMEs via providing appropriate training for employees.

Training of workers can give rise to general or specific human capital (Becker, 1964). General human capital is defined as human capital that is useful to both the current employer and other potential employers. In comparison, specific human capital helps the worker to improve his or her productivity only with the current employer, and is not transferable to other potential employers.

After undergoing firm-specific training, employees will tend to remain with their original employers because the improved productivity, resulting from this training, will not be applicable elsewhere. The firms will be able to recoup the costs of their training, through the improved productivity of the workers. Hence, firms are motivated in invest in firm-specific training for their employees (Becker 1962; 1964).

When employers bear the full costs of general training and pay higher wages after the training, they bear the full cost of the training while the workers share in the benefits. Moreover, with the improved productivity resulting from the training, the workers may switch employers, leading to situations where employers bear all the costs of training while employees enjoy all the benefits. As such, employers would be reluctant to pay for general training (Becker, 1964; Acemoglu and Shimer, 1999). Thus, a hold-up problem exists, whereby firms provide for less than efficient amounts of training in the economy.

Existing empirical evidence does not always support the idea that firms would be reluctant to sponsor general training. For instance, Loewestein and Spletzer (1999) found evidence that firms do pay for general training. Furthermore, the work of Ryan (1980) and Jones (1986), exploring welder apprentices in the US and apprentices in manufacturing in Britain respectively, reveal that firms do tend to undertake major net expenditures to provide training of a general nature for

apprentices. Fleischhauer (2007) concludes that the empirical evidence indicating the presence of general training programs for employees, sponsored by firms, contradicts the theoretical viewpoint of Becker (1964).

Several economic policies have sought to promote in-service training in firms, in developed and developing nations (Tan, 2001). These include training levy-grant arrangements (e.g. Singapore), training levy rebate programmes (e.g. Malaysia), levy exemption schemes (e.g. France) and tax incentives (e.g. Chile). In the levy-grant schemes, training grants are provided from levies, for approved training. Levy rebate involves partial rebate for training, with the funds coming from payroll levies. This scheme drives the human resource development fund (HRDF) in Malaysia. Companies are required to contribute 0.5 to 1 percent of the employees' payroll to the fund, and approved training will be reimbursed. In exemption schemes, employers need not pay levies when a percentage of the payroll is used for training. Tax incentives are based on tax exemptions for firm sponsored training expenditure.

In the case of Malaysia, payroll levies have had a positive impact (Tan, 2001). The HRDF was established in 1993. Based on surveys carried out in 1998, 1994 and 1997, Tan (2001), investigating the impact of the HRDF scheme in the manufacturing sector, reports that the number of firms that provided training to their employees increased significantly in the post-1993 periods, due to the presence of the HRDF, after controlling for training needs arising from acquisition of new technology and training that would likely be conducted even in the absence of special incentives. However, the greatest beneficiaries of this scheme are the larger firms22. While 68.6 percent of large firms provided formal training in 1998 (before the HRDF came into existence), 69.7 percent provided this training in 1994. This percentage improved to 81.7 percent in 1997. In contrast, the figures for 1988, 1994 and 1997 for medium firms were 49.9 percent, 51.8 percent and 63.6 percent respectively. For the smaller firms23, the corresponding figures were 24.3 percent, 25.5 percent and 35.1 percent, respectively. Generally, HRDF does not appear to be effective for building human capital in the small firms, compared with the relatively larger enterprises. Tan (2001) offers three reasons for this. The first relates to possible diseconomies of scale, the second is a lack of knowledge regarding training, and the third is that the smaller enterprises are driven by mature technologies and as such there is little demand for skill acquisition.

Another possible reason is that smaller firms are rather constrained for resources, and all of their existing employees are predominantly concerned with immediate bread and butter issues, unlike large firms that can afford the luxury of sizeable human resource departments endowed with the resources for long-range human capital planning. Given the importance of such planning for long term competitiveness and survival, a potential solution exists in the form of intermediaries. In essence, the human resource development function may be outsourced to small accounting and consulting firms, which could play a vital role in planning, acquisition, financing, implementing, measuring, recording, assessing and building the human capital of small organizations. Essentially, these accounting and consulting firms could serve as change agents, that play an active role in providing the necessary information and practical services that allow the small scale SMEs to take full advantage of the support schemes available in Malaysia.

However, these small scale firms may be constrained by a lack of depth in resources and expertise. This shortcoming can be easily overcome by linking up with a university structure that has a specific set up to help national SME development. This set up, termed the Small Business Development Unit (SBDU), will serve as a liaison between the university and the small scale consultants. It will help to identify areas that are most likely to benefit from the presence of the small scale consultants, set up a database of internal experts and coordinate their involvement in SME development. This will lead to a win-win-win situation for all parties concerned. The SMEs will benefit from the expertise and help of dedicated consultants. The universities will benefit by a growing reputation from such outreach programmes that help SMEs to develop into stellar businesses. The consultants will progressively garner expertise in niche SME development fields, and grow with their client SMEs. In essence, the consultants act as change agents, helping SMEs to improve their processes, adopt relevant ICT methods and transform into robust entities capable of successfully competing in global markets.

[22] Tan (2001) defines large firms as those employing 250 or more workers. Small and medium firms employ less than 100 and 100 – 249 workers respectively. Note that since 2005, Malaysia has employed a new, standard definition for SMEs. In the manufacturing sector, micro enterprises are now defined as firms with less than 5 employees or annual sales below RM250,000; small enterprises have between 5 to 50 employees or sales of RM250,000 to below RM10 million; medium enterprises employ between 51 to 150 employees and have sales between RM 10 million to RM 25 million.

[23] In this analysis, the small firms included those that had less than 50 employees, which did not qualify for the levy scheme. When only firms that had 50 or more employees were considered in the small firm category, the percentage of firms that provided training for 1988, 1994 and 1997 jumped to 35.03, 39.44 and 49.10 respectively.

The Malaysian regulatory, policy and institutional framework provides a system that provides sufficient scope for such agents to flourish today. In essence, this paper proposes developing and supporting these intermediaries, via a university level SBDU structure.

Furthermore, the discipline of human resource accounting (HRA) provides various techniques for measuring and recording human capital. National level policies can be used to standardise HRA approaches nationwide and use this technology to measure and manage human capital. As such, this paper also proposes a Malaysian human capital policy to help in the effective development of relevant human capital in the nation.

The next section reviews these techniques.

Human Resource Accounting

Human resource accounting (HRA) has been defined as "the process of identifying and measuring data about human resources and communicating this information to interested parties" (AAA, 1973). Flamholtz's (1971) definition views HRA as a means for "the measurement and reporting of the cost and value of people" in various organizations. In essence, HRA provides various techniques for measuring the stock of human capital in an enterprise, and recording it on balance sheets.

