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. Company performance, managerial compensation, corporate social responsibility, national peculiarities of corporate governance in Brazil are also under the scope of researches. More detailed issues are given below.

Baliira Kalyebara, Abdullahi D. Ahmed examine the impact of agency costs on the present value of a long term capital project and investment appraisal decision making in the airline industry to support better capital investment decision making in the future. *Cristina Bettinelli* and *Valeria Caviezel* in their study addresse the call for the development of team effectiveness scales that take team context into account. Their paper develops and validates a measurement scale for effectiveness in the specific context of boards of directors in family firms. *Giuseppe Grossi, Patricia Bachiller* analyze the theme of the corporate governance models of Italian utilities companies and explores how the changes of ownership structure after a merger affects financial performance. The objective of their paper is to study whether the mergers of utilities are effective for companies to be more competitive. *W L Crafford, F J Mostert, J H Mostert* investigate the improvement of financial decision-making by banks regarding the management of their liquidity. The importance of the liquidity management factors, the problem areas surrounding this topic, as well as how often the requirements are adjusted to ensure proper and effective liquidity management are addressed. *Mo'taz Amin Al-Sa'eed, Soud M. Al-Mahamid* in their research try to understand the features of an effective audit committee and its role in strengthening financial reporting among public listed companies on the Amman Stock Exchange. *Qian Li, Ebru Reis* study changes in the incentive structure of the CEOs in both parent and spun-off companies, and the effect of managerial incentives on operating performance due to an improved agency relationship between shareholders and managers of both firms after the spinoff.

J. Barry Lin, Bingsheng Yi, Jane Mooney apply several methodologies to examine the interplay among large shareholders. They found that firm performance is positively associated with insider and institutional ownership, but negatively associated with blockholder ownership. *Haiyan Jiang, Ahsan Habib* empirically examine the effect of ownership concentration on mitigating free cash flow agency problem in New Zealand. *Shihwei Wu, Fengyi Lin, Chiaming Wu* develop several models to examine the relationship between the corporate social responsibility (CSR) and the ownership structure of Taiwanese firms. Their results suggest that firms which are controlled by professional managers, government-owned, or collectively-owned would like to undertake serious efforts to integrate the CSR into various aspects of their companies. *Rami Zeitun* and *Duha Al-kawari* investigate the effect of government ownership structure, business risk and financial leverage among other variables (size, age and growth) on a company's performance in a panel data, using 191 companies from five GCC countries (Qatar, Saudi Arabia, Oman, Bahrain and Kuwait), during the period 1999- 2006.

Thiago Emmanuel, Andre Carvalhal, Marcos Avila analyse the relationship between social responsibility and financial performance of Brazilian companies. They analyze 515 Brazilian companies listed on BM&FBovespa from 2001 to 2007 and check which companies have disclosed the IBASE social report, which proposes a standardized methodology for social reporting and allows us to compare companies in different sectors over time. *Oderlene Vieira de Oliveira, Marcelle Colares Oliveira, Sérgio Henrique Arruda Cavalcante Forte, Vera Maria Rodrigues Ponte* try to identify the perceptions of executives from Brazilian companies traded and closed on obstacles for the adherence to good corporate governance practices.

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

CORPORATE OWNERSHIP & CONTROL
VOLUME 9, ISSUE 3, SPRING 2012

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Rami Zeitun, Duha Al-kawari

This study investigates the effect of government ownership structure, business risk and financial leverage among other variables (size, age and growth) on a company's performance in a panel data, using 191 companies from five GCC countries (Qatar, Saudi Arabia, Oman, Bahrain and Kuwait), during the period 1999- 2006. Our results indicate that government ownership affects the performance and value of GCC firms. Government ownership positively and significantly affects firm's performance ROA. The insignificance of a firm's leverage (LEV) indicates that the firm's performance is irrelevant to its capital structure, and that supports Modigliani and Miller (M&M) (1958) argument. Our finding is that business risk (BETA) significantly and positively affects firm's performance ROE and supports the classic risk trade-off arguments. Furthermore, age was found to have a positive and significant impact on firm's performance ROA and ROE.

SECTION 3. NATIONAL PRACTICES IN CORPORATE GOVERNANCE: BRAZIL

Thiago Emmanuel, Andre Carvalhal, Marcos Avila

This paper analyses the relationship between social responsibility and financial performance of Brazilian companies. This subject has been largely studied and presents many discussions and different points of view. There are a considerably number of research that tries to link social responsibility and financial performance. However, there is not a fully established consensus about the issue. Despite a great number of empirical researches regarding this subject, there are few studies in the Brazilian market. We analyze 515 Brazilian companies listed on BM&FBovespa from 2001 to 2007 and check which companies have disclosed the IBASE social report, which proposes a standardized methodology for social reporting and allows us to compare companies in different sectors over time. Our results indicate that companies that disclose social information have a superior performance when compared with companies that do not disclose. Moreover, financial performance is positively related with social investments. Interestingly, the "voluntary" social investments, which are not mandatory by law, have a strong effect on firm value and performance.

Oderlene Vieira de Oliveira, Marcelle Colares Oliveira, Sérgio Henrique Arruda Cavalcante Forte, Vera Maria Rodrigues Ponte

This study aims to identify the perceptions of executives from Brazilian companies traded and closed on obstacles for the adherence to good corporate governance practices. Therefore, a structured questionnaire was sent to 516 companies. We concluded that the perceptions of executives from Brazilian companies traded and closed, differ with respect to amounts allocated, being most of the obstacles (ten out of thirteen) in adhering to good corporate governance practices. What could possibly be explained, is that the fact of a group having already gone through the process or have already duly joined this practice and not the other.

SECTION 1
ACADEMIC
INVESTIGATIONS
& CONCEPTS

CAPITAL MARKETS, CORPORATE GOVERNANCE AND CAPITAL BUDGETING: IMPLICATIONS FOR FIRM VALUE

Baliira Kalyebara*, Abdullahi D. Ahmed

Abstract

The conventional discounting capital budgeting techniques have been widely criticised for being inappropriate in incorporating multi-criteria interactions and for focussing on one-off single objective of maximizing net present value. This paper modifies a Multiple Objective Linear Programming (MOLP) optimization model of Levary and Seitz (1990). It adds to the objective function the mitigation of agency costs as a proxy of good corporate governance principles and capital market interactions. The goal of the study is to examine the impact of agency costs on the present value of a long term capital project and investment appraisal decision making in the airline industry to support better capital investment decision making in the future. Recent collapses of high profile companies in airline industry and other industries such as Flyglobespan Airline (in the year 2009) in Scotland, Ansett Airline (in the year 2001)in Australia, Enron(in the year 2001)and Lehman Brothers (in 2008)in the U.S whose impact is still being experienced today provide us with evidence of how important the minimization of agency costs is for the survival and success of organisations and the huge amounts involved as a result of poor corporate governance. The results reveal that debt financing which is often provided by capital markets plays an influential role in shaping the investment appraisal decisions through interest rates and debt covenants embedded in the debt contracts. The results show that mitigation of agency costs improves the firm's cash flow, financial management and corporate governance. It discourages illegal earnings management practices, enhances investment decisions, investors' confidence and reliability in the firm's investment decisions and hence enhances the firm value.

Keywords: Corporate Governance, Capital Markets, Cash Flow, Agency Costs, MOLP, Firm Value and Capital Budgeting

JEL Classification: G29; G31; G32; M14

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1 Introduction

Financial managers are required to make both operational and strategic decisions to maximise firm value. However, decision making for nonrecurring long term investments in the modern economy that relies on constantly changing information technology (IT) is complicated. It requires integrating multi-disciplinary interactions and impact on the investment decisions and the firm value (Schniederjans, Hamaker & Schniederjans 2010). This paper focuses on the investment appraisal decisions integrating the impact of minimising agency costs[1] of debt financing. Agency costs significantly affect the firm's efficiency, performance and long term investment decisions (Brealey, Cooper & Habib 1997 and Ross et al., 2011). According to Byrd (2010) agency costs are inversely related to financial leverage until the tax benefits and added discipline are exceeded by bankruptcy costs, agency costs and loss of future financing flexibility. The minimization of agency costs helps to lessen the self-interest behaviour of management (Wang 2010). Agency costs of debt financing increase the cost of equity because shareholders demand higher returns to compensate for the increased financial risk undertaken (Chen, Chen & Wei 2011) thus reducing firm value. Furthermore, Ruiz-Porras (2011) finds that agency costs of debt financing influence long term investment decisions because of debt covenants inserted in debt agreements by capital markets or debt provider. The study of the impact of agency costs on investment appraisal decisions is important today because of the large sums of money involved in capital investment of modern economy in general and the high debt financing the airline industry experiences in particular. For example, the Congressional Budget Office (CBO) of the US predicts the final bill to bail out Fannie Mae and Freddie Mac to be about $389 billion Appelbaum (2010) because of high agency costs the companies incurred as a result of poor corporate governance. In this case, the major shareholders of the two companies were local financial institutions owned by the US government which are assumed to have higher degree of moral hazard (Patibandia 2001) because of laxity supervision. According to Berrone (2008) one of the main causes of most company collapses is poor corporate governance and, Fulghieri & Suominen (2005)find that one of the main measures of poor corporate governance practices is high agency costs. This paper focuses on the minimisation of agency costs as a mechanism of mitigating agency costs and improving long term investment appraisal decisions.

The traditional discounted cash flow (DCF) techniques commonly used in capital budgeting decision making are found to be inadequate in incorporating the impact of multiple objectives and agency costs in the investment appraisal decisions (Schniederjans and Hamaker & Schniederjans 2010). Traditionally, there are two main sources of capital funds, debt and equity. According to Tadesse (2004) capital markets provide the larger proportion of capital in the form of debt. It is also acknowledged that capital markets facilitate good corporate governance practices through issuing debt covenants, demanding access to firm information and special purpose reports, and monitoring firm performance. Literature on capital markets asserts that loans from financial institutions discipline managers in strategic decision making to protect their assets (Nowak 2001). This action results into mitigating agency costs, increasing cash flow and enhancing firm value. Conventionally, agency costs are incurred to improve efficient financial management, good corporate governance and maximize firm value (Jensen & Meckling 1976, Renz 2007 and Psaros 2009).The mitigation of agency costs due to debt capital reduces the probability of management misappropriating cash flow which constitutes one of the main firm's current assets that managers can easily manipulate and misappropriate to maximize their self-interests.

The modified investment appraisal approach develops a multiple objective optimization model by incorporating agency costs in the objective function. The developed model is able to determine the optimum level of present value (PV) and debt capital amount that results into optimum firm value. This modelis applied to a hypothetical airline company in the US called World Airways Ltd. The goal of the company is maximizing the PV of the firm by maximising the PV of future net cash flows received from multiple flight routes, purchase of new airplanes, borrowing, lending and minimizing agency costs.

The use of optimization models in the airline industry has become the norm in the modern economy (Ragsdale 2007 and Papadakos 2009).The optimization models in airline operations can be used for scheduling crews to provide efficient and effective service without overworking the crew, selecting flight routes and scheduling arrival slot allocations that maximize firm value(Papadakos 2009). The developed optimization model in this study uses Microsoft Excel Solverto implement. The Solver is selected because it is user-friendly and its ability to handle quite easily multiple goals and constraints covered in this study. Solver permits editing and incorporatingrisk by changing coefficients of decision variables and constraints using sensitivity analysis. In fact, according to Fylstra et al. (1998) and Ragsdale (2007)it can be

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[1] Banks (2004) defines agency costs as costs arising from the separation of ownership and control, which lead ultimately to a reduction in enterprise value.

used commercially under different economic conditions so it is robust.

Optimization Model: Airline industry

Traditionally, academics advocate for the use of net present value (NPV) technique in the investment appraisal process (Ragsdale 2007). The application of NPV technique helps managers to identify the project that adds most value to the firm. However, it ignores the impact of other internal and external economic factors, such as agency costs, multiple objectives, financial flexibility and the impact of capital markets interactions. Therefore, the failure for NPV technique to consider these significant economic factors provides a justification for this study that attempts to cover that gap. It develops a new integrated capital budgeting approach which considers NPV, multiple objectives and agency costs applied to an airline industry.

The main objective of this paper is threefold. One, it attempts to highlight the limitations of NPV in the face of increasing use and reliability of IT to gather data; two, the importance of multiple objectives in investment appraisal decision making; and three, the impact of capital markets in capital budgeting decision making. The airline industry is selected for this paper because the study modifies the multiple objective linear programming (MOLP) model used in Ragsdale (2007) which was based on an airline company. The modern airline industry faces an inherent risk, global uncertainty, severe competition and conflicting multiple objectives. The model incorporates the maximization of decision variables and minimization of agency costs in the objective function. Considering recent experiences in the airline industry such the Ansett pilot strike in Australia in 2009 (Weller 2009), the September 11 bombing of the World Trade Centre in the U.S (Kaddy 2007), the Ireland volcano eruption in 2010 (Michaels, Dalton & Pasztor 2010), global high fuel prices (Morrell 2011) and the Chile volcano eruption (Vergara 2011), a new investment appraisal approach in the industry to maximize firm value is justified and long over due. Since the initial capital investment in the airline industry such as purchasing the first airplane requires a huge sum of money, it is fitting that the investment appraisal approach in this industry considers various significant economic factors before such huge sum of money is committed. It is recognized that investment decisions made that are not optimum negatively affect the firm's financial performance and position for a long time in the future because long term investment decisions are not easily reversible (Ross et al., 2011).

2 Background and Literature Review

Modern economy which relies on IT to collect data used to make strategic decisions needs access to developed capital markets[2] for debt capital to be competitive and respond to capital market changes promptly (Faleye 2004 and Gatchev, Pulvino, & Tarhan 2010).There is overwhelming evidence that countries with developed economy such as the US, Japan, Australia, Canada, Germany, UK and France have developed capital markets (Dietl, 2001). Agency costs due to mainly poor corporate governance limit prompt access to debt capital from capital markets thus limiting a firm's capital investments (DeMarzo & Fishman 2007). The literature on capital markets suggests that through the issuance of debt covenants (both positive and negative) checks on management self interest behaviour, strengthens corporate governance and mitigates agency costs which in turn improves capital investment decisions (Nowak 2001 and Chava & Roberts 2008).

The strict internal and external regulatory regime on capital markets including elements such as debt covenants, operation interactions, accounting practices, corporate governance, interest rates and default risk influence the banks' lending decisions. Capital markets lend funds to corporations after thoroughly analysing their default risk and corporate governance. The level of default risk is used to determine the level of interest rate charged and the debt covenants stipulated in the debt agreement (Chen, Chen & Wei 2003; Schauten & Blom 2006; Piot & Missonier-Piera 2007). The interest rate charges translate into firm's cost of capital which impact on the net cash inflows and the discount rate applied to calculate the NPV of the capital investment. The higher the interest rate charged the higher the cost of capital and the lower the NPV. The managers use NPV calculated to make decisions whether to proceed with the project or to reject it which, in turn impact on the firm's present value and shareholder wealth (Ross et al, 2011).

Corporate Governance

Corporate governance[3] policies are formulated with the aim of achievingoverall sound financial management to maximize firm value (Banks 2004). According to Wang (2010) developing and implementing the correct optimal investment policy increases corporate value and good corporate

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[2] Viney (2009) describes capital markets as markets which offer long term funds in the form of equity, corporate debt and government debt.

[3] Banks (2004, p.3) defines corporate governance as '…the structure and function of a corporation in relation to its stakeholders generally, and its shareholders specifically…'

governance helps in achieving this goal. Capital budgeting principles too are developed with the same objective in mind of maximizing the firm value (Seitz & Ellison 1999 and Ross et al, 2011). Therefore, good corporate governance results into capital budgeting policies that aim at maximizing firm value (Allen, Carletti & Marquez 2009 and Ross et al., 2011). Thus the principles of both capital budgeting and corporate governance are interrelated and complement each other in their effort to maximize firm value. Therefore, an investment appraisal model that does not integrate the principles of both capital budgeting and corporate governance ignore an important factor required to maximize firm value. The findings of Cremers and Nair (2005) support the study results of Gompers, Ishii, and Metrick (2003) that good corporate governance improves investment decision making and earnings. Also, according to Shleifer and Vishny (1997) and Salacuse (2002) effective corporate governance practices impose discipline on firm managers to maximize returns to the firm and reduce agency costs within a firm thus enhancing the firm value.

Agency Costs

Agency costs[4] arise as a result of the agency relationship between managers (agents) and shareholders (principals). Decisions to finance long term projects with debt capital require managers employing the debt capital prudently and achieving financial efficiency measured in return on capital (Palepu 1990, Kaplan 1989, Smith 1990 and Denis & Denis 1993). The impact of agency costs on firm survival and success has become significant topic of discussion in theory and practice lately after the demise of high profile firms such as government-sponsored entities Fannie Mae and Freddie Mac, Lehman Brothers, HIH Insurance, Enron Corporation and WorldCom due to poor corporate governance. Puzzanghera (2010) of the Los Angeles Times reports that the financial bailout of Fannie Mae and Freddie Mac could cost the US taxpayer a huge sums of money ranging from $221 to $363 billion by the end of 2013. Appelbaum (2010) cites the Congressional Budget Office (CBO) the bailout for Fannie Mae and Freddie Mac to be about US$389 billion. According to Hirth & Uhrig-Homburg (2010) and Byrd (2010) one of the ways of reducing agency costs is debt financing. Increasing debt as a source of capital increases the debt equity ratio which in turn increases cash outflow in the form of interest charges paid out but also reduces tax payable (tax shield). This in turn decreases free cash flow available to the managers

thus imposing financial discipline on the managers, reducing agency costs and increasing firm value. As documented by Stulz (1990; Rasiah & Kim 2011) shareholders mitigate agency costs by limiting managers' access to free cash flow which in turn improves corporate governance and enhances firm value. This paper focuses on minimizing agency costs using the debt equity ratio as the proxy for agency costs and good corporate governance(Jensen 1986; Cui & Mak 2002). High agency costs limit the extent of borrowing and consequently limit firm's investment potential (DeMarzo & Fishman 2007). The minimization of agency costs is a good indicator of prudent and efficient financial management and, good corporate governance (Tsuji 2011). Therefore mitigating agency costs in investment appraisal process improves the firm value.