Generally accepted accounting procedures do not exist at present for human resource valuation (Roslender, 1997; Johanson et al, 1998; Theeke, 2005). Nevertheless, extant literature provides several approaches for valuing human capital (Flamholtz, 1999).

These include the historical cost, replacement cost, present value of future earnings and the value to the organization.

The historical cost approach involves capitalising historical costs incurred in recruitment, acquisition, formal and informal training and familiarization and development of human capital. The capitalised value is then amortised over the expected life of the asset. This approach is seen as objective and consistent with the accounting for other long-term assets (Brummet et al., 1968). It is also viewed as the most suitable, in comparison with other methods, for external reporting purposes (Tsay, 1977; Morrow, 1997). However, this approach has several weaknesses (Baker, 1974). Firstly, it assumes that the dollar is stable. Moreover, writing off capitalised values that no longer provide future benefits entails much subjective judgement. Because the human capital has no open market, this valuation cannot be independently verified. Finally, historical costs measure the costs rather than the values of human capital.

The replacement cost alternative uses the cost of replacing an employee to measure human capital (Flamholtz, Searfoss and Coff, 1988). Flamholtz (1985) includes recruitment, selection, compensation and training costs in the computation of replacement costs. The cost of income foregone during training is also included. Flamholtz (1971) suggests using replacement cost as a surrogate for market value of human capital. However, other writers have pointed out several weaknesses of replacement costs. For one, replacement costs may just update human capital values, at the expense of introducing much subjectivity (Turner, 1996; Scarpello and Theeke, 1989; Baker, 1974). The higher costs incurred by inefficient firms would result in upward biases in the estimated costs (Steffy and Maurer, 1988). This replacement values will be predominantly useful in cases where staff is fired and replaced. Considering that such instances are generally rare, the overall usefulness of this measure is limited (Cascio, 2000).

The present value approach uses the present value of future earnings streams of employees to value human capital. Lev and Schwartz's (1971) model uses the present values of future compensation to be paid to employees, with appropriate probabilities to cater for deaths, to measure human capital. Because it is based on averages, it does not pinpoint the human capital contribution of specific groups or individuals. Moreover, this method does not assess the contribution of current investments in human capital (Cascio, 2000). Baker (1974) mentions that there is no consideration of profit expectancy (that is, the value rather than the cost, except if some profit levels are included in the consideration of the discount rate used), fringe benefits given to employees and explicit costs of recruitment and employee development.

Several value based approaches have been suggested in the literature. A bidding approach is possible when several divisions are interested in a particular employee (Hekimian and Jones, 1967). The divisions can be asked to submit internal bids. The division with the highest bid then absorbs the employee while adding the cost of the bid into its investment base. One problem with this approach is that it is limited to instances where bids could occur for employees, which are not common in practice (Cascio, 2000). Moreover, it is difficult to defend the objectivity of this measure, which depends on the "information, judgement and impartiality of the bidding divisions". (Cascio 2000, p. 5).

Hermanson (1964) mentions another value based approach. This aggregate valuation method applies a weighted efficiency ratio to the net present value of expected wage payments. However, the broad based measure suffers from the limitation that it might incorporate unrelated risk in using a

discounted economy rate of return, based on assets owned in the latest year (Cascio, 2000).

The limitations of various models have held back the widespread adoption of HRA. Ferguson and Berger (1985, p. 29) contend that it is difficult to value human capital for inclusion in balance sheets because "… at this point, it is not possible to calculate a figure that is both objective and meaningful." Scarpello and Theeke (1989) also mention that while human resource valuations, derived from HRA, would be useful for internal and external decision makers, the lack of a valid and generalisable monetary approach for human capital measurement is a major shortcoming.

Johanson et al. (1998) argue that HRA is generally not used by managers as part of the managerial decision making process because of a lack of practical applications.

In essence, human resource accounting research since the 1960s has not been able to find a valuation model that has proven acceptable for financial reporting. Theeke (2005, p. 48) contends that although accountants have acknowledged the importance of skilled employees as an asset, they "…have not developed, nor have they been provided with, an accepted method…" for valuing these items on corporate financial statements.

Critical accounting theory

Critical accounting theory views the absence of generally accepted principles in accounting for human capital from another perspective. Critical accounting takes the viewpoint that accounting reports are a construct designed to offer a perception, rather than an actual representation, of objectivity or neutrality (Deegan, 2006). In reality, accounting output is a product resulting from the power mongering amongst various groups. Hopper et al. (1995, p. 528) contends that "accounting is a social practice within political struggles" while Hines (1988) posits that accountants construct reality in reporting it. Baker and Bettner (1997, p. 305) mention that "Critical researchers have convincingly and repeatedly argued that accounting does not produce an objective representation of economic reality, but rather provides a highly contested and partisan representation of the economic and social world". These researchers also contend that accounting is an extremely partisan activity, rather than a process that merely reports reality. Some authors have used this critical theory to explain the lack of accounting standards for human capital.

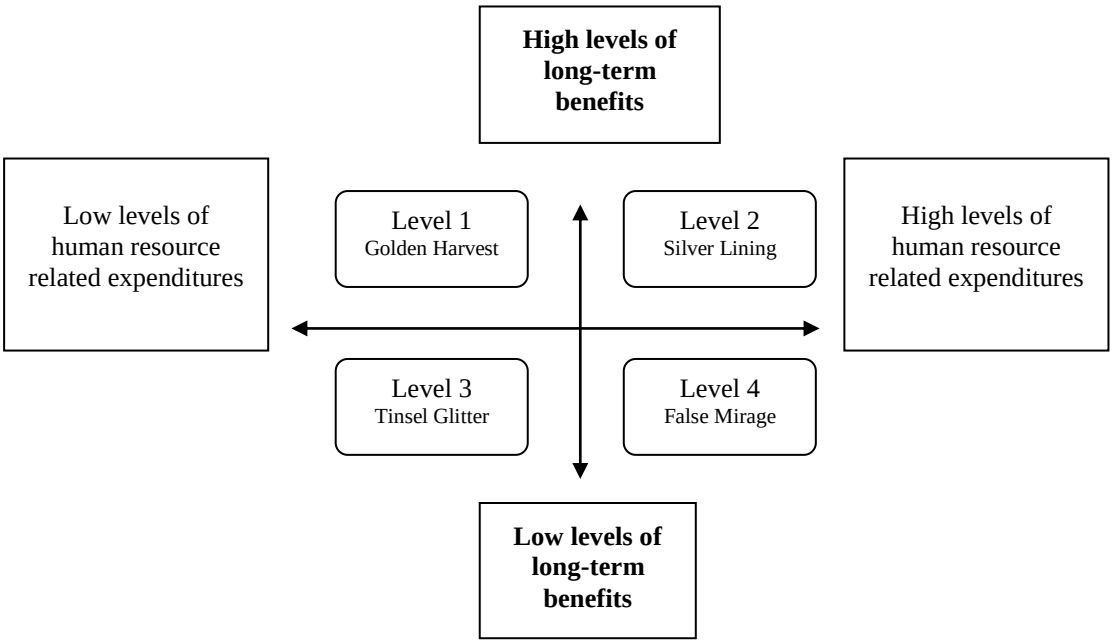
For instance, Roslender and Stevenson (2006) use critical accounting perspectives to explain why regulatory provisions that would have made greater human capital disclosures mandatory for large firms were at first approved and then shelved in the UK. This paper mentions that legislation requiring public listed firms to disclose more information on human capital management was proposed in the parliament, and subsequently passed into law, in early 2005. However, these mandatory requirements were abandoned following an unexpected intervention by the Chancellor of the Exchequer in late 2005. As a result, the "legal obligation for UK companies to account for their people" was abandoned (Roslender and Stevenson, 2006, p. 1). Following the viewpoint that accounting output tends to be influenced by the jostling for power between various groups, and essentially serves to further the interests of the more powerful groups, the authors contend that the abandoning of the human capital disclosure requirements indicates the overriding of the interests of capitalists over that of labour. This is consistent with the idea that financial statements are concerned with serving the needs of capitalists over that of labour, rather than indicating actual sources of value. The authors opine that the fact that accounting reports are controlled by sectional interests limits the possibility of progress in full disclosure of human capital development, which may turn out to serve the interests of labour.

Human Capital Valuation Framework

The current paper takes a different approach to HRA, considering that various HRA options are available (e.g. Flamholtz, 1999) and users have been found to be in favour of human capital disclosure (e.g. DTI, 2003). It is based on the idea that users would principally be interested in the benefits of human capital investments, and an idea of the relative benefits of different human capital investment decisions are important considerations for decision making. As such, it considers a valuation framework that relates human capital expenditures and subsequent benefits. This valuation framework, in turn, suggests the appropriate accounting treatment and management decisions, according to the different circumstances and cost-benefit scenarios. This framework, based on Samudhram et al. (2008), is presented in Figure 1.

Figure 1. Human Capital Valuation Framework (HCVF)

A human resource development guide for building human capital in SMEs



Based on Samudhram et al. (2008)

The HCVF divides the human capital investments in organizations into four levels. These are termed levels 1 to 4.

Level 1 is indicated in the top left quadrant. It considers situations where relatively low levels of human capital expenditures lead to high levels of benefits. For example, providing training to improve the use of ubiquitous ICT (which requires low levels of expenditure) could boost productivity and enhance measures such as returns on investments (ROI) over the long term. Since relatively low expenditures lead to relatively high levels of returns, expenditures in this category are seen to lead to a Golden Harvest. The strategy of pursuing human capital expenditures that lead to Golden Harvests is particularly suitable for SMEs, because it fits well with their resource constrained environments. These expenditures can be capitalised in human capital accounts.

Level 2 indicates situations where large scale expenditures lead to high levels of returns. These expenditures occur, for example, when businesses choose to build high tech, state-of-the art factories and send teams of employees to learn how to operate this factory, with the objective of lowering overall costs and enjoying good profits. The high levels of expenditures result in high levels of returns. Considering that the organizations are willing to undertake high levels of expenditures at present, with the foresight that excellent returns will be possible in the future, such expenditures correspond to a Silver Lining. Such expenditures may be undertaken by the very large entities, such as public listed firms and multinationals. These expenditures may be capitalised in human capital accounts.

Level 3 expenditures are low levels of resource outlays that give rise to low levels of benefits. For example, generic training is provided by vendors of computer systems (perhaps provided cheaply as part of the purchase agreement) may not address the specific needs of the business. As such, the level of returns is relatively low. The management should try to work out methods to push this to a Golden Harvest or a Silver Lining, according to the resources available (such as by hiring a consultant who can provide customised training that maximises the value of the investment). Level 3 expenditures are undertaken with the assumption that they will provide good benefits, but in reality such benefits are of limited value. Expenditures at this level are termed Tinsel Glitter.

Level 4 expenditures refer to high levels of resource outlays that provide very little benefits. Such expenditures could refer to cases where expensive projects may eventually turn out to be non-productive, or even detrimental. An example of this kind of expenditures occurs when a firm undertakes a very expensive project to computerise all of its operations, that eventually turns out to be disastrous. These expenditures are termed a False Mirage, since they provide a false sense of future benefits, which never materialise. Managers should strive to identify False Mirages as early as possible, and terminate such projects once it is apparent that

they will provide no benefits. The losses incurred should be written off immediately.

This human capital valuation framework (HCVF) may be used by managers in firms as well as by policy makers at national levels, to assess, guide and govern policy planning, implementation, assessment and evaluation.

This study attempts to illustrate an application of this human capital valuation model in business assessment and planning. The Malaysian SME development policy framework offers an ideal platform for applying the HCVF. The national level policy and institutional frameworks open up many opportunities for small scale accounting and consulting firms to serve as financial intermediaries. The application of the HCVF could enable these firms to plan, implement, assess and evaluate the results of their efforts in complementing SME and national level human capital development. This human capital development is also synonymous with the development of national level intellectual capital. Thus, the HCVF is able to play an important role in the development of a nation's intellectual capital. The potential application of the HCVF in the SME sector is elaborated below, in the section on application of the Human Capital Valuation Framework to SME development.

The next section studies the regulatory, policy and institutional support framework established by the Malaysian government. A conceptual framework for SME development is then derived from this study. Some applications of this conceptual framework are covered, followed by an integration of the HCVF as a planning, implementation, assessment and evaluation tool for supporting these applications of the conceptual framework.

A Case Study of Malaysia

Malaysia's Background

Malaysia is a tropical nation situated near the equator. It consists of two land masses, generally called West and East Malaysia. East Malaysia has a larger area, occupying about 60 percent of Malaysia's total land area of about 330,000 square kilometres. West Malaysia is economically better developed. The vast majority of SMEs are located in West Malaysia, particularly in the states of Selangor (19.7%), Johor (13.5%) and the federal territory of Kuala Lumpur (12.6%), according to the Census of Enterprises and Establishments (Census, 2005).