Capital Budgeting

Capital budgeting[5] decisions involve investing in long term projects (Ross 2011). They are decisions that form an integral part of a company's operational and strategic decision making, sound financial management and corporate governance. They are often influenced by a number of factors such as capital market interest rates, corporate governance, financial management, earnings management and agency costs. Therefore, capital budgeting decisions should consider the interactions of various economic factors rather than being based on simple projected net cash flows that result into a one-off NPV.

These decisions are some of the most important decisions management makes because they have long term implications on the firm's survival; require large sums of funds; are not easily reversible and are difficult to make. A wrong decision can be disastrous for the long term continued existence of the firm. Therefore investment decisions in capital budgeting need very careful planning, implementation and performance follow-up.

The risk of making negative net cash inflows in the early years of the investment is a normal occurrence but the situation is exacerbated if a firm invests in sectors which have inherent high business risk, such as the airline industry. At the same time the traditional capital budgeting techniques including NPV and internal rate of return (IRR) that are commonly advocated for by both academics and practitioners (Bennouna et al., 2010), are not capable of handling such inherent high business risk. Therefore, capital investments in the airline industry need capital budgeting models that can factor in multiple flight routes (multiple objectives),

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[4] Renz (2007) defines agency costs as costs incurred by a firm to encourage managers to maximize the firm's value, rather than making decisions which maximize their own interests.

[5] Ross (2011) defines capital budgeting as the process of planning and managing a firm's investment in non-current assets.

risk and corporate governance principles. This paper develops an optimisation model that considers multiple objectives and agency costs thus improving on the NPV traditional capital budgeting models.

3 Data Sources and Multiple objective linear programming (MOLP) – Base Model

While the capital budgeting literature asserts that the main objective of capital investments is to maximize shareholder wealth using NPV metric, in the modern economy, this goal can only be achieved when the interactions of multi-disciplinary impacts are considered.

The paper uses multiple objective linear programming (MOLP) model[6] rather than NPV because MOLP model allows multiple objectives (Hallerbach & Spronk 2002)such as multiple flight routes, mitigation of agency costs and multiple constraints in the case of an airline industry. Programming models are tools that help decision makers choose suitable decisions to achieve their planned objectives. The models are not intended to replace rational human judgement. In executing the MOLP model, decision variables and constraints are defined and ranked by assigning them coefficients based on financial managers' past experience, current estimation and future expectation. Then an objective function and constraint equations are formulated. Next the figures are put in a solver program and after that the model is run to find the optimum value of the objective function. This paper analyses the generated sensitivity report using shadow prices and reduced costs. The model can incorporate risk analysis by changing the coefficients of decision variables and constraints by one unit at a time and examine the impact on the optimum value - PV. This model modifies Levary and Seitz's objective function by adding the agency costs and the results analysed. Following Levary and Seitz (1990) the general mathematical equation for MOLP for an investment appraisal problem when borrowing and lending are allowed can be written as:

$$\text{MAX:} \quad \sum_{i=1}^{M} \hat{f}_i x_i + \xi_N - \delta_N$$

Subject to:

$$-\sum_{i=1}^{M} f_{i1} x_i + \xi_1 - \delta_1 \leq b_1$$

$$-\sum_{i=1}^{M} f_{it} x_i - (1+r)\xi_{t-1} + \xi_t + (1+r)\delta_{t-1} - \delta_t \leq b_t$$

for t=2,3,...,N

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[6]MOLP is concerned with structuring, solving decision and planning problems involving multiple objectives where all relationships are assumed to be linear.

$$\delta_t \leq C_t \qquad \text{for } t=1,2,...,N$$
$$\xi_t, \delta_t \geq 0 \quad \text{for } t=1,2,...,N$$
$$0 \leq x_i \leq 1 \qquad \text{for } t=1,2,...,M$$

Whereb_t is the available budget for year t, $C_t$is the limit on borrowing during year t (the firm's credit), $\sum_{i=1}^{M} \hat{f}_i x_i$ represents PV of cash flows at year $M$and$\xi_N - \delta_N$equals the amount lent less the amount borrowed during year N.

The objective junction represents the PV of all net cash flows from the flight routes, purchase of airplanes, borrowing, lending and mitigation of agency costs at the end of year N. Data used in this study is Levary and Seitz (1990) and on World Airways Ltd, a hypothetical international airline company.

- World Airways purchases a new aircraft on January 1 for $28 million;
- The airplane flies East Coast commuter routes and generates revenues of $18,980,000 a year;
- Operating expense excluding depreciation is $12,509,280 a year;
- Depreciation is $741,680 in the first year;
- World Airways faces a 34% corporation tax rate;
- At the time of acquisition, World Airways must pay $28 million plus $2,847,000 to increase working capital, for a total of $30,847,000;
- World Airways also considers purchasing wide-body airplanes for use on European routes;
- Each wide-body airplane costs $146 million.

Note: Adopted from Levary & Seitz 1990, pp.21-22 and p.143.

The previous year, World Airways considered replacing its last obsolete narrow-body airplane.

- The old airplane costs $28,570,000 per annum to operate;
- The new airplane costs $16,325,720 per annum to operate, excluding depreciation and taxes;
- The new airplane requires a working capital of $2,487,000;
- The old airplane requires a working capital of $1,814,000;
- A feasibility study to determine the costs and benefits has already cost $15,000;
- The old airplane could be sold for $12 million;
- The old airplane has a written down value (cost less accumulated depreciation) of $9 million;
- The depreciation for year 1 for the new airplane is $1,112,520;

- The depreciation for the old airplane is $613,000 for year 1 if the old airplane was kept;
- The estimated required rate of return earned for the planning horizon of five years is 14%;
- World Airways accepts capital rationing during the entire five-year period;
- World Airways evaluates the purchase of the new airplane using the NPV method.

Note: Adopted from Levary & Seitz 1990, pp. 24-25.

The company assumes a number of economic conditions as shown in Table 1. Also the company estimates cost of capital of 14% per annum and limits the amount of external capital that can be raised at this cost at $1 billion. If World Airways tries to raise capital faster than this, the marginal cost of capital would increase to 20%. The company also decides that any unusual funds raised can be temporarily invested at an interest rate of 10% a year. The estimated cash flows and calculated coefficients for the constraints are shown in Table 1.

Table 1. Flight Route Assumptions and Calculation Summary of Coefficient Variables

1	All flight routes have equal risk or cash flows are identified						
2	All costs and benefits are measured in cash flows						
3	The capital structure is the best possible (lowest possible cost of capital)						
4	Funds that can be raised or invested externally at a given discount rate is unlimited						
5	The discount rate is the same from year to year						
6	If more than one source of capital is used, each source each source remains of the same proportion of the present value of the remaining cash flows throughout the life of the asset.						

		Year 1		Years 2-5		Year 1	Years 2-5
	Flight Routes	Cash Flow Per Flight	Flight Days	Cash Flow Per Flight	Flight Days	Coefficient Variables	
						Sums divided by 1,000,000	Sums divided by 1,000,000
R_1	Europe Summer	49,924	182.5	49,924	182.5	9,111	9,111
R_2	Europe Winter	49,924	182.5	49,924	182.5	9,111	9,111
R_3	Transcontinental	33,611	365	33,611	365	12,268	12,268
R_4	Short flights	2,049	365	2,049	365	0.748	0.748
R_5	Intermediate	2,566	365	2,566	365	0.9367	0.9367
R_6	Caribbean Summer	18,763	182.5	37,142	182.5	3.424	6.778
R_7	Caribbean Winter	18,763	182.5	37,142	182.5	3.424	3.4246.778
R_8	Commuter	1,549	365	1,549	365	0.565	0.565
R_W	Wide-body plane purchase price	146,000,000 in Year 1					
R_N	Narrow-body plane purchase price	28,000,000 in Year 1					
ξ_{1-5}	Lending interest	10%					
δ_{1-5}	Borrowing interest	14%					

Note: The assumptions and calculations given here are based on the information given on page 49 and in Table 5.2, p.143 respectively of Levary and Seitz (1990).

It is company policy to maintain the debt to equity ratio at a limit 40% per annum. The debt capital must be less than or equal to $1,000,000,000. Hence the equity value is estimated to be equal or less than $2,500,000,000 maximum.

Two additional constraints include state that the trans-Atlantic revenue must be limited to at most 30% of the revenue for summer and winter seasons combined. The revenue for the first year is estimated to be lower than that expected for the following years, because it will take time for World Airways to develop the Caribbean routes. Therefore, two additional constraints on trans-Atlantic revenue are needed, one for the first year

and another one for the subsequent years. These constraints are formulated below:

Defining the Decision and Constraint Variables

The maximisation of the present value (PV) of World Airways is achieved through optimal allocation of available capital resources based on the given constraints. Below we define the following decision variables:

R_1: Wide-bodied airplanes: average number of trans-Atlantic flights per day in summer.
R_2: Wide-bodied airplanes: average number of trans-Atlantic flights per day in winter.

R_3:   Wide-bodied airplanes: average number of transcontinental flights per day.

R_4:   Narrow-bodied airplanes: average number of short flights per day.

R_5:   Narrow-bodied airplanes: average number of intermediate flights per day.

R_6:   Wide-bodied airplanes: average number of Caribbean flights per day in summer.

R_7:   Wide-bodied airplanes: average number of Caribbean flights per day inwinter.

R_8:   Narrow-bodied airplanes: average number of commuter flights per day.

P_w: Wide-bodied airplanes purchased at the beginning of the first year.

P_N: Narrow-bodied airplanes purchased at the beginning of the first year.

ξ_t: The amount lent in year t (t = 1, 2, …, 5.

δ_t: The amount borrowed in year t (t = 1, 2, …, 5).

The formulation of the capital budgeting problem: In the base model of Levary and Seitz (1990), management estimates expected PVs from each route, calculated at the 5-year time period. They are shown in Table 2.

Table 2. Estimated Present Values (PV)

Routes	Present value at the horizon of total cash flows (millions of dollars).
Summer trans-Atlantic routes *(R₁)*	11.11
Winter trans-Atlantic routes *(R₂)*	0.00
Transcontinental routes *(R₃)*	0.00
Short routes *(R₄)*	0.25
Intermediate routes *(R₅)*	0.25
Summer Caribbean routes *(R₆)*	0.00
Winter Caribbean routes *(R₇)*	2.15
Commuter routes *(R₈)*	0.00

Note: The present values for different routes given here are based on the information given on page 146 Levary and Seitz (1990).

The objective function aims at maximizing the present value of the company and the full model is formulated as follows:

Maximize present values (PV): $\xi_5 + 11.11_{R1} + 0.25_{R4} + 0.25_{R5} + 2.15_{R7} + 100_{Pw} + 20_{PN} - \delta_5$;

subject to:

$\xi_1 - 9.111_{R1} - 9.111_{R2} - 12.268_{R3} - 0.748_{R4} - 0.9367_{R5} - 3.424_{R6} - 3.424_{R7} - 0.565_{R8} + 146_{Pw} + 28_{PN} - \delta_1 \leq 0$;

$1.14\xi_1 - \xi_2 - 9.111_{R1} - 9.111_{R2} - 12.268_{R3} - 0.748_{R4} - 0.9367_{R5} - 6.778_{R6} - 6.778_{R7} - 0.565_{R8} - 1.1\delta_1 + \delta_2 \leq 0$;

$1.14\xi_2 - \xi_3 - 9.111_{R1} - 9.111_{R2} - 12.268_{R3} - 0.748_{R4} - 0.9367_{R5} - 6.778_{R6} - 6.778_{R7} - 0.565_{R8} - 1.1\delta_2 + \delta_3 \leq 0$;

$1.14\xi_3 - \xi_4 - 9.111_{R1} - 9.111_{R2} - 12.268_{R3} - 0.748_{R4} - 0.9367_{R5} - 6.778_{R6} - 6.778_{R7} - 0.565_{R8} - 1.1\delta_3 + \delta_4 \leq 0$;

$1.14\xi_4 - \xi_5 - 9.111_{R1} - 9.111_{R2} - 12.268_{R3} - 0.748_{R4} - 0.9367_{R5} - 6.778_{R6} - 6.778_{R7} - 0.565_{R8} - 1.1\delta_4 + \delta_5 \leq 0$;

$15.587_{R1} + 15.587_{R2} - 9.451_{R3} - 0.931_{R4} - 1.281_{R5} - 3.203_{R6} - 3.203_{R7} - 0.721_{R8} \leq 0$;

$15.587_{R1} + 15.587_{R2} - 9.451_{R3} - 0.931_{R4} - 1.281_{R5} - 5.018_{R6} - 5.018_{R7} - 0.721_{R8} \leq 0$;

$2_{R1} - 3_{R2} = 0$;

$2_{R6} - {}_{R7} = 0$;

$1.277_{R1} + {}_{R3} + {}_{R6} - 2.3_{Rw} \leq 98.9$;

$1.277_{R2} + {}_{R3} + {}_{R7} - 2.3_{Rw} = \leq 98.9$;

${}_{R4} + {}_{R5} + {}_{R8} + 8_{PN} = \leq 1000$;

${}_{R4} - 0.1_{R5} \leq 0$;

${}_{R4} - 0.3_{R5} \leq 0$;

$\delta_1 + \delta_2 + \delta_3 + \delta_4 + \delta_5 \leq 1000$;

${}_{Ri} \leq 0$ for i = 1, 2, …, 8;

${}_{Rw} \leq 0$, ${}_{PN} \leq 0$;

$\xi_j \leq 0$, $\delta_j \leq 0$ for j = 1, 2, …, 5.

Implementing the model

In Figure 1, the set target cell F23 holds the expected PV after running the model. In this problem the PV is $16,511. The objective of this model is to maximize the PV for airplane investment appraisal. The figure in the target cell is the sum-product of the PV for each decision variable (different flight routes, purchases of airplanes, lending and borrowings) at the 5-year time horizon of the total cash flows (in millions of dollars). The changing cells hold the maximum PV for each decision variable. The Solver is used to run the model and it places values into these cells until it finds the values that give the optimum results in total.

Figure 1. Solver Parameter Dialog Box
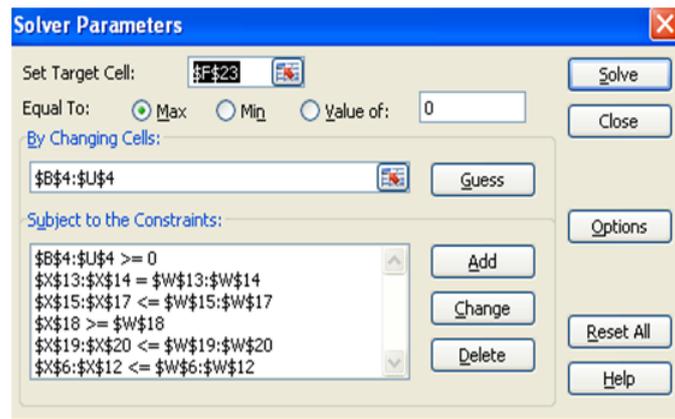
The constraints for the study are added to the problem in the 'subject to' window after the objective function equation. One of the options' icons in the Solver Parameter's dialog box allows the user to customise the problem. For example, there is an option which defines whether the problem is linear or non-linear. When the user defines the problem as linear, the sensitivity report produced contains different terms such as shadow prices[7] to describe marginal value of PV and reduced costs[8] to describe the cash flow at which routes not used in the itinerary would be included in the schedule to achieve the optimum PV. When the problem is not defined as linear, the Solver assumes the problem is non-linear and the sensitivity report generated uses the terms such as the Lagrange multiplier instead of shadow price to describe marginal value of PV. The Solver results dialog box is presented in Figure 1.

4 Base Model Results

Technically, when Solver returns a solution, it means that it has found a feasible and optimum answer and all the constraints are satisfied (Fylstra et al. 1998). The most important report of the three reports generated is the sensitivity one that contains the shadow prices and reduced costs. The analysis of the report involves ranking the shadow prices to identify the constraint that impacts on the optimal value most. The rankings of shadow prices in this study are shown in Table 3.

As indicated in Table 3, based on the rankings of the shadow prices, the availability of wide-bodied airplanes in summer impacts most on PV of the World Airways, followed by the availability of wide-bodied airplanes in winter. The third most significant constraint that impacts on maximizing PV is the availability of narrow-bodied airplanes all the times. Therefore, the results show that the availability of both wide-bodied and narrow-bodied airplanes impacts most on the PV.

The paper selected the top three constraints with the highest values of shadow prices and separately increased their constraints by one unit ($1million); then ran the model after each change and analysed the results. Table 4 shows the final values for both decision variables and constraints for the model, after modifying the base model with the three top shadow prices. For the purpose of useful analysis of the results, the final values only for the decision variables are discussed in the paper. The goal of the model is to maximize the PV of World Airways therefore all decision variables with zero values are excluded in the analysis because they do not add anything to the optimal PV. Further, based on the management estimation of PV values for each decision variable (see Table 2), some decision variables are estimated to contribute zero PV, therefore these too are excluded in the analysis because they also do not add any value to the total PV.

Shadow prices

Table 4clearly shows that when the three constraints with higher values of shadow prices are increased by one unit (1 million), the optimal value as well as the values of some decision variables changes. The constraint with the largest shadow price value, the availability of wide-bodied airplanes in summer, causes the greatest increase on the optimal value and final values of some decision variables, followed by the availability of wide-bodied airplanes in winter, and third is the availability of narrow-bodied airplanes all times.

After excluding decision variables with zero final values and decision variables with zero

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[7] Ragsdale (2004) defines shadow price as the amount by which the objective function value changes given a unit increase in the RHS value of the constraint, assuming all other coefficients remain constant.

[8] Ragsdale (2004) defines reduced cost as the amount by which the objective function would be reduced (or improved) if this variable were allowed to increase by one unit.

coefficient values, the results for the horizon of five years show that the two decision variables which contributed most to the optimal PV, are the PV of the interest earned on money lent (ξ_5) and PV from wide-bodied airplanes purchased (P_W). Both decision variables contributed a total of 93% of the optimal PV (see Table 7); interest on money lent contributed 77%; and wide-bodied airplanes purchased contributed 16%. When the constraint of an decision variable with the highest shadow price – the availability of wide-bodied airplanes in summer, is increased by one unit ($1 million), the optimal value increases from $16,510.64 million to $16,561.3 million (an increase of 50.66 units – $50.66 million). When the constraint of the decision variable with the second highest shadow price – the availability of wide-bodied airplanes in winter is increased by one unit ($1 million), the optimal value increases from $16,510.64 million to $16,548.3 million (an increase of $37.66 million). Lastly, when the constraint of the decision variable with the third highest shadow price – the availability of narrow-bodied airplanes all times is increased by one unit ($1 million), the optimal value increases from $16,510.64 million to $16,517.9 million (an increase of $7.26 million). In absolute dollars, these are significant increases. In modifying the base model, the agency costs of 0.48 (-1.2*0.4) are incorporated in the objective function; -1.20 is the estimated debt capital and 0.4 is the estimated debt equity ratio. Based on the results, World Airways should operate 72 trans-Atlantic flights per day during the summer season, 91 short flights per day, 910 flights intermediate

flights per day, 61 Caribbean flights per day during winter season, purchase 25 new wide body airplanes and lend $12753.16 million per year. The decision to operate the above flight routes, the purchase of the wide body airplanes and the lending out excess cash flow, maximizes the PV of the future cash flow to $16,517.9 million which maximizes World Airways PV.

Reduced cost

Two of the ways reduced cost can validly be interpreted are; the amount by which one unit of that variable's coefficient value would change the optimal value or the amount of penalty (cost) the company would pay for introducing one unit of that variable into the solution.

Since this paper is about maximizing PV the negative reduced costs for non-basic variables in the sensitivity report indicate that the variable or resource marginal cost is more than the marginal revenue. Therefore, the activity should not be undertaken. If the reduced cost is positive, increasing the reduced cost of that particular activity makes it attractive and improves the optimal value (Bradley, Jarrell & Kim 1984).

The paper analyses the reduced costs to establish their impact on the PV of World Airways. The results of the base model (see Table 5) show that out of the twenty variables analysed, seven variables have negative reduced costs therefore money should not be spent on these resources.

Table 3. Base Model: Shadow Prices Rankings

Names	Shadow Price	Ranking
Total value in Year 1	2.08	4
Total value in Year 2	1.33	5
Total value in Year 3	1.21	6
Total value in Year 4	1.10	7
Total value in Year 5	1.00	8
AC1 – Trans–AtlanticRevenueY1	0.63	9
AC2 – Trans–AtlanticRevenueY2-5	0.00	11
AC3 – Trans–AtlanticFlightsWinter	-1.09	12
AC4 – CaribbeanFlightsSummer	-5.04	14
AC5 – AvailabilityWidebodyAirplanesSummer	50.67	1
AC6 – AvailabilityWidebodyAirplanesWinter	37.69	2
AC7 – AvailabilityNarrowbodyAirplanesAlltimes	7.21	3
AC8 – ShortFlightRoutesMoreThanTenPercent	-1.35	13
AC9 – ShortFlightRoutesLessThanThirtyPercent IntermediateFlights	0.00	11
AC10 – ExternalCapitalLimit	0.56	10

Table 4. Summary: Impact of Final Values by Increasing the Top Three High ranked Constraints Using Shadow Prices by One Unit ($1 million)

		Final values (millions)			
		Base model	Shadow price 1¤	Shadow price 2*	Shadow price 3#
	Optimal present value (objective value)	16510.64	16561.3	16548.3	16517.9
	Changing variables				
1	Flights Europe – Summer	72.26	72.57	72.25	72.29
2	Flights Europe – Winter	48.17	48.38	48.17	48.20
3	Flights - USA	35.17	36.91	34.14	35.12
4	Short flights Narrow – bodied airplanes	90.91	90.91	90.91	91.00
5	Intermediate Flights	909.09	909.09	909.09	910.00
6	Flights Caribbean – Summer	30.76	29.89	31.75	30.77
7	Flights Caribbean – Winter	61.51	59.78	63.51	61.55
8	Commuter flights	0.00	0.00	0.00	0.00
9	Wide-bodied airplanes purchased	25.78	25.90	25.77	25.79
10	Narrow-bodied airplanes purchased	0.00	0.00	0.00	0.00
11	Amount lent Year 1	0.00	0.00	0.00	0.00
12	Amount lent Year 2	1933.64	1942.08	1941.21	1934.88
13	Amount lent Year 3	5200.64	5218.37	5216.55	5203.24
14	Amount lent Year 4	8794.35	8822.28	8819.41	8798.44
15	Amount lent Year 5	12747.42	12786.59	12782.57	12753.16
16	Money borrowed Year 1	1000.00	100.00	1000.00	1000.00
17	Money borrowed Year 2	0.00	0.00	0.00	0.00
18	Money borrowed Year 3	0.00	0.00	0.00	0.00
19	Money borrowed Year 4	0.00	0.00	0.00	0.00
20	Money borrowed Year 5	0.00	0.00	0.00	0.00
	Constraints				
1	Total value Year 1	0.00	0.00	0.00	0.00
2	Total value Year 2	0.00	0.00	0.00	0.00
3	Total value Year 3	0.00	0.00	0.00	0.00
4	Total value Year 4	0.00	0.00	0.00	0.00
5	Total value Year 5	0.00	0.00	0.00	0.00
6	AC1 – Trans-Atlantic revenue Year 1	0.00	0.00	0.00	0.00
7	AC2 – Trans-Atlantic revenue Year 2-5	-167.47	-162.75	-172.91	-167.56
8	AC3 – Trans-Atlantic flights – Winter	0.00	0.00	0.00	0.00
9	AC4 – Caribbean flights – Summer	0.00	0.00	0.00	0.00
10	AC5 – Availability wide-bodied Airplanes – Summer	98.90	99.90	89.90	98.90
11	AC6 – Availability wide-bodied Airplanes – Winter	98.90	98.90	99.90	98.90
12	AC7-Availability narrow-bodied Airplanes – All-times	1000.00	1000.00	1000.00	1001.00
13	Short flight routes more than 10% of Intermediate flights	0.00	0.00	0.00	0.00
14	Short flight routes less than 30% of Intermediate flights	-181.82	-182.82	-182.82	-182.00
15	External capital limit	1000.00	1000.00	1000.00	1000.00

Notes:
Shadow price 1¤: Availability of wide-bodied airplanes – Summer
Shadow price 2*: Availability of wide-bodied airplanes – Winter
Shadow price 3#: Availability of narrow-bodied airplanes – All times

Table 5

Microsoft Excel 12.0 Sensitivity Report
Worksheet: [World_Airways_2010_UNMODIFIED6.xlsx]Sheet1
Report Created: 1/10/2010 2:25:30 PM

Adjustable Cells

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
B6	Flights_Europe_Summer	72.26	0.00	11.11	6848.29	24.03
C6	Flights_Europe_Winter	48.17	0.00	0	10272.43	36.05
D6	Flights_USA	35.17	0.00	0	13.90	29.13
E6	Short_Flights_Narrow_Body_Airplanes	90.91	0.00	0.25	1.49	32.66
F6	Intermediate_Flights	909.09	0.00	0.25	1E+30	1.49
G6	Flights_Caribbean_Summer	30.76	0.00	0	58.43	37.78
H6	Flights_Caribbean_Winter	61.51	0.00	2.15	29.21	18.89
I6	Commuter_Flights	0.00	-2.97	0	2.97	1E+30
J6	WidebodyAirplanesPurchased	25.78	0.00	100	2126.86	66.33
K6	Narrow_bodied_Airplanes	0.00	-95.85	20	95.85	1E+30
L6	Amount_Lent_Year1	0.00	-0.61	0	0.61	1E+30
M6	Amount_Lent_Year2	1933.64	0.00	0	0.32	1.331
N6	Amount_Lent_Year3	5200.64	0.00	0	0.35	1.21
O6	MoneyLentYear4	8794.35	0.00	0	0.39	1.1
P6	MoneyLentYear5	12747.42	0.00	1	0.42	1
Q6	MoneyBorrowedYear1	1000.00	0.00	0	1E+30	0.56
R6	MoneyBorrowedYear2	0.00	-0.61	0	0.61	1E+30
S6	MoneyBorrowedYear3	0.00	-0.60	0	0.60	1E+30
T6	MoneyBorrowedYear4	0.00	-0.60	0	0.60	1E+30
U6	MoneyBorrowedYear5	0.00	-0.56	-1	0.56	1E+30

Constraints

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
X8	TotalValueYear1	0.00	2.08	0	1E+30	3056.32
X9	TotalValueYear2	0.00	1.33	0	1E+30	1933.64
X10	TotalValueYear3	0.00	1.21	0	1E+30	5200.64
X11	TotalValueYear4	0.00	1.10	0	1E+30	8794.35
X12	TotalValueYear5	0	1	0	1E+30	12747.42
X13	AC1_TransAtlanticReveueYear1	0.00	0.63	0	178.28	2762.06
X14	AC2_TransAtlanticRevenueYear2_5	-167.47	0.00	0	1E+30	167.47
X15	AC3_TransAtlanticFlights_Winter	0.00	-1.09	0	49.74	64.58
X16	AC4_CaribbeanFlights_Summer	0.00	-5.04	0	38.11	32.21
X17	AC5_Availability_widebody_Airplanes_Summer	98.90	50.67	98.9	35.47	20.22
X18	AC6_Availability_widebody_Airplanes_winter	98.90	37.69	98.9	34.16	30.83
X19	AC7_Availability_Narrowbody_airplanes_alltimes	1000.00	7.21	1000	761.08	1000.00
X20	AC8_Short_Flight_routes_more_than_tenpercent	0.00	-1.35	0	153.85	100.00
X21	AC9_Short_Flight_routes_Less_than_thirtypecentage_intermediate_Flights	181.82	0.00	0	1E+30	181.82
X22	AC10_External_Capital_Limit	1000.00	0.56	1000	2178.20	1000.00

The variables which have negative reduced costs include commuter flights route which has a negative of 2.97 units (-2.97 million). This means that the estimated coefficient variable (PV) for this route has to increase by at least 2.97 units from its original estimated PV of zero to positive 2.97 units in order to contribute positively to PV. Next is the narrow-bodied airplanes purchased which has a negative reduced cost of 95.85 units (-95.85 million). Similarly, this means that the estimated PV for the purchase of narrow-bodied airplanes has to be increased by 95.85 units from its original estimated PV of 20 units to 115.85 units, in order to contribute positively to PV. The other decision variables that have negative reduced costs include amount lent in the first year (-0.61 million), amount borrowed in the second year (-0.61 million); amount borrowed for both the third and fourth year (-0.60 million), and amount borrowed for the fifth year (-0.56 million). These variables need to be increased by their negative respective amounts in order to contribute positively to PV.

5 Modified Model Results

Agency costs

The objective function of the base model of Levary and Seitz (1990) is modified by including agency costs as a proxy for good corporate governance and the constraints are modified by adding equity capital, debt capital, debt equity ratio and agency costs. The modified model is discussed below.

The objective function of the modified model incorporate agency costs of 0.48. The constraints' section include limits of debt capital of $2,500 million, debt equity ratio of 40% and agency costs of 1.2 of the debt equity ratio. The modified model aims at maximizing the PV and minimising agency costs of the company. The model defines all cash components to be in units of millions of dollars.

The mathematical equations of the modified model are shown below.
Maximize (PV): $\xi_5 + 11.11_{R1} + 0.25_{R4} + 0.25_{R5} + 2.15_{R7} + 100_{Pw} + 20_{PN} - \delta_5 - 0.48_{AC5}$
Subject to:
(Showing only constraints added to the original mathematical equations after table 2)

$$T_E = E_1 + E_2 + E_3 + E_4 + E_5 \leq 2500$$
$$DER = T_\delta / T_E$$
$$DER \geq 0.40$$
$$AC \leq -1.2DER$$

Shadow prices

The study uses shadow prices to identify and analyse sensitive decision variables that impact the PV most. The higher the shadow price value is the higher the impact of that resource is on the PV. The results show three decision variables that have significant impact; the availability of wide-bodied airplanes in summer, availability of wide-bodied airplanes in winter and availability of narrow-bodied airplanes at all times. In the order of sensitivity, the study finds that the availability of wide-bodied airplanes in summer impacts the PV most (53%), next is the availability of wide-bodied airplanes in winter (39%) and number three is the availability of narrow-bodied airplanes at all times (1%).

Table 6 ranks the shadow prices of the modified model according to their values from the highest to the lowest. In the paper, the sensitivity report for World Airways under the constraint section, it shows that the availability of wide bodied airplanes during summer season has the highest value of shadow price therefore, it impacts the PV most. It has a shadow price of 50.67; final value of 98.90; right side constraint of 98.90; allowable increase of 35.47; and allowable decrease of 20.22. This means that the right hand side constraint of 98.90 can be increased by any figure between zero and 35.47 to impact the PV. In other words, when the constraint is increased by one unit ($1 million), the optimum value will increase by 50.67 units (50.67 million). Similarly, the constraint can be decreased by any amount between zero and 20.22 to impact the PV. When the constraint is decreased by one unit ($1 million), the PV will decrease by 50.67 units (50.67 million). When the constraint variable is changed with any values that lie outside the allowable increase and decrease values, the PV will not change – no impact. Therefore, the PV increases from $18,375.8 million to $18,426.5 million, an increase of $50.70 million.

Table 6. Modified Model: Shadow Prices Rankings

Name	Shadow prices	Rankings
Total value Year 1	2.08	4
Total value Year 2	1.33	6
Total value Year 3	1.21	7
Total value Year 4	1.10	8
Total value Year 5	1.00	9
Trans-Atlantic Year 1	0.63	11
Trans-Atlantic Year 2 - 5	0.00	13
Trans-Atlantic flights – Winter	-1.09	14
Caribbean flights – Summer	-5.04	16
Availability wide bodied Airplanes – Summer	50.67	1
Availability wide bodied Airplanes – Winter	37.69	2
Availability narrow bodied Airplanes – All times	7.21	3
Short flight routes more than 10% of intermediate flights	-1.35	15
Short flight routes less than 30% of intermediate flights	0.00	13
External capital limit	0.56	12
Equity	0.75	10
Debt/equity ratio	1.40	5
Agency costs	0.00	13

The decision variable, the availability of wide-bodied airplanes in winter, has the second highest value of the shadow price of 37.69, final value of 98.90; right hand side constraint of 98.90; an allowable increase of 34.16, and an allowable decrease of 30.83. This means that the right hand side constraint of 98.90 can be increased by any figure between zero and 3416 to impact the PV. For example, if the constraint is increased by one unit ($1 million), the PV increases by 37.69 units ($37.69 million). Similarly, the constraint can be decreased by any amount between zero and 30.83 to impact the PV. If the constraint is decreased by one unit ($1 million), the PV decreases by 37.69 units ($37.69 million). If the constraint variable is changed with any values that lie outside the allowable increase and decrease, the PV will not be impacted. This means by increasing the availability of wide-bodied airplanes in winter by one unit ($1 million), the PV increases from $18,375.8 to $18,413.5 million; an increase of $37.70 million.

The decision variable, the availability of narrow-bodied airplanes all times has the third highest value of the shadow price of 7.21; a final value of 1000.00; the right hand side constraint of 1000.00; an allowable increase of 761.08, and an allowable decrease of 1000.00. This means that the right hand side constraint of 1000.00 can be

increased by any figure between zero and 761.08. If the constraint variable is increased by one unit ($1 million), the PV increases by 7.21 units ($7.21 million). Similarly too, the constraint variable can be decreased by any amount between zero and 1000.00. If the constraint variable is decreased by one unit ($1 million), the PV decreases by 7.21 units ($7.21 million). If the constraint variable is changed with any values that lie outside the allowable increase and decrease, the PV does not change. Lastly, if the availability of narrow-body airplanes at all times, is increased by one unit ($1 million), the PV increases from $18,375.8 million to $18,383.0 million; an increase of $7.20 million.