Accounting regulation in Malaysia

Malaysia adopts the International Financial Reporting Standards (IFRS) promulgated by the International Accounting Standards Board (IASB). Reporting for human capital comes under the purview of IAS38/IFRS 138 Intangible Assets. At present, this standard does not allow for human capital to appear as a line item within the balance sheet. A similar situation occurs in the other nations that adopt IASB's standards, such as Australia and the UK. This follows from the fact that there are no generally accepted accounting procedures or approaches for valuing human capital (Roselender 1997; Johanson et al., 1998; Theeke, 2005).

Malaysian government's support for SMEs

The Malaysian government provides extensive support for SMEs within the national medium-term and long-term policy frameworks (SME Annual Report, 2005, 2006; SME Information, 2006; National Agenda for SME Development, 2006; UNDP, 2007). SME development is addressed both implicitly and explicitly in the Ninth Malaysia Plan (9MP; 2006 – 2010), the Third Outline Perspective Plan (OPP3; 2001 – 2010) and the Third Industrial Masterplan (IMP3; 2006 - 2020). Even the recently elected state government in Penang has identified the assisting of SMEs and SMIs as a key component of its agenda (Dielenberg, 2008).

A large number of public and private institutions support these long-term policies. In essence, this framework of institutions and policies is meant to address various challenges faced by SMEs. The following section reviews these challenges and the regulatory infrastructure designed to meet and overcome the challenges.

Analysis of the Regulatory and Policy Framework

Challenges faced by SMEs

Key challenges for SMEs have been identified as limited access to advisory services, limited marketing and promotion strategies, limited access to local and global markets[24] , constraints imposed by management and technological capabilities, low levels of ICT and e-commerce adoption, low value added and uncompetitive processes, a lack of training, limited research and development capabilities and difficulties in financing (Census, 2005; SME Annual Report, 2006; UNDP, 2007).

Analysis of the Institutional Framework

Malaysia has a vast institutional structure that is able help SMEs to meet and overcome the challenges above. Information regarding this

[24] In recent times, the term "glokal" has become popular, referring globally marketed local products.

extensive support is published in many reports, brochures and web sites (including Census, 2005; SME Annual Report, 2005; Annual Report 2006; SME Annual Report, 2006; National Agenda for SME Development, 2006; SME Information, 2006; UNDP, 2007). These publications, taken together, indicate that a vast array of institutions such as MARDI, MARA, SMIDEC, Bank Negara, and so on are in place to help SME development. However, this literature, while providing easy and extensive access to information on SME development in Malaysia, can also be confusing in its sheer volume and complexity. Furthermore, some organizations appear to have overlapping functions. This complexity can be confusing for SMEs, which might find it difficult to identify where to turn to for help.

Nevertheless, a detailed study of the overall policy and institutional infrastructure reveals several common threads. An analysis of these common threads provides a basis for the formulation of an overall SME enabling framework, which pieces these disparate SME supporting mechanisms into a holistic infrastructure. This framework removes the clutter of information overload resulting from the vast amounts of information pouring from each of the agencies that are meant to help SMEs, and provides a big-picture view of the overall governmental SME enabling infrastructure. As such, this analysis that begins with a clustering of the various agencies that address the different challenges faced by SMEs helps to craft an insightful conceptual framework of the overall institutional support structure. Within this structure, the underlying policies that drive the entire SME enabling infrastructure have been incorporated as an overriding enabling mechanism. Finally, this framework has been depicted as resting on a foundation of feedback mechanisms involving the various stakeholders affected by the system, because such feedback provides a means for policy makers to identify weaknesses in the existing SME enabling infrastructure, to recognize and overcome the weaknesses while understanding and maintaining the strengths.

In essence, the overall challenges that Malaysian SMEs face can be conveniently divided into four categories: technology based issues, marketing and trade intelligence, support for capacity, quality and business process enhancements, and financing. Using this analysis to cluster the supporting institutions around the challenges that they address and adding the refinements mentioned above, the conceptual structure depicted in Figure 2 emerges.

This regulatory and institutional support framework's key elements include a coordinating mechanism, agencies, ministries and institutions that provide advice and support for technological, marketing, trade, capacity development and financial matters. In addition, business advisory support is made available to SMEs through various institutions and various feedback loops are in place, that are able to identify, understand and address problems that may arise.

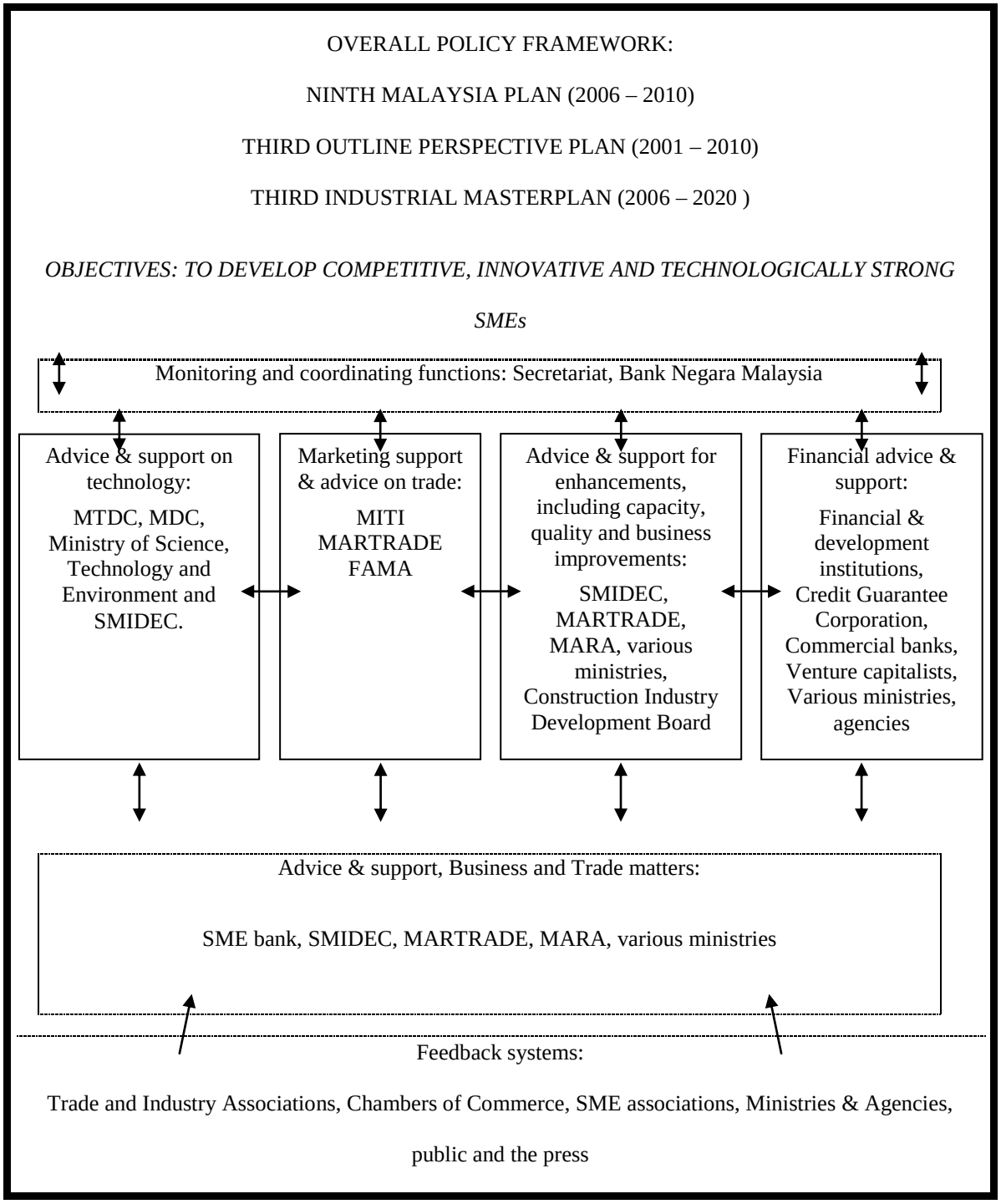
The highest level policy formulating body is the National SME Development Council (NSDC). Established in 2004, with a secretariat based in Bank Negara, the NSDC is chaired by the Prime Minister. The various key ministries and agencies are also represented in the NSDC, which formulates broad policies and strategies, reviews roles and responsibilities of various ministries and agencies, promotes overall cooperation and coordination, encourages and promotes the private sector contribution and promotes the development of SMEs in all sectors. Key strategic thrusts for developing a competitive, robust SME sector fully capable of harvesting the benefits of globalization include improving the infrastructure supporting the development of SMEs, and meeting pertinent capacity building and financing needs.