In summary, among the three decision variables with the highest shadow price values, the availability of wide-bodied airplanes in summer is the most sensitive constraint variable if changed by one unit, followed by the availability of wide-body airplanes in winter, and the availability of narrow-bodied airplanes at all times is the least sensitive among these three decision variables as indicated in Table 6. Therefore, management should pay special attention to these three decision variables when making investment decisions.

Table 7 shows the impact on the final values of various decision variables after incorporating different shadow prices in the modified model. The results show that some decision variables are not affected at all; some others are slightly changed while others are significantly impacted. Those which are significantly affected impact the PV most i.e., they are very sensitive to any change in the decision variable. The results show that the two decision variables that contribute most to the PV are the interest earned on money lent and the wide-bodied airplanes purchased. Both decision variables contribute a total of 93% of the PV. The interest on money lent contributes 67% and the wide-bodied airplanes purchased contribute 26%. The study finds that the total percentage of contribution to PV for the two top decision variables before and after considering agency costs remain the same at 93%. However, the individual percentage contribution for each decision variables change from 77% and 16%, to 67% and 26%, before and after agency costs respectively.

Table 7. Summary of the Impact on Optimal Value after Increasing the Constraints with the Top Three High Shadow Prices by One Unit (1 Million), and After Excluding Objective Variables with Zero Values

CG_CAP_BUD_MOLP								
Base model after incorporating agency costs and before modifying it with shadow price								
	R1	R4	R5	R7	Pw	α5	DER5	Optimal value
MAX: PV	11.11	0.25	0.25	2.15	100.00	1.00	1.00	
Changing cells	84.33	90.91	909.09	71.79	46.87	12347.10	0.40	
Contribution/Variable	936.91	22.73	227.27	154.35	4687.00	12347.10	0.40	18375.75
Percentage contribution/variable	5.10%	0.12%	1.24%	0.84%	25.51%	67.19%	0.00%	100.00%
Base model after incorporating agency costs and after modifying it with shadow price #1								
	R1	R4	R5	R7	Pw	α5	DER5	Optimal value
MAX: PV	11.11	0.25	0.25	2.15	100.00	1.00	1.00	
Changing cells	84.64	90.91	909.09	70.06	46.99	12386.28	0.40	
Contribution/Variable	940.35	22.73	227.27	150.63	4699.00	12386.28	0.40	18426.66
Percentage contribution/variable	5.10%	0.12%	1.23%	0.82%	25.50%	67.22%	0.00%	100.00%
Base model after incorporating agency costs and after modifying it with shadow price #2								
	R1	R4	R5	R7	Pw	α5	DER5	Optimal value
MAX: PV	11.11	0.25	0.25	2.15	100.00	1.00	1.00	
Changing cells	84.32	90.91	909.09	73.79	46.85	12382.25	0.40	
Contribution/Variable	936.80	22.73	227.27	158.65	4685.00	12382.25	0.40	18413.09
Percentage contribution/variable	5.09%	0.12%	1.23%	0.86%	25.44%	67.25%	0.00%	100.00%
Base model after incorporating agency costs and after modifying it with shadow price #3								
	R1	R4	R5	R7	Pw	α5	DER5	Optimal value
MAX: PV	11.11	0.25	0.25	2.15	100.00	1.00	1.00	
Changing cells	84.36	90.91	909.09	71.82	46.88	12352.85	0.40	
Contribution/Variable	937.24	22.73	227.27	154.41	4688.00	12352.85	0.40	18382.90
Percentage contribution/variable	5.10%	0.12%	1.24%	0.84%	25.50%	67.20%	0.00%	100.00%

Reduced cost

We now turn to analyse the reduced costs of the modified model to establish their impact on the PV of World Airways. The results of the modified model (see Table 8) show that out of the thirty five variables analysed, fifteen variables have negative reduced costs therefore money should not be spent on these resources.

Table 8

Microsoft Excel 12.0 Sensitivity Report
Worksheet: [6_World_Airways_MODIFIED_Agency_Costs.xlsx]Sheet1
Report Created: 29/10/2010 11:13:53 AM

Adjustable Cells

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
B6	Flights_Europe_Summer	84.33	0.00	11.11	570.46	24.03
C6	Flights_Europe_Winter	56.22	0.00	0	855.68	36.05
D6	Transcontinental_Flights_Wide_body_airplanes	63.12	0.00	0	13.90	29.13
E6	Short_Flights_Narrow_Body_Airplanes	90.91	0.00	0.25	1.49	32.66
F6	Intermediate_Flights	909.09	0.00	0.25	1E+30	1.49
G6	Flights_Caribbean_Summer	35.90	0.00	0	58.43	37.78
H6	Flights_Caribbean_Winter	71.79	0.00	2.15	29.21	18.89
I6	Commuter_Flights	0.00	-2.97	0	2.97	1E+30
J6	WidebodyAirplanesPurchased	46.87	0.00	100	326.49	66.33
K6	Narrow_bodied_Airplanes	0.00	-95.85	20	95.85	1E+30
L6	Amount_Lent_Year1	0.00	-0.61	0	0.61	1E+30
M6	Amount_Lent_Year2	64.33	0.00	0	0.32	1.331
N6	Amount_Lent_Year3	3775.09	0.00	0	0.35	1.21
O6	MoneyLentYear4	7856.92	0.00	0	0.39	1.1
P6	MoneyLentYear5	12347.10	0.00	1	0.42	1
Q6	MoneyBorrowedYear1	1000.00	0.00	0	1E+30	0.56
R6	MoneyBorrowedYear2	0.00	-0.61	0	0.61	1E+30
S6	MoneyBorrowedYear3	0.00	-0.60	0	0.60	1E+30
T6	MoneyBorrowedYear4	0.00	-0.60	0	0.60	1E+30
U6	MoneyBorrowedYear5	0.00	-0.56	-1	0.56	1E+30
V6	Equity_Year1	2500.00	0.00	0	1E+30	0.62
W6	Equity_Year2	0.00	-0.62	0	0.62	1E+30
X6	Equity_Year3	0.00	-0.64	0	0.64	1E+30
Y6	Equity_Year4	0.00	-0.65	0	0.65	1E+30
Z6	Equity_Year5	0.00	-0.75	-1	0.75	1E+30
AA6	Debt_Equity_Ratio_Year1	0.00	-1.10	0	1.10	1E+30
AB6	Debt_Equity_Ratio_Year2	0.00	-1.35	0	1.35	1E+30
AC6	Debt_Equity_Ratio_Year3	0.00	-1.36	0	1.36	1E+30
AD6	DEbt_Equity_Ratio_Year4	0.00	-1.36	0	1.36	1E+30
AE6	Debt_Equity_Ratio_Year5	0.40	0.00	1	1E+30	1.10
AF6	Agency_Costs_Year1	0.00	0.00	0	0	1E+30
AG6	Agency_Costs_Year2	0.00	0.00	0	0	1E+30
AH6	Agency_Costs_Year3	0.00	0.00	0	0	1E+30
AI6	Agency_Costs_Year4	0.00	0.00	0	0	1E+30
AJ6	Agency_Costs_Year5	0.00	0.00	0	0	1E+30

Constraints

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
AM8	TotalValueYear1	0.00	2.08	0	1E+30	254.99
AM9	TotalValueYear2	0.00	1.33	0	1E+30	64.33
AM10	TotalValueYear3	0.00	1.21	0	1E+30	3775.09
AM11	TotalValueYear4	0.00	1.10	0	1E+30	7856.92
AM12	TotalValueYear5	0.00	1.00	0	1E+30	12347.10
AM13	TransAtlanticReveueYear1	0.00	0.63	0	208.06	933.77
AM14	TransAtlanticRevenueYear2_5	-195.45	0.00	0	1E+30	195.45
AM15	TransAtlanticFlights_Winter	0.00	-1.09	0	89.27	75.36
AM16	CaribbeanFlights_Summer	0.00	-5.04	0	68.40	37.59
AM17	Availability_widebody_Airplanes_Summer	98.90	50.67	98.9	41.39	7.62
AM18	Availability_widebody_Airplanes_winter	98.90	37.69	98.9	61.32	8.49
AM19	Availability_Narrowbody_airplanes_alltimes	1000.00	7.21	1000	1366.02	51.98
AM20	Short_Flight_routes_less_than_tenpercent	0.00	-1.35	0	153.85	100.00
AM21	Short_Flight_routes_Less_than_thirtypecentage_intermediate_Flifgts	-181.82	0.00	0	1E+30	181.82
AM22	External_Capital_Limit	1000.00	0.56	1000	72.46	1000.00
AM23	Equity	2500.00	0.75	2500	86.03	2500.00
AM24	Debt_Equity_Ratio	0.40	1.40	0.4	1E+30	0.40
AM25	Agency_Costs	0.48	0.00	0.48	0	1E+30

The variables which have negative reduced costs include commuter flights route which has a negative of 2.97 units (-2.97 million). This means that the estimated coefficient variable (PV) for this

route has to increase by at least 2.97 units from its original estimated PV of zero to positive 2.97 units in order to contribute positively to PV. Next is the narrow-bodied airplanes purchased which has a negative reduced cost of 95.85 units (-95.85 million). Similarly, this means that the estimated PV for the purchase of narrow-bodied airplanes has to be increased by 95.85 units from its original estimated PV of 20 units to 115.85 units, in order to contribute positively to PV. The other decision variables that have negative reduced costs include amount lent in the first year (-0.61 million), amount borrowed in the second year (-0.61 million); amount borrowed for both the third and fourth year (-0.60 million), and amount borrowed for the fifth year (-0.56 million), equity in year 2 (-0.62), equity in year 3 (-0.64), equity in year 4 (-0.65), equity in year 5 (-0.75), debt equity ratio in year 1 (-1.10), debt equity ratio in year 2 (-1.35), debt equity ratio in years 3 and 4 (-1.36), . These variables need to be increased by their negative respective amounts in order to contribute positively to PV.

Robustness and Validation of the Model and the Results

The results show that the developed model is effective and meets the overall intended World Airways' objectives of maximizing PV and minimizing agency costs. The model allows the optimization process to be implemented and the optimum solutions found by running the model several times under different input conditions which impact the decision making.

The objective function in the developed model maximizes the PV and mitigates the agency costs subject to twenty one limited financial resources. Analytical validation that entails the practicability and robustness of the model and the results is carried out in the study. It involved changing various coefficients of decision variables and constraints and finding the results that can be interpreted rationally within the parameters used and as expected. The paper finds the developed model to be operational and can be used in the real life investment appraisal process. The results of this model achieve the intended objective and support the decision criteria consideration in capital budgeting such as maximizing PV and minimising agency costs to maximize firm value.

Plausibility of Results

The accuracy and acceptability of the results in this study are verified by comparing the generated optimal solutions and the expected results after considering the PV of cash flow and mitigating agency costs.

After examining the optimal solutions generated by both the base and modified model,

they revealed that there was a significant increase in the PV after the inclusion of mitigation of agency costs in the objective function as expected. The model identified four flight routes, purchase of wide-bodied airplanes, lending free cash flow in year 5 and mitigation of agency costs as the business transactions that contribute to the firm value of World Airways. The generated results are found to be in agreement with the theory regarding the maximisation of the PV of cash flows after considering uncertainty and risk in the DCF capital budgeting techniques. The PV of World Airways increased as expected. The paper finds it difficult to compare the current results with past findings in other similar studies because the inclusion of minimisation of agency costs in the objective function has not been the normal practice in the investment appraisal process. By including the mitigation of agency costs the model captures the impact of good corporate governance on management behaviour when making long term investment decisions such as selecting flight routes, purchasing new aircrafts, borrowing and lending money. The results show that by including good corporate governance in the form of agency costs in investment appraisal decisions maximizes firm value as expected. The new integrated approach extends the theory by incorporating mitigation of agency costs in the current MOLP model. Based on the improved firm value generated the modified model should become a standard in any investment appraisal decision-making because it considers an economic factor that is faced by the majority of companies in the modern economy that relies on IT to collect data and use it to make investment decisions.

6 Conclusion and Future Research

The study modifies MOLP optimization model by adding minimization of agency costs in the objective function using debt equity ratio as a proxy of good corporate governance and capital market interactions. The results of the modified model show that NPV techniques are incapable of handling long term capital investments having multiple objectives and limited in their application and therefore do not produce optimum firm values. The results also confirm that capital markets influence investment appraisal decisions through determining interest rates and debt covenants. The developed model is tested using different levels of risk, various coefficients of decision variables and constraints that produces plausible results. The PV of the cash flows for the modified model increased and agency costs mitigated. Therefore, this model is operational and valid. It can be applied to any investment appraisal problems such as investment in manufacturing, hospital, government and non-profit organizations that have multiple objectives

and high level of risk including firms in airline industry and e-commerce sector hence it is robust.

The results show that the three decision variables which impact most on PV of World Airways, in their order of impact on the optimum value, are trans-Atlantic flights during summer season using wide-body airplanes, short flights using narrow-body airplanes and intermediate flights using narrow body airplanes. When the PV for the base model is subjected to different economic assumptions it is impacted in all situations. The summary of results for World Airways is shown in Table 9 below.

Table 9. The impact of agency costs on present value and the three significant decision variables

	1			2			3			Objective function		
	Wide body Airplanes in Summer			Wide body Airplanes in Winter			Narrow body Airplanes – All times			Optimal value – Present value		
Adjusting constraints with shadow prices	BM*	MM$^\&$	Impact	BM	MM	Impact	BM	MM	Impact	BM	MM	Impact
Not adjusted with shadow prices	72.26	84.33	12.07	48.17	56.22	8.05	90.91	90.91	0.00	16510.64	18375.75	1865.11
Adjusted: shadow price #1	72.57	84.64	12.07	48.38	56.43	8.05	90.91	90.91	0.00	16561.31	18426.66	1865.35
Adjusted: shadow price #2	72.25	84.32	12.07	48.17	56.21	8.04	90.91	90.91	0.00	16548.33	18413.09	1864.76
Adjusted: shadow price #3	72.29	84.36	12.07	48.20	56.24	8.04	91.00	91.00	0.00	16517.85	18382.90	1865.50

Source: Tables 5&8.
Key: BM* = Base Model
MM$^\&$ = Modified Model

The PV for the base model before considering agency costs ranges from $16,510.64 to $16,561.31 million. However, the PV for the modified model ranges from $18,375.75 to $18,426.66 million. The difference between the highest PV of the modified model - $18,426.66 and the highest PV of $16,561.31 of the base model is $1,865.35 million (18,426.66 – 16,561.31). This is a significant sum of money. These results provide evidence that mitigating agency costs improves firm value.

The increase of 12.07 (Table 9, column 4) in the average number of trans-Atlantic flights per day during summer using wide body airplanes increases the PV of World Airways because it was allocated a coefficient variable (contribution per unit) towards PV of the firm initially. However, management did not allocate any coefficient variable to the next significant variable – the average number of trans-Atlantic flights per day during the winter season using wide body airplanes. Thus, even if the modified model shows clearly that the consideration of agency costs would increase the average number of flights of this decision variable it did not add value to the PV.

This revelation confirms that management did not get it right when making estimates for decision variable coefficients. However, using the modified model it is now possible for management to make new estimates for second decision variable and run the model to find its impact on the PV.

Clearly, based on these results in particular the PV after considering agency costs, the evidence is that by integrating agency costs, the results reveal that NPV techniques are incapable of incorporating multiple objectives into capital investment decision making. Also capital market interactions such as interest rates debt covenants strengthen capital budgeting decision making and enhance corporate governance by influencing management behaviour in undertaking financially viable investments. The new approach is multi-criteria. It considers multiple objectives such as different flight routes, cash flows, agency costs and multiple constraints. It generates higher net cash inflows, PV and maximizes firm value. It enhances the airline's capital resource allocation and flight routes scheduling. Therefore; this model is robust, operational and can be used to make investment appraisal decisions in the real world situation in many industries.

A limitation of this research is that it uses one case study, World Airways, a company in the US. It is a hypothetical one discussed in Levary and Seitz (1990).The study also uses debt equity ratio as a proxy for good corporate governance and agency costs to modify the objective function of MOLP model. Future research can be carried out on

existing Airline Company and other companies that experience relentless global competition and rapid technological changes in IT. It may not be easy to find a firm that is willing to allow you access its actual capital investment information but it would be a worthwhile undertaking. Also more agency costs proxies such as the ratio of total sales to total assets (asset turnover); the ratio of selling, general and administration expenses to total sales; the ratio of operating expenses to total sales; the ratio of independent directors to total number of directors and the ratio of value of shares owned by institutions to total value of shares could be used to modify the MOLP model. Also most textbooks in finance focus on the maximizing shareholder wealth ignoring the interests of other stakeholders. Future research in investment appraisal could develop an inclusive "Social Welfare Maximization model" rather than an exclusive "Shareholder Wealth Maximization Model". The new MOLP model increases our understanding of the impact of capital markets interactions on investment appraisal decision making that has either been ignored or taken for granted by financial decision makers.

References

1. Allen, F, Carletti, E & Marquez, R (2009), 'Stakeholder capitalism, corporate governance and firm value', paper presented to EFA 2009 Ljubljana Meetings, ECGI - Finance Working Paper No. 190/2007, Wharton Financial Institutions Center Working Paper No.09-28, viewed 09/11/2011.
2. Appelbaum, B., (2010), Cost of seizing Fannie and Freddie surges for taxpayers. The New York Times, June 19.
3. Banks, E (2004), *Corporate governance: Financial responsibility, controls and ethics*, Palgrave Macmillan, New York.
4. Bennouna, K., Meredith, G. G., & Marchart, T., (2010), Improved capital budgeting decision making: Evidence from Canada. Management Decision, vol.48, No. 2, pp.225- 247.
5. Bradley, M, Jarrell, GA & Kim, EH (1984), 'On the existence of an optimal capital structure: Theory and evidence', *The Journal of Finance*, vol. 39, no. 3, pp. 857-78.
6. Brealey, R.A., Cooper, I.A., Habib, M.A., (1997), Investment appraisal in the public sector. *Oxford Review Economic Policy*, vol.13, No.4.
7. Byrd, J., (2010), Financial policies and agency costs of free cash flow: Evidence from the oil industry. *International Review of Accounting, Banking and Finance*, vol.2, No.2, pp.23-50.
8. Chava, S., Roberts, M.R., (2008), How Does Financing Impact Investment? The Role of Debt Covenants. *The Journal of Finance*, vol. LXIII, No.5.
9. Chen, KCW, Chen, Z & Wei, KCJ (2003), "Disclosure, corporate governance, and the cost of equity capital: Evidence from Asia's emerging markets", Working paper, Hong Kong University of Science and Technology, *Social Science Research Network*, viewed 09/11/2011.
10. Chen, K.C.W., Chen, Z., Wei, K.C.J., (2011), "Agency costs of free cash flow and the effect of shareholder rights on the implied cost of equity capita". *Journal of Financial and Quantitative Analysis*, vol.46, No.1, pp171-207.
11. Cremers, K. J. M., and Nair, V B., (2005)."Governance mechanisms and equity prices". *The Journal of Finance, vol. LX, no. 6*.
12. Cui, H & Mak, YT (2002), "The relationship between managerial ownership and firm performance in high R&D firms".*Journal of Corporate Finance*, vol. 8, pp. 313-36.
13. DeMarzo, P.M., Fishman, M.J., (2007)."Agency and Optimal Investment Dynamics". *The Review of Financial Studies*, vol.20, No.1. pp. 151-188.
14. Denis, D., and Denis, D., (1993),"Mangerial discretion, organisational structure, and corporate performance: a study of leveraged recapitalizations". *Journal of Accounting and Economics*, vol. 16, pp. 209-236.
15. Dietl, HM (2001), *Capital markets and corporate governance in Japan, Germany, and the United States: Organizational response to market inefficiencies*, Routledge, New York.
16. Easdown, G & Wilms, P. (2003), ANSETT: *The collapse*, Lothian Publishing, Melbourne.
17. Faleye, O. (2004),"Cash and Corporate Control". *The Journal of Finance*, Vol. LIX, no. 5.
18. Fylstra, D, Lasdon, L, Watson, J & Waren, A (1998), "Design and use of the Microsoft Excel Solver".*Interface*, vol. 28, no. 5.
19. Gass, SI & Harris, CM (2001), *Encyclopedia of operations research and management science*, 2nd edn, Kluwer Academic, Boston, London.
20. Gatchev, V.A., Pulvino, T., Tarhan, V., (2010), "The Interdependent and Intertemporal Nature of Financial Decisions: An Application to Cash Flow Sensitivities". *The Journal of Finance*, vol. LXV, No.2.
21. Gitman, LJ, Juchau, R & Flanagan, AJ (2011), *Principles of managerial finance*, 6th edn, Pearson, Sydney.
22. Gompers, P., J. Ishii, and Metrick, A. (2003),"Corporate Governance and Equity Prices". *Quarterly Journal of Economics*, vol. 118, no. 1, pp.107–155.
23. Hallerbach, W.G., Spronk, J., (2002), "The relevance of MCDM for financial decisions". *Journal of Multi-criteria Decisions Analysis*, vol.11, pp.187-195.
24. Hirth, S., Uhrig-Hombrg, M., (2010), "Investment timing, liquidity, and agency costs of debt". *Journal of Corporate Finance*, vol.16, pp.243-258.
25. Jensen, MC (1986), "Agency costs of free cash flow, corporate finance, and takeovers".*American Economic Review*, vol. 76, no. 2, p. 323.
26. Jensen, MC & Meckling, WH (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure".*Journal of Financial Economics*, vol. 3, no. 4, pp. 305-60.
27. Kaddy J (2007), "The 9-11/World Trade Center Memerial". *Journal of Art History*, Vol. 2 The University of Tampa.
28. Kaplan, M. (1989),"The effects of management buyouts on operating performance and value". *Journal of Financial Economics*, vol. 24, pp. 217-254.

29. Lee, AC, Lee, JC & Lee, CF (2009), *Financial analysis, planning and forecasting: Theory and application*, 2nd edn, World Scientific, Singapore.

30. Levary, RR & Seitz, N.(1990), *Quantitative methods for capital budgeting*, South-Western Publising, Cincinnati, OH.

31. McColgan, P.(2001), *Agency theory and corporate governance: A review of the literature from a UK perspective*, Department of Accounting and Finance, University of Strathclyde, UK.

32. Michaels D, Dalton M and Pasztor A (2010), "Vow to renew flights clouded by ash warning". The Wall Street Journal, Monday, 19th April.

33. Modigliani, F & Miller, M. H.(1958), "The cost of capital, corporation finance and the theory of investment".*The American Economic Review*, vol. 48, no. 3, pp. 261-97.

34. Morrell, P.(2011), "Current challenges in a 'Distressed' industry". *Journal of Air Transport Management*, vol. 17, pp.14-18.

35. Nowak, E.(2001), "Recent developments in German capital markets and corporate governance". *Applied Corporate Finance*, vol.14, No.3, pp.35-48.

36. Palepu, K.G., (1990),"Consequences of leveraged buyouts". *Journal of Financial Economics*, vol. 27, no 1. pp. 277-262.

37. Papadakos, N (2009), "Integrated airline scheduling".*Computer and Operations Research*, vol. 36, pp. 176-95.

38. Piot, C & Missonier-Piera, F.(2007), "Corporate governance, audit quality and the cost of debt financing of French listed companies", *Available at SSRN at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=960681*.

39. Psaros, J.(2009), *Australian corporate governance: A review and analysis of key issues*, Pearson Education Australia, Sydney.

40. Puzzanghera, J. (2010), Fannie Mae, Freddie Mac bailouts could hit $363 billion, report says. Los Angeles Times, October 22.

41. Ragsdale, C. T.(2007), *Spreadsheet modeling and decision analysis: A practical introduction to management science*, 5th edn, South-Western College, Cincinnati, Ohio.

42. Rasiah, D. and Kim, P.K. (2011), A theoretical review on the use of the static trade off theory, the pecking order theory and the agency cost theory of caoital structure. *International Research Journal of Finance and Economics*, no 63.

43. Renz, P.(2007), *Project governance: Implementing governance and business ethics in nonprofit organizations*, Physica-Vertag, New York, N.Y.

44. Ross, S., Christensen, M., Drew, M., Thompson, S., Westerfield, R., and Jordon, B (2011), Fundamentals of Corporate Finance, 5th edn, McGraw-Hill, Sydney.

45. Ruiz-Porras, A. (2011), "The Separation of Ownership and Control and Investment Decisionsin Mexican Manufacturing Firms". *International Business Research*, Vol.4, No.1. pp. 51-61.

46. Schaeffer, H. A.(20020, *Essentials of cash flow*, J. Wiley, Hoboken, N.J.

47. Schauten, M.and Blom, J.(2006), 'Corporate governance and cost of debt', available at SSRN at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=933615.

48. Schniederjans, M., Hamaker, J.& Schniederjans, A.(2010), *Information technology investment: Decision-Making Methodology,* World Scientific, New Jersey.

49. Seitz, N.& Ellison, M.919990, *Capital budgeting and long-term finance decisions*, 3rd edn, Harcourt Brace College, Fort Worth.

50. Shleifer, A. and Vishny, R. (19970, "A survey of corporate governance". *Journal of Finance* 52, pp. 737–783.

51. Smith, A.(1990), "Capital ownership structure and performance: The case of management Buyouts".*Journal of Financial Economics*, vol.27, no. 1, pp.143-64.

52. Stulz, R, M.(1990), "Managerial discretion and optimal financing policies". *Journal of Financial Economics*, vol.26, pp.3-27.

53. Tadesse, S.(2004), "The allocation and monitoring role of capital markets: Theory and international evidence". *Journal of Financial and Quantitative Analysis*, vol. 39, No. 4, pp. 701-730.

54. Titman, S, Keown, AJ & Martin, JD (2011), *Financial management: Principles and applications*, 11th edn, Prentice Hall, Boston.

55. Tsuji, C.(2011), "Recent Development of the Agency Theory and Capital Structure". *Economics and Finance Review*, vol. 1, issue no. 6, pp. 94-99.

56. Vergara, E. (2011), Chilean volcano eruption coats ski slopes, grounds many flights, *The Seattle Times*, Published on Monday, 6th June.

57. Viney, C.(2009), *Financial nstitutions, instruments and markets*, 6th edn, McGraw-Hill, Sydney.

58. Weller, S. (2009), "Shifting spatialities (sic) of power: The case of Australasian aviation". *Geoforum*, vol. 40, issue no. 5, pp. 790-99.

59. Wang, G.Y. (2010), The effects of misspecification of stochastic processes on investment appraisal. World Academy of Science, Engineering and Technology 66.

60. Wang, G.Y. (2010), The impacts of free cash flow and agency costs on firm performance. Journal of Service Science & Management, vol.3, pp.408-418.

AN EXPLORATION OF BOARD EFFECTIVENESS IN FAMILY BUSINESSES USING A SCALING APPROACH

Cristina Bettinelli*, Valeria Caviezel**

Abstract

This study addresses the call for the development of team effectiveness scales that take team context into account. It develops and validates a measurement scale for effectiveness in the specific context of boards of directors in family firms.

Results from a validation study based on 90 family businesses indicate that even if board task performance is associated with activities and roles that appear to represent differing views of effectiveness, they share a single, common line of inquiry. Moreover the study confirms that boards can be distinguished according to the degree to which they perceive themselves as more or less effective in performing certain roles. The scale demonstrates diagnostic properties that make it useful for practitioners as well as researchers.

Keywords: Board of Directors, Family Business, Role, Effectiveness

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INTRODUCTION

In 2003 a review of team effectiveness literature reveals that: "we are now at a key juncture in theory development. To truly push the field forward, (...) a more explicit consideration of team context is critical" (Gibson *et al.*, 2003:446). Additionally, the authors claim that, in order to develop empirical research, the development of measures of team effectiveness have become "essential" (Gibson *et al.*, 2003).

The focus of this article is on the measurement of team effectiveness in a particular context such as that of Family Businesses, i.e., business whose ownership is controlled by a family and where two or more family members work in the company or in some way have a significant influence on the business (Gersick *et al.*, 1997).

Recent reviews of family business literature (Gibb Dyer, 2006; Jaskiewicz and Klein, 2007) indicate that, although much has been investigated, the time is ripe to explore new paths in team research such as those related to boards of directors. As Uhlaner *et al.* (2007:232) indicate, only limited research to date considers the "differences between governance in family-held firms and non family privately held companies."

Corporate governance issues have received attention in international research over the past decade (Gabrielsson and Huse, 2004; Hart, 1995). The board of directors is one of the most important corporate governance tools influencing a firm's

behavior (Forbes and Milliken, 1999; Johnson *et al.*, 1996; Pearce *et al.*, 1992). As a consequence, boards are the focus of many efforts to improve corporate governance, including, for example, recommendations issued by organizations such as the Business Roundtable (1997), the National Association of Corporate Directors (1996), and the Institutional Shareholder Services, Inc. (2005). This issue is significant particularly because companies owned or managed by a family are the predominant form of organization worldwide (Faccio and Lang, 2002; Holderness, 2009; La Porta *et al.*, 1999). Family businesses make important contributions to gross national products, job generation and wealth creation (Beckhard, 1983; Feltham *et al.*, 2005; Kelly *et al.*, 2000; Shanker and Astrachan, 1996).

Scholars claim that the role of the board of directors is even more decisive for family businesses

(Castaldi and Wortman, 1984; Corbetta and Tomaselli, 1996; Nash, 1988; Ward, 1991). In other words, the role of the board of directors in a family business is vital, as one of the most pivotal mechanisms of any corporate governance (Beiner *et al.*, 2004; Blair, 1995) and at the same time peculiarly problematic, given the special conditions of ownership and management in such businesses (Gersick *et al.*, 1997).

This study contributes to the literature by exploring board effectiveness in family firms. It specifically addresses the following research questions**: "How can board effectiveness be**

measured in a family business?" and **"How can family business boards be classified according to the level of perceived effectiveness?"** In addition, it addresses some methodological issues and applies Rasch analysis to validate the instrument proposed.

Rasch analysis is based on an Item Response Theory (IRT) model which is distinguished from other IRT models by one central characteristic: its fundamental statistical character (Andersen, 1973; Fischer, 1973; Rasch, 1960, 1980; Wright, 1977). The unique statistical characteristic of the Rasch model is that person and item parameters are algebraically separable and produce sufficient statistics (Masters and Wright, 1984; Rasch, 1980). Additionally, the Rasch model has been one of the most widely accessible and well-articulated of the item response models (Rasch, 1960, 1980; Wright and Masters, 1982; Wright and Stone, 1979).

HYPOTHESES

Extensive literature exists on the concept of effectiveness of workgroups in organizations (for reviews, see Bettenhausen, 1991; Cohen and Bailey, 1997; Gist *et al.*, 1987).

Boards qualify as groups and, in most cases, board effectiveness is defined as "a board's ability to perform its control and service tasks effectively" (Forbes and Milliken, 1999:492).

However, conceptual confusion has resulted when defining board effectiveness and roles (for a review see Gabrielsson and Winlund, 2000) and research uses different constructs to measure it. For example Minichilli *et al.* (2009) consider board effectiveness as a construct that describes at least six tasks related both to services (advice, networking and strategic participation) and control (behavioral, output and strategic control). Brundin and Nordqvist (2008) measure board effectiveness as the ability to solve moments of conflict, frustration, and distrust with moments of collaboration, harmony, and trust among the interacting board members (Brundin and Nordqvist, 2008). Other works consider effectiveness as the ability of the board to perform three key tasks: the service task, the monitoring task, and the networking task (Zona and Zattoni, 2007).

In addition, it has been claimed that family business boards are unique in their nature and perform some additional activities that are not performed in non-family boards (Lansberg, 1999). In this study we will examine how, and if, the various tasks of the boards that have been used in the literature can be used to describe board effectiveness and to differentiate among boards. In particular we review the literature and develop and validate a measurement scale that aims at being a valid and inclusive tool to measure board effectiveness in family firms.

Given the previous discussion, the following hypotheses were developed:

Hypothesis 1: Even if board task performance is associated with activities and roles that appear to represent differing views of effectiveness, they share a single, common line of inquiry. That is, all of the various approaches to the definition of board effectiveness are related and share a common dimension that represents different aspects of a more general outcome that can be referred to as board effectiveness.

Hypothesis 2: Boards can be distinguished based on the degree to which they perceive themselves as more or less effective in performing certain roles.

THEORETICAL BACKGROUND

In order to measure board effectiveness in family firms we developed a measurement scale. This scale is composed of a set of activities that boards generally perform in family businesses and is the result of research conducted at different stages. Stage 1 was the development of the items based on a review of literature that allowed us to gain inputs from previous studies in different though related domains (Churchill Jr, 1979). In stage 2, we examined content validity by asking a pool of 30 experts whether the items reflected the construct domain, the ease of understanding, and whether or not the behaviors described actually reflected roles and activities of the boards. In this way, the usefulness of the survey was also pilot-tested. In stage 3, we focused on the psychometric properties of the scale by assessing its reliability and the distinctness of its dimensions by using the Rasch analysis (testing Hypothesis 1). Finally, in stage 4, we examined how boards can be distinguished based on the degree to which they perceive themselves as more or less effective in performing certain roles (testing Hypothesis 2). In this section we present the results of stages 1 and 2.

The role and activities of the board of directors has been long debated (Andrews, 1981a, 1981b; Judge Jr and Zeithaml, 1992; McNulty and Pettigrew, 1999; Pugliese, *et al.*, 2009).

The most common distinction is between the board's *control roles* and *service roles* (Bammens *et al.*, 2011). In the existent literature however different positions exist with regard to boards' roles. A good way to present them is to consider the following distinction between the "passive" and the "active" school of though.

According to Pugliese *et al.* (2009) the potential contributions of boards to strategy have been considered over the past as rather limited because of their distance from day-to-day

operations, the presence of information asymmetries, and the need to remain independent (Charan, 1998; Conger *et al.*, 1998; Hendry and Kiel, 2004; Mace, 1971; Stiles, 2001). As a result, the board is seen as a controller while strategy is part of management activity. This is defined by Castro *et al.* (2009) as the "*passive school of thought* regarding the board's involvement in strategy" (Castro *et al.*, 2009:745). Moreover, in family businesses the CEO is typically a family-owner-manager. This implies that the power to propose career advancements, to choose directors and to take critical executive decisions is concentrated in the CEO's hands. In these cases the board might risk being no more than a legal structure dominated by the CEO (Mace, 1971) who might inhibit criticism from directors and hamper their involvement in the decision-making process (Stiles, 2001).