The challenges faced by Malaysian SMEs are summarised as technology based issues, marketing and trade intelligence, support for capacity, quality and business process enhancements, and financing. The Malaysian regulatory and institutional framework addresses these issues (Figure 2).

The Malaysian Technology Development Corporation (MTDC), the Multimedia Development Corporation (MDC), the Ministry of Science and Technology and the Small and Medium Scale Development Corporation (SMIDEC) are in place to help in technology acquisition, customization, deployment and development in Malaysian SMEs.

The issues of market and trade intelligence and market development are addressed through the services of various institutions such as the Ministry of International Trade and Industry (MITI), Malaysia's External Trade Development Corporation (MARTRADE) and the Farmers Association Marketing Authority (FAMA). Besides help and advisory services pertaining to capacity development, including productivity, quality, production and business process improvements, as well as building awareness of export options, is dispensed by another set of institutions, including SMIDEC, MARTRADE, Majlis Amanah Rakyat (MARA), the Ministry of Entreprenuer and Co-operative Development, the Ministry of Agriculture and the Construction Industry Development Board.

Figure 2. Malaysian regulatory and institutional support framework for SMEs



The general lack of access to financing is to be addressed via several institutions, such as financial and development institutions, the Credit Guarantee Corporation, commercial banks, venture capitalists as well as various ministries and agencies. Help is to be provided in different ways in different circumstances. For instance, the e-Science and entrepreneurship funds are made available for everything from fundamental research to commercialization opportunities. Other research funds are also available for specific needs. For example, research funding can be tapped from the Ministry of Health for research and development of health based products.

This entire enabling infrastructure rests on a supporting foundation of advisory systems. Support in the form of business advice and pointers is provided via the SME bank, SMIDEC, MARTRADE, MARA, the Ministry of Entrepreneur and Co-operative Development, the Ministry of Science, Technology and Environment and the Ministry of Youth and Sports.

As this infrastructure gears up, a feedback mechanism is useful for spotting, understanding and overcoming shortcomings. Feedback from various quarters, involving key players who are affected by and benefit from this regulatory infrastructure, including trade and industry associations, chambers of commerce, SME associations, ministries, agencies, the public and the press form a part of the process of continuous improvement.

In essence, this overall infrastructure has several advantages. In addition to indicating the deep commitment of the Malaysian government to SME development, it knits together various governmental policies, ministries, agencies and private sector enterprises in a single fabric that comprehensively addresses the various challenges faced by SMEs. Furthermore, it delineates roles for the different institutions, so conceivably a particular SME would know whom to approach for a particular need. Moreover, institutions that provide advice and support help to guide SMEs in various ways. As such SMEs may first approach these institutions that can then provide guidance on whom to approach to overcome their particular problems.

In essence, Figure 2 manages to assemble these various disparate pieces of the SME enabling jigsaw puzzle into a holistic framework, which logically indicates how the various long-term policies, institutions, advisory services from the government and private sectors relate with each other. The arrows indicate the presence of a dynamic structure, where various feedback and corrective mechanisms exist to provide a process of continuous improvement. For instance, the various stakeholder groups depicted at the bottom (e.g. various chambers of commerce, trade and industry associations, etc.) are able to provide relevant feedback to the institutions that provide advice and support. Such feedback can inform the organizations that provide support and advice for matters related to technology, marketing, capacity improvements and finance, regarding their weaknesses and suggest potential corrective actions that will help to improve their service. The two-way arrows indicate a dynamic, interactive process, representing a continuous loop of feedback, action on the feedback provided so far and further feedback, and so on. Similar feedback loops exist between the various organizations and the coordination body (namely, the secretariat, Bank Negara Malaysia). All of these feedback loops serve to inform the policy makers, who take these into consideration as new five-year and long term development plans are rolled out.

This framework, in providing the big-picture of the overall regulatory, policy and governance infrastructure pertaining to SMEs, suggests potential complementary mechanisms that could improve its potency. Since the numbers of SMEs is so vast, totalling over 99 percent of business establishments (Census, 2005), there appears to be room for other institutions to play complementary, supporting roles in helping Malaysia to grow vibrant and globally competitive SMEs. In fact, the regulatory and organizational structure of formal, comprehensive universities easily allows an effective mirroring of the governmental policy and institutional framework (Figure 3).