In contrast to the passive one, the *active school* of thought regarding the board's involvement in strategy sees directors as actors able to shape the strategic direction of the business and to generate and analyze strategic alternatives (G. F. Davis and Thompson, 1994; Demb and Neubauer, 1992; Finkelstein and Hambrick, 1996; Lorsch and MacIver, 1989; Roberts *et al.*, 2006). This can happen only when strategy is seen as the responsibility of both the management and the board. The board should act as a strategic partner with management (Anderson *et al.*, 2007) where *control* behavior is combined with collaborative behavior regarding questions of strategy (i.e., the *service* role) (Castro *et al.*, 2009). In this paper we espouse a view consistent with the results of an extensive review of literature concerning boards of directors in family businesses that shows that it was mainly those studies with a focus on both the control and service tasks that advanced the understanding of family business boards' effectiveness (Bammens *et al.*, 2011). This viewpoint relies on a mix of different perspectives such as agency, stewardship, resource dependence and stakeholder theories; each of which is referred to the main roles of the board (Bammens *et al.*, 2011).

Agency theory regards the activities of monitoring the behavior and performance of managers, with directors acting as fiduciaries of stockholders (Letza *et al.*, 2004). Agency theory addresses the relationship between a principal such as an owner, an agent, and the contract that binds them (Jensen and Meckling, 1976) . A problem that results from asymmetric information and divergences of interest between the two parties is a limited ability to select a reliable agent and to monitor his or her performance (Fama and Jensen, 1983). In family businesses, Agency problems emerge not only from "principal–agent conflict," but also from "owner–owner conflict" stemming

from the divergent interests of majority and minority shareholders (La Porta *et al.*, 1999; Le Breton Miller and Miller, 2009). For this reason in the list of activities that the board should perform we included protecting the interests of *all* owners (Fama and Jensen, 1983; Jensen and Meckling, 1976) *and* the company (Dossena, 2008). The associated board's **control** task refers to providing fiduciary oversight (Forbes and Milliken, 1999; Monks and Minow, 1995) and ensuring that the company complies with legal requirements.

Typical control activities are related to selecting, appraising and (in some situations) firing senior

managers and the CEO, and to providing feed-back to the CEO on senior management (J. A. Davis, 2006a). Considering the complexity of companies, in some cases the board can simply restrict itself to ratifying decisions based on information provided by managers and internal members (Daily and Dalton, 1994; Fama and Jensen, 1983; Mizruchi, 1983).

Stewardship theory regards stewards' pro-organizational, collectivistic behaviors and activities aimed at supporting and counseling management (J. H. Davis *et al.*, 1997). With regard to the associable board's **service** task, it refers to providing advice and counsel to the CEO and other top managers, and to participating actively in the formulation of strategy (Forbes and Milliken, 1999:492). Activities related to the service task are: helping management make decisions in the best interests of the business (Dossena, 2008; Ocasio, 1994; Pearce *et al.*, 1992; Zahra and Pearce, 1989); focusing the board and management on "the big picture" for business (J. A. Davis, 2006a; J. A. Davis, 2006c); contributing to the decision-making process and generating and analysing strategic alternatives (G. F. Davis and Thompson, 1994; Demb and Neubauer, 1992; Finkelstein and Hambrick, 1996; Lorsch and MacIver, 1989; Roberts *et al.*, 2005); helping management develop needed policies for the company (Anderson *et al.*, 2007; J. A. Davis, 2006a; J. A. Davis, 2006c; Johnson *et al.*, 1996); and providing expert and detailed insight during major events such as mergers and acquisitions (J. A. Davis, 2006a; J. A. Davis, 2006b).

Resource dependence theory (Hendry and Kiel, 2004) defines the board as a co-optative mechanism that extracts vital resources for company success by linking the firm to its environment and with other organizations thanks to its directors' connections. The board activity related to this involves accessing external resources such as knowledge and professional skills (Hillman *et al.*, 2000; Korac-Kakabadse *et al.*, 2001; Pearce *et al.*, 1992; Pfeffer, 1972; Pfeffer and Salancik, 1978).

Finally, **Stakeholder theory** claims that companies should balance the conflicting claims of

multiple stakeholders in order to achieve a coordinated solution which is satisfactory for all stakeholders (Donaldson and Preston, 1995; Hill and Jones, 1992). As Bammens *et al.* (2011) explain, this concept of balancing conflicting claims is also useful in order to address conflicts among owner coalitions, with the board of directors seen as an appropriate ground for goal negotiations and coordination (Freeman and Reed, 1983). The board role related to this can therefore be defined as the activity of coordinating corporate governance actions between the family, the business, and the owners.

Considering the importance of the board's assessments in determining board effectiveness (Conger *et al.*, 1998), we added the following item to the list of activities that an effective board should perform: "assessing board performance" which can be viewed as a board task itself.

The functions enumerated above are those that distinguish effective from ineffective boards. In general, they could apply equally both to family and to non-family businesses. However, in **family** businesses, the board of directors must have a particular knowledge of, and sensitivity to, the family side of the business. For this reason we will also include among the list of effective boards activities those that, according to the literature, apply only in the special context of a family

business, since these are the areas in which the board can contribute effectively and bring an added value to the company. Examples of these activities are: Foreseeing and responding to "unthinkable" scenarios that involve the family and the business (Gersick, 1997); Acting as an emotional buffer to avoid conflicts between family members, (Lansberg, 1999; Tagiuri and Davis, 1982); Coordinating the governance of the family and of the businesses; Consulting, approving and supporting the succession plan (Tagiuri and Davis, 1982); Encouraging the definition of a shared Family Dream; and Consulting with regard to the leader's retirement plan and the extent to which it affects the business (Lansberg, 1999).

This review of literature (Stage 1) presented how the items of the scale (a list of board activities) were developed; the items are listed in Table 1. In Stage 2 we submitted this list to a pool of experts (individually). Thanks to the experts we were able to refine the wording of some items in order to increase the ease of understanding, and verified that the items actually reflected roles and activities of the boards in family firms. The discussions with experts confirmed that the items were properly formulated to measure the construct domain (board effectiveness in family firms). The next sections will regard Stages 3 and 4.

Table 1. Board Tasks in Family Businesses

Code	Item Description
BE1	Helping management make decisions in the best interest of the business
BE2	Focusing the board and the management on the "big picture" for business
BE3	Consulting with regard to the leader's retirement plan and the extent to which it affects that the business
BE4	Consulting, approving and supporting the succession plan
BE5	Contributing to the decision-making process
BE6	Coordinating corporate governance actions (between the family, the business, the owners)
BE7	Deciding about hiring, compensating and replacing the firm's most senior managers
BE8	Helping management develop needed policies for the company
BE9	Providing feedback to the CEO on senior management
BE10	Accessing external resources (knowledge, professional skills etc.)
BE11	Providing expert and detailed insight during major events such as an acquisition or restructuring
BE12	Serving as an emotional buffer between the generations and, also, between family members
BE13	Generating and analyzing strategic alternatives during board meetings
BE14	Encouraging the belief in, and pursuit of, a shared dream for the family
BE15	Due Diligence Regarding Family and Ownership Policies
BE16	Interacting in a productive way with the CEO
BE17	Predicting and responding to 'worst-case' scenarios for the family business
BE18	Ratifying decisions based on information provided by internal members
BE19	Selecting, appraising and (in some cases) removing the CEO
BE20	Providing fiduciary oversight and ensuring that the company complies with legal requirements
BE21	Assessing the board's performance
BE22	Protecting the interests of all owners (both minority and majority shareholders) and the company

DATA

In order to test the psychometric properties of the scale we submitted the list of items to 90 family business board members asking them to assess how well their board performed the indicated activities. Rasch analysis was then applied, which, by considering how people value a set of items, helps researchers by indicating how (and if) these items

are able to represent a general latent trait (in this case, board effectiveness). Respondents had to state the level of agreement / disagreement regarding whether the company board is effective in the above-mentioned series of ways. A 4-point Likert scale ("1" means "strongly disagree", 4 means "strongly agree") was used. The sample is referred to Italian family businesses.

The data used in this study were collected though a snowball sampling technique, coherently with previous works on boards of directors carried out by other scholars (Pettigrew and McNulty, 1995). These authors recognized that access to managerial élites might be easier if connections are made through high status members of such élites. The advantage of this method is that it seems to be the "only possibility" (Saunders *et al.*, 2009) when populations are difficult to identify. The disadvantages are that it is very unlikely that the sample will be representative, although this requirement is not essential in estimations carried out by means of Rasch analysis (Rasch, 1960, 1980).

The task was to identify a number of family business directors able to evaluate the (active) boards they were working for. An initial small group of family business directors was selected. These agreed to help and supplied contacts for further cases. After two months, one of the authors attended an international three-day meeting on the topic of "family businesses". The participants were entrepreneurs, directors, managers, consultants and professors. In this context, these contacts led to introductions to a number of individuals with the required characteristics (directors of family business active boards) from all over Italy.

A questionnaire was distributed and gathered personally by one of the authors who assisted respondents in case of need. The sample was composed of 90 respondents. Among these 90 respondents considered, 72 were male, and 18 female. The average respondents' age was 48.8. On average, the companies were 50 years old and had 143 employees (i.e. small-to-medium size companies). They represented various industries related to manufacturing (60%) and services (40%). Since a well-defined population does not exist, we could not explore the potential for nonresponse bias. To ensure that each respondent accurately represented the entirety and reality of the board to which he or she belonged, data from the fellow board members of a subset of family businesses were gathered. This allowed us to assess the reliability and validity of respondents' assessments (Blum *et al.*, 1994; Forbes *et al.*, 2009; Simsek *et al.*, 2005). 20 responses from identifiable board members at every family business board for which we had already received a questionnaire were gathered providing a set of secondary respondents for 22% of the firms in the final sample.

To assess the reliability of the primary respondents, Intraclass Correlation Coefficients (ICCs) of their responses with those of the secondary respondents were calculated. ICC checks the extent to which one rather is as reliable as any other from the same board. An ICC(1) greater than .12 indicates acceptable reliability (Bliese, 2000). ICC for the measure of board effectiveness (considered as the sum of the assessments given to each item) exceeded this criterion effectiveness = .61 p < .01.

METHOD

Rasch model (Rasch, 1960, 1980) is a probabilistic mathematical model. In traditional measurement literature, we refer to more or less skilled subjects with more or less difficult exercises (i.e., items) to endorse; for this reason we speak about *person's ability* and *item's difficulty*. In this case study, by *item's difficulty* we mean the related measures of board effectiveness. By *person's ability* we refer to the level of effectiveness that each respondent conferred on his/her board.

Under Rasch model expectations, a person with higher ability always has a higher probability of endorsement or success concerning any item than a person with lower ability. Likewise, a more difficult item always has a lower probability of endorsement or success than a less difficult item, regardless of individual ability.

The classic Rasch model is characterized by unidimensionality and additivity. Uni-dimensionality means that a single construct is being measured. The Rasch model produces measurement on the interval scale. This implies additivity on the scale that is invariant over the entire continuum, if the data fit the model. These units are expressed in logits (logarithm of odds) and are a linear function of the difference between the person parameter and the item parameter. These interval measures may be used for subsequent parametric statistical analysis that assumes an interval level scale. The placement of items according to their difficulty, and of persons according to their ability, is carried out on a common logit scale on the real continuum.

The use of a Rasch model enables predictions of how persons at each level of ability are expected to perform regarding each item. This capability of having estimates for item hierarchy and a person's ability levels enables us to detect "aberrant patterns", such as someone failing to endorse the least severe (or easiest) items while endorsing the most severe (hardest) items.

The model is able to compare respondents and items directly. This means that we have created respondent-free measures and item-free calibrations - abstract measures that transcend specific respondent abilities and specific item difficulties -. This characteristic is sometimes called *specific objectivity*. Thus, the measures represent a respondent's ability as independent of the specific tested items, and item difficulty as independent of a specific sample.

Once the parameters model are estimated, it is interesting to deal with issues of unusual patterns or "misfitting" cases, and thus to compute expected

(predicted) response patterns for each person on each item. "Fit statistics" are then derived from a comparison of the expected patterns and the observed patterns. These "fit statistics" are used as a measure of the validity of the data-model fit. The "fit statistics" measure how the observed situation differs from the situation proposed by the theoretical model. In the Rasch model two groups of "fit statistics" can be considered: one related to the subjects and one related to the items.

"Person fit" statistics measure the extent to which a person's pattern of responses to the items corresponds to that predicted by the model. A valid response requires that a person of a given ability should have a greater probability of providing a higher rating on easier items than on more difficult items. Therefore if a respondent is more skilled (i.e. he/she places in a higher value of the latent trait) it is expected that he/she will endorse a greater number of items than a subject less skilled.

"Item fit" statistics are used to identify items that may not contribute to a unitary scale or whose response depends on a response to other items. The model requires that an item should have a greater probability of yielding a higher rating for persons with higher ability than for persons with lower ability. Those items identified as not fitting the Rasch model need to be examined and revised, eliminated, or possibly calibrated with other misfitting items to determine if a second coherent dimension may exist. There are many potential reasons why an item may misfit. For example, an item may not be related to the rest of the scale or may simply be statistically redundant with reference to the information provided by other items.

Several reasons explain the usefulness of Rasch models. To summarize, the advantages of Rasch models include the characteristic of equating responses from different sets of items intended to measure the same construct; the development of equal interval units of measurement when the data fit the model; and the possibility of conducting validity and reliability assessments in one analysis for both item calibration and person measures.

Rasch models are particularly useful and appreciated for the assessment of psychometric and perceptual scales referred to teams (Lange and Houran, 2009) and are gaining attention from scholars exploring organizational issues (Drehmer *et al.*, 2000). Some of the reasons are that they allow for the estimation of person ability (in this study: respondent's evaluations of their boards) freed from the sampling distribution of the items attempted; for the estimation of item difficulty freed from the sampling distribution of the sample employed; and for the expression of item calibration and person measures on a common linear scale (Zhu *et al.*, 2001).

The Model

Georg Rasch (Rasch, 1960) developed a mathematical model for constructing measures based on the probabilistic relationship between any item's difficulty and any person's ability. According to the Rasch model, the probability of having a certain <u>respondent's assessment of each item</u> can be calculated as a function of the difference between these two parameters.

In this study, by *item's difficulty* (δ_i) we mean the related measures of board effectiveness. Indeed, these parameters allow for the measurement and ordering of items, from the one characterized by the greatest effectiveness to the one with least effectiveness. By *person's ability* (ϑ_v) we refer to the level of effectiveness that each respondent conferred on his/her board. So a high value for a person parameter means a high judgment of effectiveness, while low values mean the reverse. Note that in this measure ϑ_v measures effectiveness including all the personal elements conditioning the response pattern.

In our case study we consider the Partial Credit Model (PCM) (Masters, 1982) in which the probability that person *v* responds to item *i* in category *h* is given by:

$$P(h|\vartheta_v, \delta_{ih}) = \frac{\exp\left\{h\vartheta_v - \sum_{j=0}^{h} \delta_{ij}\right\}}{1 + \sum_{t=1}^{m}\exp\left\{t\vartheta_v - \sum_{j=0}^{t} \delta_{ij}\right\}} \quad where \quad h = 0, 1, ..., m$$

where ϑ_v *(v = 1, 2, ..., n)* is the respondent parameter (respondent's evaluation), δ_i *(i = 1, 2, ..., k)* is the item parameter and τ_{ij} is the *j-th* threshold of item *i* (for convenience $\tau_{i0} = 0$). This formula indicates the probability of a response involving all thresholds of an item. Therefore if a respondent gives a score of 0 (first response

category), no threshold is crossed and no threshold appears in the numerator. If the person gives a score of 1 (second response category), only the first threshold is crossed and only the first threshold appears in the numerator. The denominator is the sum of all possible numerators for an item.

In logit form (i.e. the ratio between the probability that the subject responds with category

h respect to the probability that the subject responds to the same item with category *h – 1*) we have:

$$\ln\left(\frac{P(h)}{P(h-1)}\right) = \vartheta_v - \delta_{ih}$$

.

In other terms, the logit is a linear function of the person parameter ϑ_v and an item x category parameter δ_{ih}.

RESULTS

Estimation

Item responses were gathered on a 4–point Likert scale: strongly disagree, disagree, agree, strongly agree. Rasch model parameters were estimated for each subject and each item. To analyse the data we used an interactive Rasch software package RUMM (Rasch Unidimensional Measurement Models) 2020 (Andrich *et al.*, 2004). The bank is formed of 22 items describing various aspects of board effectiveness (see Table 1).

Interpretation

The overall adequacy of the model can be described by two reliability indices: the person separation index (PSI) and Cronbach's Alpha (Zhu *et al.*, 1997). PSI is a measure used to describe how well the scale identifies individual differences. It depends in part on the actual variance of the persons and it has a very important role in understanding the fit statistics in the Rasch model. If the PSI is low (close to zero), then all the persons tend to be in a similar location and therefore they do not spread out across the continuum. In this analysis, PSI = 0.903, this means that the respondents tend to be in different locations (i.e., they gave quite different answers). Cronbach's Alpha is a measure of the internal consistency of a scale, and is a direct function of both the number of items in the scale and their magnitude of intercorrelation. In our case Cronbach's Alpha is 0.935, meaning that test reliability is very high.