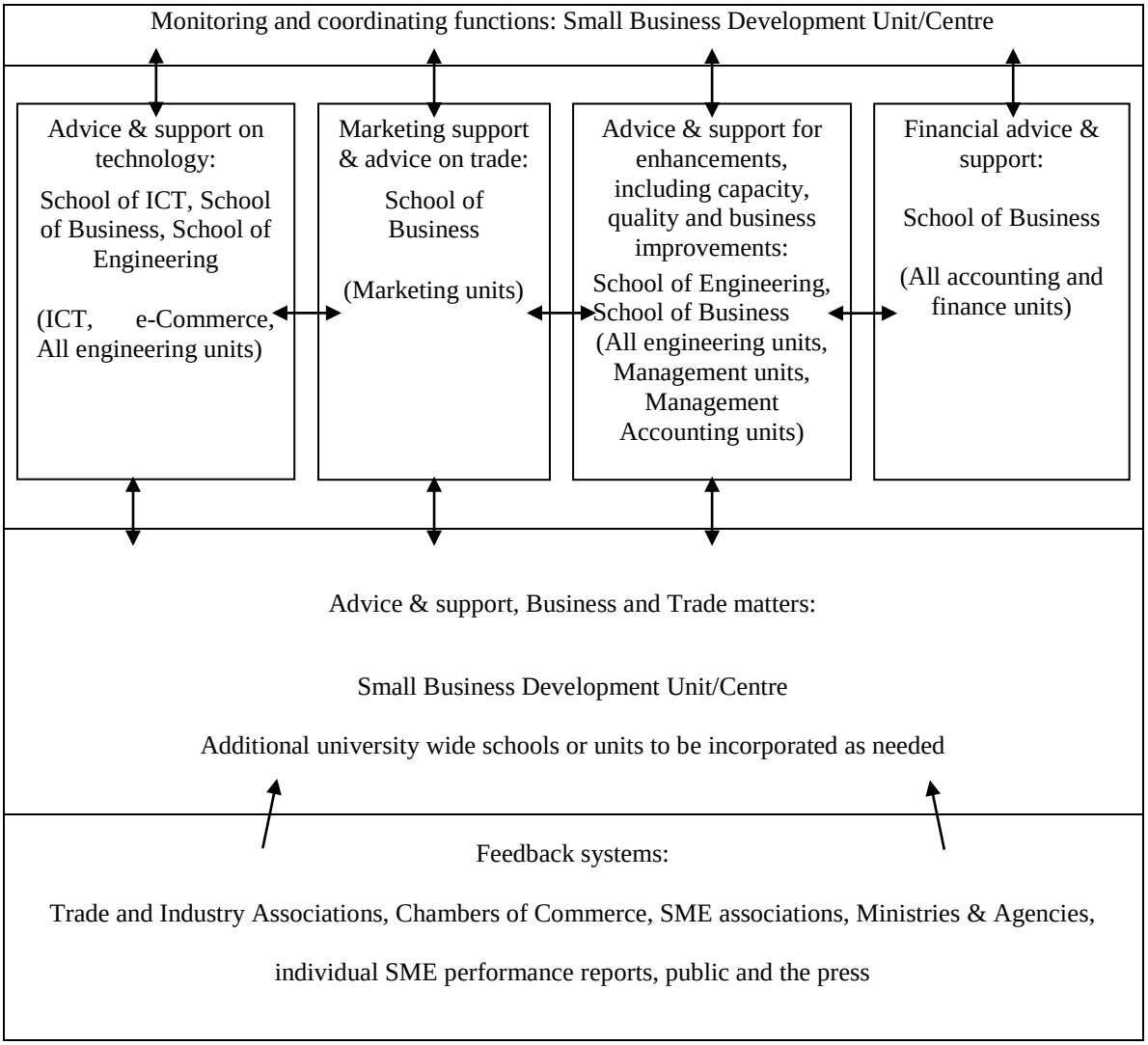
As Figure 3 indicates, the university level system allows the formation of a planning framework for complementing the development of SMEs. This framework, based on the Malaysian case study, is applicable to any comprehensive[25] university in any developing nation because the SMEs in various nations appear to face similar challenges. For example, a survey by the United Postal Service (UPS, 2007) involving several Asian nations revealed that many of the problems faced by SMEs are common across the region, including innovation, as well as access to market intelligence, capital and financing. As such, this planning and organizational framework and potential supporting role that can be provided by universities, based on the analysis of the case of Malaysia, is likely applicable to other Asian nations as well.

In essence, the Schools of Information and Communication Technology (ICT), Business and Engineering, working together, would be able to provide the expertise required to solve various technology based issues. Support, advice and intelligence on marketing and trade could be led by the academic staff with expertise in marketing units, incorporating input from their colleagues in other departments within the school as the need arises (such as input on the legal perspectives, from lecturers with expertise in business law, when needed). Advice and support for enhancements, including developing capacity, quality and process improvement, can be delivered via the Schools of Engineering and Business. For example, the academic team involved in mechatronics programmes could help out businesses that may want to automate processes with a view of increasing production while enhancing productivity. Similarly, financial advice and support could be made available through the relevant accounting and finance units in the School of Business.

[25] The limitation of a "comprehensive university" arises because comprehensive universities are seen to have a wide range of schools, including Schools of ICT, Business and Engineering. Specialist institutions of higher learning may not have this wide range and depth of expertise to effectively support the large variety of SMEs. However, it could be possible for such specialist organizations to support SMEs via collaborative arrangements with complementary organizations.

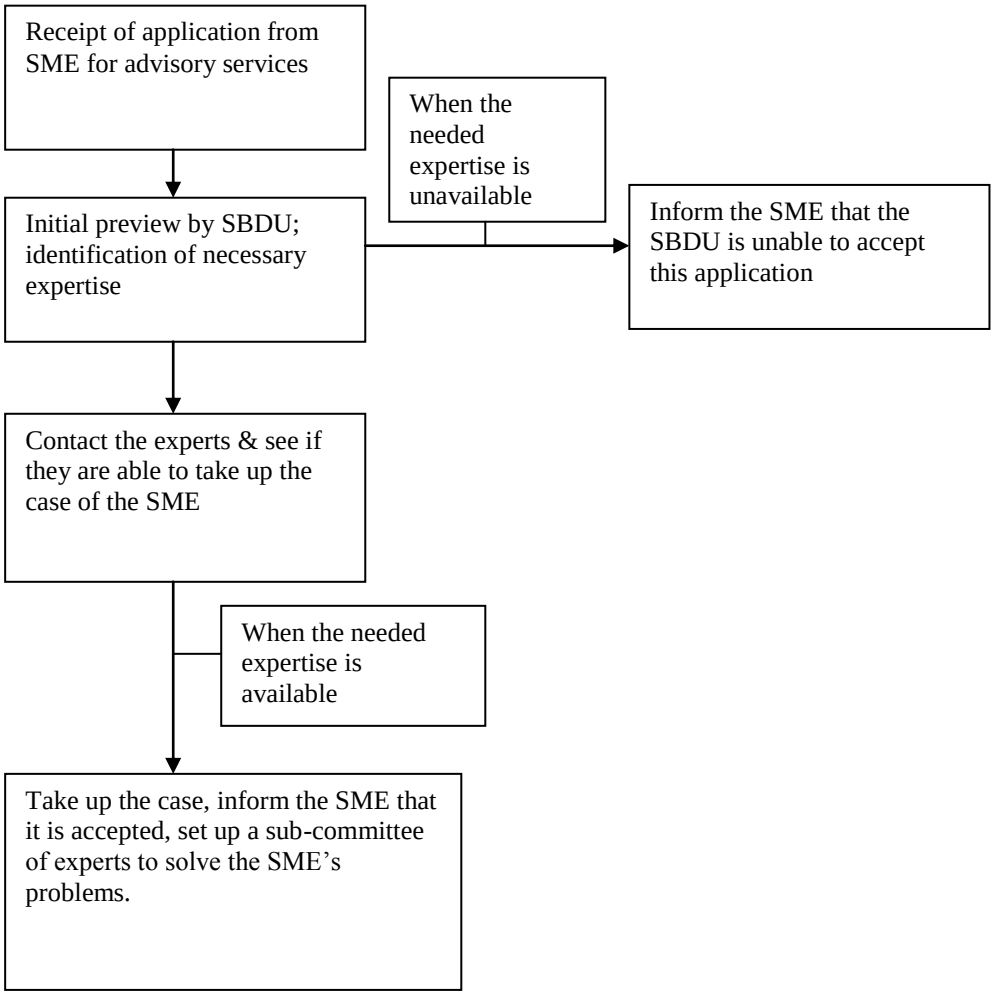
Figure 3. Application of the Conceptual Structure

A university level framework for promoting globally competitive SMEs



This concept depends on extracting the necessary expertise, as and when necessary, from faculties across a broad range of schools. Furthermore, different schools and faculties may need to be involved in different situations. As such, a common coordinating mechanism is necessary, that will study each SME that approaches the SBDU for help very carefully. Following this preliminary study, the necessary expertise that can best help to solve the particular problems of this SME will be identified. These experts will then be contacted to see if they are able to take up the case of the particular SME. Communication can proceed through e-mail and virtual meetings, as the necessary help is assembled and the delivery of the needed services are planned, executed, monitored and improved. The flow chart in Figure 4 depicts these steps.

Figure 4. SBDU - Flow chart for processing SME applications



Enhancing the Conceptual Structure – Establishing, Developing and Supporting Change Agents

Opportunities for enhancing SBDUs

This SBDU structure for universities indicates a means for coordinating the different departments within the university, so the specific issues faced by an SME can be channelled to the persons, faculties and schools best equipped to address them. However, a successful SBDU operation also entails a great deal of liaison with the SMEs outside of the university structure. In fact, coordinating with the various SMEs, maintaining pertinent records, continuously communicating with them and liaising with external governmental and private agencies on their behalf is indeed time consuming. Given the usual resource limitations of university staff, and other general university duties (including research, teaching, etc), it becomes apparent that a solution, in the form of intermediaries between the SMEs and the SBDU, could play a key role in making SBDUs successful. Using a free market approach to ensure efficiency, such intermediaries can be established by getting small scale accounting and consulting firms to serve as liaisons between the SMEs, the SBDUs and various governmental agencies as the need arises. Together with the SBDUs, the small scale accounting and consulting firms can serve as powerful complementary organisations that propel robust SME development nationwide. Essentially, these small scale accounting and consulting firms will serve as change agents, and ideally grow as the SMEs that they choose to service grow and prosper, under the guidance of the SBDUs.

Planning, Measuring and Managing Human Capital - Human Capital Accounts

The SME development entails several processes, including the garnering of expertise in various areas. To this end, various schemes to improve the expert base should be employed, including training

schemes that build human capital and long-term value. Tan (2001) indicates that continuous training in Malaysia leads to productivity growth. Furthermore, Tan (2001) also reports that larger firms tend to invest more in training than small and medium size firms, despite the presence of incentives such as the HRDF.

Relevant, continuous training, which will progressively build the human capital base, should be the foundation of the SME development programmes. Such training should be promoted by SBDUs and the small scale accounting and consulting firms. There should also be a parallel mechanism that measures and records the human capital that is built up within SMEs via this training. These records can help to monitor the build up of human capital, at the levels of firms. The firm level human capital can then be aggregated to obtain human capital at the levels of economic sectors and sub sectors. As such, it would be possible to keep track of the development of human capital in the nation. This information would then be useful for medium and long range policy making and assessment of past developments.

While there is no generally accepted approach for measuring human capital, the HRA discipline offers several methods, including historical costs, replacement costs and present values (Flamhotlz, 1999; Cascio, 2000).

The presence of a wide variety of approaches can be problematic. If different firms choose different approaches, then the human capital figures will not be additive, that is, it becomes meaningless to aggregate them to ascertain human capital stock and growth in different economic sectors and sub sectors. To solve this problem, a national HRA policy is required. This policy is meant to standardize firm level human capital computation for internal reporting purposes and essentially it is meant to aid in planning by the management and policy makers. As such, the absence of generally accepted accounting principles for human capital, that controls the measurement and reporting of various assets for financial reporting purposes, becomes an irrelevant issue.

Nevertheless, it is best for this national HRA policy to adopt a standard that is defensible, objective and easy to implement. Otherwise, the SMEs might find the computations too difficult, and choose not to comply with the national HRA policy. The historical cost approach is recommended for the national HRA standard, with various amortisation schedules that reflect generally short time frames[26]. The historical cost approach has several advantages. It is objective, consistent with generally accepted approaches used to measure other assets and appears to fairly match the exhaustion of costs and the benefits obtained therein (Brummet et al, 1968). Furthermore, it is generally considered as the most appropriate (Morrow, 1997; Tsay, 1977). Since the firms already have expertise with similar computations for other assets, they should find it easy to implement the historical cost approach. As such, this approach is an excellent choice for the national standard in the national HRA policy. In contrast, the other approaches are relatively complex and subjective.

Application of the Human Capital Valuation Framework to SME development

Once this standard is in place, various human capital expenditures can be analysed with the human capital valuation framework (Figure 1). As the HVCF indicates, the Golden Harvest approach is suitable for developing human capital in relatively resource constrained small scale businesses. For instance, to keep expenses low and returns high, SMEs can rent the computer systems from the universities for training needs, rather than building their own systems. They can also outsource certain jobs, such as new product planning, to the consultants and university experts, until such time that they have gathered sufficient capital to hire full time staff for these jobs. At this juncture, the SMEs would have grown large and robust. As such they would be able to switch to the projects in the Silver Lining category, that would help them to grow further. They need to be continuously mindful of projects and expenditures that are based on Tinsel Glitter or False Mirages, and strive to upgrade them to the higher levels or terminate them with minimal losses. The small scale accounting and consulting firms should help them to identify the appropriate categories, with the help of SBDUs.