Table 2 provides the Rasch estimates of the item's location with respect to the underlying board effectiveness variable. The "location" column describes (in logit values) "item difficulty". In our case item difficulty measures the difficulty of the item in measuring board effectiveness. 10 items have negative logit values (i.e., these items are "easy": the probability that respondents positively evaluate these items is high), while 12 have positive

difficulty (i.e., the probability that respondents negatively evaluate these items is high). The items with a negative location are easier that the items with a positive location.

Two features assess the quality of the measure: "FitResid" and "Prob". The Fit Residual is a statistic that provides information on the fit of the data to the model from the perspective of the items. For each item, this statistic is based on the standardized residuals of the responses of all persons to the item. When FitResid lies in the range from -2.5 to +2.5 (critical values proposed by the software used for these analyses), then the items fit the model; this means that it is helpful in explaining the latent trait. As shown in Table 2, almost all items lie in this range. Only BE21 ("Assessing board performance") and BE22 ("Protecting owner and company interests") lie outside the range, meaning that they are not helpful in explaining the latent trait (i.e. board effectiveness).

The central concept in item response theory is that of the Item Characteristic Curve; the Item Characteristic Curve is the expected score on the item for each possible location of a person on the continuum. To evaluate if an item is coherent with the model we can perform a chi-squared fit test. To do this test we have to divide the sample into a convenient number of class intervals (CI) based on person ability estimates, i.e. the board effectiveness, so that all subjects with the same ability fall within the same CI and all CIs contain more or less the same number of subjects. If the data fit the model, then the means of persons in each CI should be close to the theoretical curve. "Prob" refers to the p-value of an approximation chi-square fit test. This statistic is employed to evaluate the discrepancies between the observed scores of all persons in the CI and their expected values according to the model. According to the null hypothesis of this test the item is coherent with the model (i.e. the observed value is very close to the theoretical value proposed by the model), while the alternative hypothesis says that the item fit is bad (i.e. the difference between the observed value and the one proposed by the model is high). As shown in Table 2 the null hypothesis (that the item is coherent with the model) is accepted for all the items (α=0.05).

In Figure 1 the Item Characteristic Curve for items BE20 and BE11 are displayed. Item BE20 is an example of a very good fit to the Item Characteristic Curve, while item BE11 represents a less good fit.

Table 2. Initial Estimation of 22 Item Parameters by Location Order (with 3 CI)

Code	Item Description	Location	FitResid	Prob
BE3	Consulting leader retirement	-0.63	0.528	0.483
BE18	Ratifying decisions	-0.493	0.752	0.755
BE9	Providing feedback CEO	-0.413	0.578	0.101
BE7	Deciding hiring replacing	-0.412	-1.167	0.332
BE4	Consulting succession plan	-0.388	-0.815	0.417
BE12	Serving emotional buffer	-0.278	0.017	0.318
BE21	Assess board performance	-0.261	**3.213**	0.181
BE10	Accessing ext resources	-0.198	0.451	0.774
BE19	Selecting appraising CEO	-0.166	-0.787	0.948
BE6	Coordinating gov actions	-0.029	-0.666	0.203
BE13	Strategic alternatives	0.045	-0.659	0.212
BE16	Interacting with CEO	0.082	-1.487	0.406
BE1	Helping make decisions	0.154	-0.147	0.709
BE17	Predicting worst cases	0.161	-0.962	0.219
BE15	Informing general situation	0.167	-0.47	0.847
BE14	Encouraging pursuit dream	0.171	-0.311	0.882
BE20	Prov fiduciary oversight	0.243	0.04	0.969
BE8	Help develop needed policies	0.286	-0.125	0.608
BE11	Prov expert insight events	0.359	-1.034	0.072
BE22	Protect interests company	0.497	**2.701**	0.479
BE2	Focusing on big picture	0.544	-0.249	0.966
BE5	Contributing decision making	0.559	0.453	0.746

Note: in bold the item fit > 2.5

Figure 1. Example of Items that are Very Good According (a) and Good According (b) to the Model

(a)   (b)
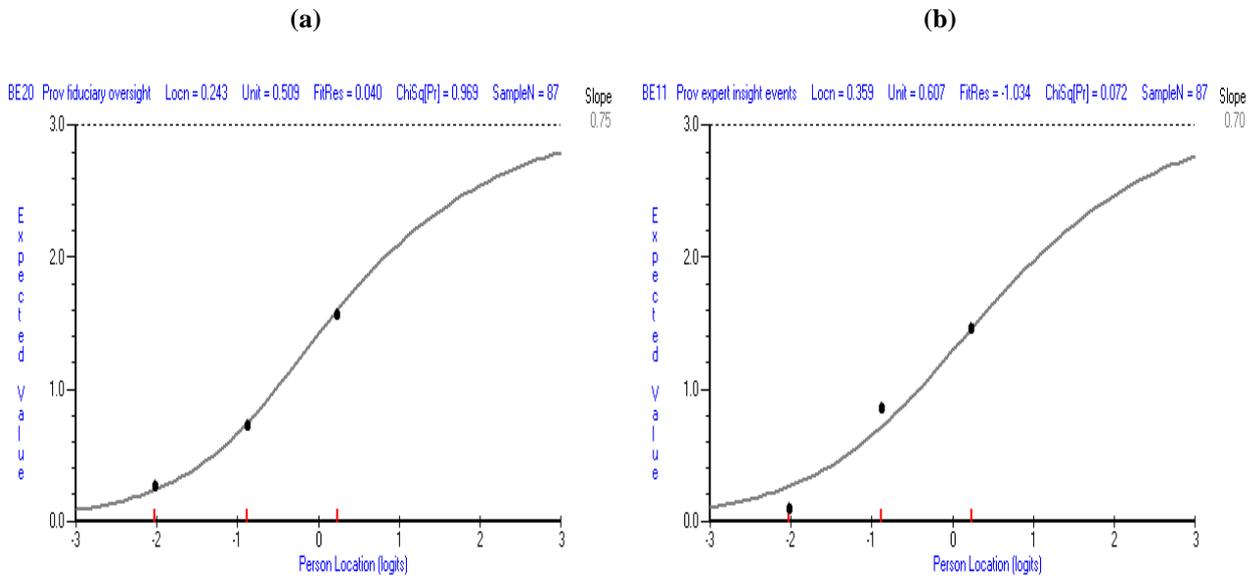
In Table 3 the threshold parameters of the 22 items are shown. These threshold-parameters give a measure of the difficulty of endorsing each response category over the previous one. Through these thresholds it is possible to measure distances between categories. In this case study with 4 categories (strongly disagree, disagree, agree, strongly agree) we have 3 thresholds. With polytomous data, it is important to check if the thresholds are ordered in accordance with scoring function specifications. For items BE4, BE5, BE16, BE19, BE21 and BE22 the thresholds are disordered; in these cases, category 2 is never more probable than categories 0, 1 and 3. Therefore these categorizations are not optimal.

An example of ordered and disordered thresholds is shown in Figure 2.

Table 3. Ordered and Disordered Threshold Parameters of the 22 Items

Code	Item Description	Location	Threshold 1	Threshold 2	Threshold 3
BE3	Consulting leader retirement	-0.630	-1.612	-0.364	0.086
BE18	Ratifying decisions	-0.493	-1.679	-0.314	0.516
BE9	Providing feedback CEO	-0.413	-0.983	-0.653	0.396
BE7	Deciding hiring replacing	-0.412	-1.371	-0.196	0.33
BE4	Consulting succession plan	-0.388	**-1.529**	**0.439**	**-0.075**
BE12	Serving emotional buffer	-0.278	-1.185	0.133	0.219
BE21	Assess board performance	-0.261	-1.152	0.227	0.141
BE10	Accessing ext resources	-0.198	-1.438	-0.416	1.261
BE19	Selecting appraising CEO	-0.166	**-1.077**	**0.336**	**0.243**
BE6	Coordinating gov actions	-0.029	-0.919	-0.072	0.904
BE13	Strategic alternatives	0.045	-1.384	0.601	0.919
BE16	Interacting with CEO	0.082	**-0.567**	**0.578**	**0.234**
BE1	Helping make decisions	0.154	-0.611	0.376	0.697
BE17	Predicting worst cases	0.161	-0.788	0.543	0.728
BE15	Informing general situation	0.167	-0.291	0.035	0.756
BE14	Encouraging pursuit dream	0.171	-1.053	0.676	0.89
BE20	Prov fiduciary oversight	0.243	-0.476	-0.354	1.559
BE8	Help develop needed policies	0.286	-0.575	0.597	0.836
BE11	Prov expert insight events	0.359	-0.733	0.116	1.693
BE22	Protect interests company	0.497	**0.177**	**-0.06**	**1.375**
BE2	Focusing on big picture	0.544	0.025	0.671	0.936
BE5	Contributing decision making	0.559	**0.13**	**0.876**	**0.671**

Note: in bold the disordered thresholds

Figure 2. Example of Ordered (a) and Disordered (b) Thresholds

(a)

(b)
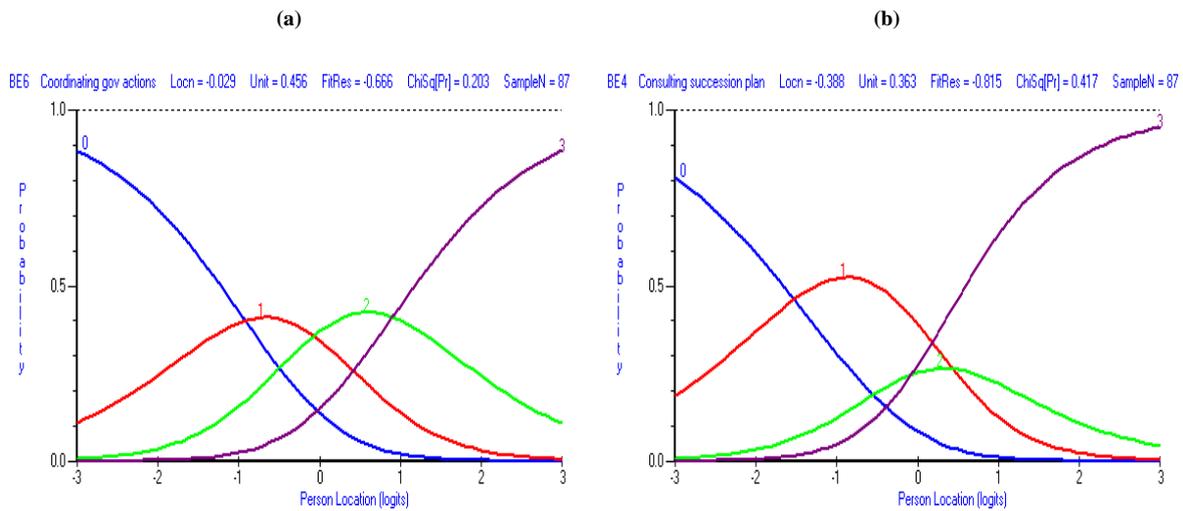
Another useful task is to examine the degree to which the person response patterns conform to the expected Guttman pattern (Guttman, 1950) and the relationship between these patterns and the residuals. The higher the value of this statistic, the more pronounced the deviation from the Guttman situation. The range normally set for the residuals is from -2.5 to 2.5. Under this condition we found 3 respondents characterized by a residual outside the provided range.

Up to now we have illustrated the most important results of the estimations, highlighting the problems that arose. In the next session we propose a discussion of results and we indicate how we solved the mentioned issues to achieve a good model.

DISCUSSION

Because it is important that the data fit the chosen model, we decided first to remove the 3 respondents with a response pattern not conformed to the expected one, together with item BE21 ("Assessing the board performance") which has a residual fit greater than 2.5 (FitResid = 3.313). At this point, item BE22 remains in the bank because its FitResid (= 2.701) is not far from the expected range.

We decided to recategorize the items with disordered thresholds (BE4, BE5, BE16, BE19 and BE22), into a small number of categories and determine the optimal categorization for each item in these categories. Categorization has always been considered an important element in constructing an ordered-response scale (Zhu *et al.*, 1997). Ordered-response scales include scales possessing ordinal response categories. The categorization of an ordered-response scale has two very important characteristics. First, while all categories of a scale

should measure a common trait or property, each of them must also have its own well-defined boundaries, and the elements in a category should also share certain exclusively specific properties. Second, categories must be in an order, and numerical values generated from the categories must reflect the degree or magnitude of the trait. An optimal categorization is the one that best exhibits these characteristics. Moreover, once the optimal categorization has been determined, it is possible to compare the studied situation with similar situations, with those of later years (e.g, one or two years after) or with those of other business families. In this way it is possible to observe whether the optimal categorization is the same or not.

Rasch analysis, technically, starts by combining adjacent categories in a "collapsing" process, in which new categories are constructed. In this case study for the items with disordered categories, we decided to collapse the two central categories.

In the new categorization we have 16 items with the original number of 4 categories and 5 items with only 3 categories: strongly disagree, neither disagree nor agree, strongly agree.

After these adjustments, the recategorization of 5 items into only three categories and the removal of item BE21 and 3 subjects, all items fit the model according to the general criterion of the chi square test, and fit residual and all thresholds are ordered.

In Table 4 the new item locations are shown, with the values of fit residuals and the chi squared test. In this new situation the two reliability indices are invariant: PSI = 0.905 and Cronbach-α = 0.930. We can therefore assert that stage 3 was completed. We indeed were able to assess the psychometric properties of the scale, as well as confirming its reliability and the distinctness of its dimensions.

Table 4. Estimation of the New Bank of 21 Item Parameters by Location Order and Ordered Thresholds

Code	Item Description	Location	FitResid	Prob	Threshold 1	Threshold 2	Threshold 3
BE9	Providing feedback CEO	-0.604	0.830	0.036	-1.119	-0.183	1.301
BE18	Ratifying decisions	-0.558	2.310	0.525	-1.293	0.170	1.123
BE3	Consulting leader retirement	-0.468	0.686	0.327	-1.775	0.142	1.633
BE7	Deciding hiring replacing	-0.301	-0.623	0.171	-1.399	0.185	1.214
BE12	Serving emotional buffer	-0.295	0.150	0.230	-1.030	0.154	0.876
BE4	Consulting succession plan	-0.204	-0.645	0.099	-2.015	2.015	
BE10	Accessing ext resources	-0.200	1.342	0.186	-1.571	-0.194	1.765
BE19	Selecting appraising CEO	-0.176	0.389	0.360	-1.148	0.176	0.972
BE6	Coordinating gov actions	-0.162	-0.593	0.438	-1.077	-0.112	1.189
BE15	Informing general situation	-0.018	-0.548	0.712	-0.856	-0.033	0.889
BE1	Helping make decisions	0.095	-0.722	0.848	-1.221	1.221	
BE13	Strategic alternatives	0.116	0.192	0.158	-1.604	0.502	1.101
BE17	Predicting worst cases	0.161	-0.189	0.402	-1.293	0.311	0.981
BE14	Encouraging pursuit dream	0.168	-0.005	0.380	-1.421	0.499	0.922
BE8	Help develop needed policies	0.172	-0.607	0.742	-0.591	-0.286	0.877
BE2	Focusing on big picture	0.215	-0.326	0.827	-0.626	0.162	0.464
BE11	Prov expert insight events	0.216	-1.701	0.085	-1.394	0.071	1.323
BE16	Interacting with CEO	0.254	-0.865	0.244	-1.495	1.495	
BE5	Contributing decision making	0.492	0.080	0.303	-0.993	0.993	
BE20	Prov fiduciary oversight	0.493	0.349	0.798	-1.384	-0.914	2.298
BE22	Protect interests company	0.604	1.372	0.740	-1.316	1.316	

We now move to stage 4 in order to examine how boards can be distinguished according to the degree to which they perceive themselves as more or less effective. To do so we illustrate the meaning of conjoint ordering among items and respondents. A location map without thresholds (with item locations only) and a location map with thresholds are shown respectively in Figures 3 and 4. The location map uses the measure statistics provided in Table 4 to visually illustrate (a) the histogram of the respondent location on the latent variables and (b) the interrelationships among the items defining board effectiveness. The histogram describes the distribution of the person locations and this is obviously the same in Figures 3 and 4. The position of respondents and items on the measure (vertical axis measured in logits) defines to what extent we can expect the board to perform a particular activity well or not. For example (see Figure 4 with uncentralised thresholds), respondents located at 1.54 logits will have a 50% probability of being *effective* and a 50% probability of being *highly effective* in activities such as *Providing insight during major events* (BE11) and

Providing fiduciary oversight and ensuring that the company complies with legal requirements (BE20). Figure 4 indicates, next to each item, a number that refers to each threshold. In this case item BE20.3 refers to threshold number 3; in other words, the threshold that lies between category 3 (effective) and 4 (highly effective). These respondents are those that are located in the highest part of the histogram, which indicates that the respondents who perceive their boards as the "most effective ones" are those belonging to boards that perform well in activities BE11 and BE20. Figure 4 shows how boards can be distinguished according to the degree to which they perceive themselves as more or less effective in performing certain roles. As shown, the number of respondents (persons) who perceive their boards as effective (higher part of the histogram) are fewer than those who perceive their boards as less effective (lower part of the histogram). We can therefore confirm both Hypothesis 1 and Hypothesis 2 and need to recognize that there are margins for improvement in this sample in terms of effectiveness.