Ideally, the future development (including product planning, based on appropriate market intelligence and awareness of supporting technology) should be planned in concert with three parties: the SME, consultant and the SBDU. At this planning stage, all expenditures must be vetted thoroughly. The planners should decide in which of the four levels of the HCVF do these expenditures fall, particularly with respect to developing human capital. They should strive to keep expenditures at the top two levels, and avoid Tinsel Glitters and False Mirages.

When the planning passes into the implementation stage, the managers should keep an eye on developments, and remain alert to signs of Tinsel Glitters and False Mirages. This attention to

[26] Human capital generally depreciates quickly, especially in today's fast paced, globalized environment where technology changes quickly and firms need to employ continuous learning policies to keep up. Extant literature supports this view. For example, Ballester et al. (1999) report a 34% depreciation rate for human capital.

the categorisation of expenditures should continue into the post-implementation stage, with all of the expenditures being continuously categorised into the appropriate levels. At any stage, the management should look for expenditures that move into the Tinsel Glitter and False Mirage levels, and take actions to either shift them to higher levels or prune them with minimal losses. The HCVF enables planners and managers to also evaluate projects after they have been completed, to categorise the various expenses into the four categories in the post completion evaluation period. Such categorisations will help to provide insights on what went right and what went wrong, and help to provide directions for future planning.

If small scale enterprises choose to develop human capital by pursuing Golden Harvests, with the objective of using high quality low expenditure investments in human capital to enjoy high returns, then the proposed historical cost based national HRA standard will lead to low levels of human capital assets, which may not fully reflect the future benefits of this activity. To overcome this, it is proposed that SMEs be also allowed to report human capital using some valuation based approach, in addition to the historical cost method. While the historical costs allow aggregation across economic sub sectors and comparability across firms, the valuation approach allows internal and external users to make informed judgements.

Policy Recommendations

The discussion above indicates how universities can work synergistically with small scale accounting and consulting firms to complement the SME enabling environment in Malaysia. Several policies can be set in place to maximise this synergy and boost the SME development process.

Policy makers can set up a body to support small scale accounting and consulting firms that are interested in working with SMEs. Such firms can be given access to data and information that is particularly relevant to SMEs, such as market intelligence, upcoming trade shows, special incentives for various sub sectors, on going developments pertaining to new policies and so on. Furthermore, this body can also support small scale consultants' associations, which would promote networking and the exchange of news, tips and information amongst consultants.

A national HRA policy should be set in place, to standardise human resource valuation throughout the nation. It is recommended that the historical cost method be employed as a national standard, with the firms being allowed to use other methods (such as valuation based methods) in addition to historical costs. The necessary amortisation periods could be provided. In general, human capital is expected to depreciate fairly quickly, which indicates that a continuous training regime is needed to maintain human capital on the firm's records. Since current accounting principles do not provide for reporting human capital on audited balance sheets, the national HRA policy should consider human capital reporting in the management reports section of the annual report. A standard format should be established for such reports. As an alternative, firms should also be encouraged to report human capital on their websites. This alternative would meet the needs of firms that may be exempt from publishing annual reports for the public.

Special tax exemptions should be considered for income derived from helping to develop SMEs. For instance, all income from consulting for micro and small enterprises could be tax free for a number of years, or be taxed at a reduced rate. These tax incentives will encourage small consulting firms and universities to help SMEs.

The government and universities could jointly establish an SME consultant's short course that will familiarise consultants with the full extent of the SME enabling environment and the manner in which the institutional framework is able to assist SME development. Universities may also offer undergraduate and postgraduate programmes in SME consulting and development.

The success of SME consultants should be highlighted in pertinent websites and special awards should be set up for the best performing consultants and SMEs. This exercise is meant to widen the awareness of the benefits that the consultants can bring to SMEs as well as motivate and further promote beneficial consultant-SME relationships.

Malaysia's SME enabling framework, together with the enhancing support systems driven by university level SBDUs and small scale consultants, can serve as models for other developing nations. Similar models and recommended HRA policies can be also adopted across regions, such as ASEAN and APEC. Such adoption will allow the comparability of firm level human capital development activities across regions and nations, as well as provide insights that could lead to improvements over time.

Directions for future research

This paper has indicated the HCVF as an assessment and policy planning tool. The HCVF points out four levels of expenditures and related levels of benefits. These four levels can be further validated through empirical research, including surveys, interviews and analysis of historical data.

In order to be effective, the SBDUs and small scale consultants should identify relevant sub sectors where their services are likely to yield the most benefits. They can then focus attention on the identified niche areas. Some quick, inexpensive

approach would be useful for identifying potentially profitable niches. One way of identifying such areas would be conduct an analysis of output per employee, using the data from Census (2005). This analysis should be broken down into micro, small and medium scale enterprises. The sub sectors where the micro and small enterprises have lower than average output per employee should thus be identified. The SBDU and the consultants should then conduct a further investigation of the micro and small scale enterprises, through surveys and questionnaires, to see if it might be possible to develop the small and medium enterprises in the identified sub sectors by introducing ICT, improved processes, better access to financing, and so on. With information from this research, it would be possible to craft development plans at the level of firms and sub sectors, which can then be used to advise and improve the SMEs.

Summary and Conclusions

This paper discusses Malaysia's regulatory and institutional framework for developing robust, globally competitive SMEs. It analyses this framework and crafts a conceptual model that could serve as a template for the policy planners of other developing nations. This template can also be applied at the level of comprehensive universities, and help to create an interlinked, coordinating mechanism on which an SBDU can be based. By linking up synergistically with small scale accounting and business consultants, this SBDU can serve as a potent force for boosting the development of SMEs in developing nations.

In order to help in planning and assessment of plans, the HCVF can be adopted. This framework divides expenditures into four levels: Golden Harvests, Silver Linings, Tinsel Glitters and False Mirages. Firms should strive to keep expenditures at the first two levels. In addition, a national HRA policy that adopts the historical cost approach is recommended, with the freedom to also provide additional information using other approaches, such as valuation methods.

Other policies that can help boost SME development includes tax incentives for income from SME consultancies, support for SME consultants via pertinent short courses, as well as tertiary level programs and considering the adoption of the SME development templates across regions.

The SBDUs and small scale accounting and consulting firms, when integrated synergistically with the SME development framework, would be able to provide an effective and powerful holistic SME development environment that is far greater than the sum of its parts. Care should be taken that such policies are not implemented in a piecemeal fashion, which would negate the synergistic potentialities and lead to limited overall benefits.

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