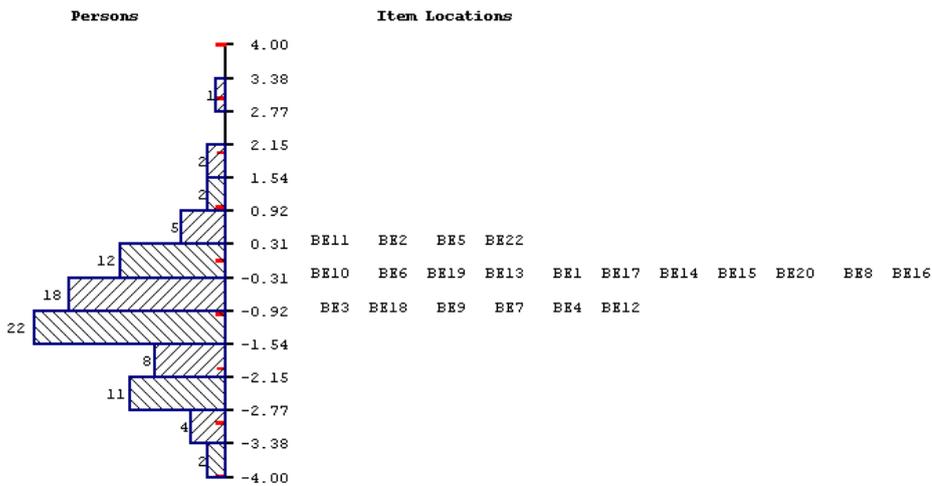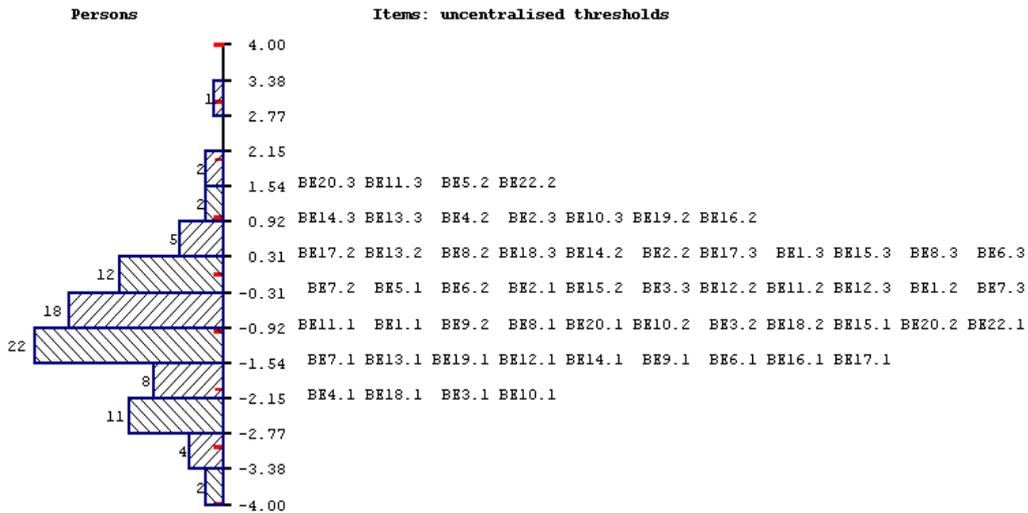**Figure 3.** Item and Person Locations Map without Thresholds

Figure 4. Item and Person Locations Map with Thresholds

CONCLUSION

This paper addressed the call for the development of team effectiveness measures that take team context into account (Gibson *et al.*, 2003) and aimed at defining a tool for measuring board effectiveness in family businesses, as well as classifying boards according to the level of perceived effectiveness. Family businesses play a significant role in the world. However, only limited research to date considers the differences between family and non-family corporate governance systems (Uhlaner *et al.*, 2007). The special conditions of ownership and management in such businesses imply that corporate governance scholars take a number of needs into account that in non-family businesses do not emerge (Chrisman *et al.*, 2010). To do so we integrated different

perspectives and developed a measurement scale. From the application of Agency theory, a list of activities related to the board's control task were identified. The Stewardship theory stressed activities related to supporting and advising the management group. The application of Resource Dependence theory lead to the board's activity of accessing external resources. Stakeholder theory allowed us to consider the negotiation and coordination activities of the board. Finally, from the analysis of family business literature, special activities such as consulting, buffering and motivating emerged. All these activities were collected in a list and content validity was tested with a pool of 30 experts. Then, to validate this instrument, a group of 90 family business directors (one from each company) was asked to evaluate their boards through a 4-point Likert scale. Rasch

analysis was performed to consider how, and if, this set of items is able to stand for a general latent trait such as board effectiveness. From the analysis it emerged that the respondents gave diversified answers, meaning that the scale is able to identify differences among individuals. The Fit Residual statistic showed that almost all the items fit the model, which means that they are helpful in explaining board effectiveness. Further analysis and some adjustments were performed that lead to an optimal categorization. Finally, we show that respondents who perceive their boards as more effective are particularly good at some activities. We also show that respondents can actually be classified according to their answers and that boards that perceive themselves as more effective are less than those highly effective.

These results allow us to propose some conclusions. Firstly, the instrument (having excluded item BE21) is composed of activities that are able to embody the latent trait "board effectiveness". This means that it is possible to compare the studied situation with similar situations, with those of later years or with those of other family businesses. Secondly, *board evaluation* is still a new practice, inasmuch as its importance is theoretically acknowledged, although the Italian family business directors who took part in this survey did not recognize its significance (which is why item BE21 was excluded from the list). The fact that only the activity "assessing board performance" does not represent board effectiveness well, indeed indicates that directors do not consider it to be important. Thirdly, Rasch analysis allowed us to confirm both our hypotheses. This has both academic and managerial implications.

From a scientific point of view, the confirmation of Hypothesis 1 allowed us to empirically reconcile different theories and views on boards' roles in family businesses, and to validate a measurement scale that could be used as an instrument in future research. The confirmation of Hypothesis 2 allowed us stress the usefulness of Rasch models for research in the management field and to see how responses to the survey could be interpreted.

From a practical point of view the board evaluation instrument that we propose refers to the most direct way of measuring the result of board actions: board task evaluation. It could be used by family businesses to measure their boards' effectiveness. Regular board evaluations that take these aspects into account could increase board accountability. Moreover, the use of such a scale could improve board effectiveness by identifying board performance gaps and clarifying what is expected from each director and from the board as a working group.

One of the most evident limitations of this research is that it is empirically based on a survey that involved 90 respondents. The sample size is small, and further research will have to explore the functionality of the instrument proposed in the context of bigger samples. In addition, when the usefulness of this instrument is further proven, it would be interesting to see whether board effectiveness self-assessments are related to board composition, board size, board behaviour and company characteristics.

References

1. Andersen, E. B. (1973). Conditional inference for multiple-choice questionnaires. *British Journal of Mathematical and Statistical Psychology*.
2. Anderson, D. W., Melanson, S. J., and Maly, J. (2007). The Evolution of Corporate Governance: power redistribution brings boards to life. *Corporate Governance: An International Review,* Vol. 15 No. 5, pp. 780-797.
3. Andrews, K. (1981a). Corporate strategy as a vital function of the board (1981). *Harvard Business Review*.
4. Andrews, K. (1981b). Replaying the board's role in formulating strategy. *Harvard Business Review, Vol.* 59 No. 3, pp. 18-27.
5. Andrich, D., Sheridan, B., and Luo, G. (2004). *RUMM 2020 (Version 4) [Software and manuals].* Perth: RUMM Laboratory Pty Ltd.
6. Bammens, Y., Voordeckers, W., and Van Gils, A. (Writer) (2011). Boards of Directors in Family Businesses: A Literature Review and Research Agenda [Article], *International Journal of Management Reviews*.
7. Beckhard, R. (1983). Managing continuity in the family-owned business. *Organizational Dynamics,* Vol. 12 No. 1, pp. 5-12.
8. Beiner, S., Drobetz, W., Schmid, F., and Zimmermann, H. (2004). Is board size an independent corporate governance mechanism? *Kyklos,* Vol. 7 No. 3, pp. 327-356.
9. Bettenhausen, K. L. (1991). Five years of groups research: What we have learned and what needs to be addressed. *Journal of Management,* Vol. 17 No. 2, 345.
10. Blair, M. M. (1995). *Ownership and control: Rethinking corporate governance for the twenty-first century*: Brookings Institution Press.
11. Bliese, P. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis Klein. In K. J. K. S. W. J. Kozlowski (Ed.), *Multilevel theory, research, and methods in organizations* (pp. 349–381). San Francisco: Jossey-Bass.
12. Blum, T. C., Fields, D. L., and Goodman, J. S. (1994). Organization-level determinants of women in management. *Academy of management Journal*, pp. 241-268.
13. Brundin, E., and Nordqvist, M. (2008). Beyond facts and figures: The role of emotions in boardroom dynamics. *Corporate Governance: An International Review,* Vol. 16 No. 4, pp. 326-341.
14. Castaldi, R., and Wortman, M. (1984). Boards of directors in small corporations: An untapped

resource. *American Journal of Small Business,* Vol. 9 No. 2, pp. 1-11.

15. Castro, C. B., De La Concha, M. D., Gravel, J. V., and Periñan, M. M. V. (2009). Does the Team Leverage the Board's Decisions? *Corporate Governance: An International Review*, Vol. 17 No. 6, pp. 744-761.

16. Charan, R. (1998). *Boards at work: How corporate boards create competitive advantage*: Jossey-Bass.

17. Chrisman, J. J., Kellermanns, F. W., Chan, K. C., and Liano, K. (2010). Intellectual foundations of current research in family business: An identification and review of 25 influential articles. *Family Business Review*, Vol. 23 No. 1, 9.

18. Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of marketing research*, pp. 64-73.

19. Cohen, S. G., and Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management,* Vol. 23 No.3, 239.

20. Conger, J. A., Finegold, D., and Lawler, E. (1998). Appraising boardroom performance. *Harvard Business Review,* Vol. 76, pp. 136-164.

21. Corbetta, G., and Tomaselli, S. (1996). Boards of directors in Italian family businesses. *Family Business Review,* Vol. 9 No. 4, 403.

22. Daily, C. M., and Dalton, D. R. (1994). Corporate governance and the bankrupt firm: An empirical assessment. *Strategic Management Journal,* Vol. 15 No. 8, pp. 643-654.

23. Davis, G. F., and Thompson, T. A. (1994). A social movement perspective on corporate control. *Administrative science quarterly*, pp. 141-173.

24. Davis, J. A. (2006a). Governance of the Family Business. *Harvard Business School Cases*, pp. 1-21.

25. Davis, J. A. (2006b). Governance of the Business Family. *Harvard Business School Cases*, pp. 1-14.

26. Davis, J. A. (2006c). Fundamentals of Family Business System Governance. *Harvard Business School Cases*, pp. 1-14.

27. Davis, J. H., Schoorman, F. D., and Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, pp. 20-47.

28. Demb, A., and Neubauer, F. F. (1992). *The corporate board*: Oxford Univ. Press.

29. Donaldson, T., and Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, pp. 65-91.

30. Dossena, G. (2008). *Corporate Governance in Italia*. Torino: Giappichelli.

31. Drehmer, D. E., Belohlav, J. A., and Coye, R. W. (2000). An exploration of employee participation using a scaling approach. *Group and Organization Management*, Vol. 25 No. 4, 397.

32. Faccio, M., and Lang, L. H. P. (2002). The ultimate ownership of Western European corporations* 1. *Journal of Financial Economics*, Vol. 65 No. 3, pp. 365-395.

33. Fama, E. F., and Jensen, M. C. (1983). Separation of ownership and control. *JL and Econ.,* pp. 26, 301.

34. Feltham, T. S., Feltham, G., and Barnett, J. J. (2005). The Dependence of Family Businesses on a Single Decision Maker*. *Journal of Small Business Management*, Vol. 43 No. 1, pp. 1-15.

35. Finkelstein, S., and Hambrick, D. C. (1996). *Strategic leadership: Top executives and their effects on organizations*: West Publishing Company St. Paul^ eMinneapolis Minneapolis.

36. Fischer, G. H. (1973). The linear logistic test model as an instrument in educational research. *Acta psychologica*, Vol. 37 No. 6, pp. 359-374.

37. Forbes, D. P., Korsgaard, M. A., and Sapienza, H. J. (2009). Financing decisions as a source of conflict in venture boards. *Journal of Business Venturing*.

38. Forbes, D. P., and Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, pp. 489-505.

39. Freeman, R. E., and Reed, D. L. (1983). Stockholders and stakeholders: A new perspective on corporate governance. *California Management Review,* Vol. 25 No. 3, pp. 88-106.

40. Gabrielsson, J., and Huse, M. (2004). Context, behavior, and evolution: Challenges in research on boards and governance. *International Studies of Management and Organization,* Vol. 34 No. 2, pp. 11-36.

41. Gabrielsson, J., and Winlund, H. (2000). Boards of directors in small and medium-sized industrial firms: examining the effects of the board" s working style on board task performance. *Entrepreneurship and Regional Development*, Vol. 12 No. 4, pp. 311-330.

42. Gersick, K. E., Davis, J. A., McCollom Hamptom, M., and Lansberg I. (1997). *Generation to generation : life cycles of the family business*. Boston, Mass.: Harvard Business School Press.

43. Gibb Dyer, W. (2006). Examining the "family effect" on firm performance. *Family Business Review*, Vol. 19 No. 4, 253.

44. Gibson, C. B., Zellmer-Bruhn, M. E., and Schwab, D. P. (2003). Team effectiveness in multinational organizations. *Group and Organization Management,* Vol. 28 No. 4, 444.

45. Gist, M. E., Locke, E. A., and Taylor, M. S. (1987). Organizational behavior: Group structure, process, and effectiveness. *Journal of Management*, Vol. 13 No. 2, 237.

46. Guttman, L. (1950). The basis for scalogram analysis. In L. G. S. A. Stouffer, E. A. Suchman, P. F. Lazarsfeld, S. A. Star and J.A. Clausen (Ed.), *Measurement and Prediction* (pp. 60-90). New York.

47. Hart, O. (1995). Corporate governance: some theory and implications. *The Economic Journal,* Vol. 105 No. 430, pp. 678-689.

48. Hendry, K., and Kiel, G. C. (2004). The Role of the Board in Firm Strategy: integrating agency and organisational control perspectives. *Corporate Governance: An International Review,* Vol. 12 No. 4, pp. 500-520.

49. Hill, C. W. L., and Jones, T. M. (1992). Stakeholder-agency theory. *Journal of Management Studies,* Vol. 29 No. 2, pp. 131-154.

50. Hillman, A. J., Cannella, A. A., and Paetzold, R. L. (2000). The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change. *Journal of Management Studies,* Vol. 37 No. 2, pp. 235-256.

51. Holderness, C. G. (2009). The myth of diffuse ownership in the United States. *Review of Financial Studies*, Vol. 22 No. 4, 1377.

52. Jaskiewicz, P., and Klein, S. (2007). The impact of goal alignment on board composition and board size in family businesses. *Journal of Business Research*, Vol. 60 No. 10, pp. 1080-1089.
53. Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* Vol. 3 No. 4, pp. 305-360.
54. Johnson, J. L., Daily, C. M., and Ellstrand, A. E. (1996). Boards of directors: A review and research agenda. *Journal of Management,* Vol. 22 No. 3, 409.
55. Judge Jr, W. Q., and Zeithaml, C. P. (1992). Institutional and strategic choice perspectives on board involvement in the strategic decision process. *Academy of management Journal*, pp. 766-794.
56. Kelly, L. M., Athanassiou, N., and Crittenden, W. F. (2000). Founder centrality and strategic behavior in the family-owned firm. *Entrepreneurship Theory and Practice,* Vol. 25 No. 2, pp. 27-42.
57. Korac-Kakabadse, N., Kakabadse, A. K., and Kouzmin, A. (2001). Board governance and company performance: any correlations? *Corporate Governance,* Vol. 1 No. 1, pp. 24-30.
58. La Porta, R. L., Lopez De Silanes, F., and Shleifer, A. (1999). Corporate ownership around the world. *The Journal of Finance,* Vol. 54 No. 2, pp. 471-517.
59. Lange, R., and Houran, J. (2009). Perceived Importance of Employees' Traits in the Service Industry *Psychological reports,* Vol. 104 No. 2, pp. 567-578.
60. Lansberg, I. (1999). *Succeeding generations: Realizing the dream of families in business*: Harvard Business Press.
61. Le Breton Miller, I., and Miller, D. (2009). Agency vs. stewardship in public family firms: A social embeddedness reconciliation. *Entrepreneurship Theory and Practice*, Vol. 33 No. 6, pp. 1169-1191.
62. Letza, S., Sun, X., and Kirkbride, J. (2004). Shareholding versus stakeholding: a critical review of corporate governance. *Corporate Governance: An International Review*, Vol. 12 No. 3, pp. 242-262.
63. Lorsch, J. W., and MacIver, E. (1989). *Pawns or potentates: The reality of America's corporate boards*: Harvard Business Press.
64. Mace, M. L. (1971). Directors: Myth and reality. *Cambridge, MA*.
65. Masters, G.N. (1982). A Rasch model for partial credit scoring. *Psychometrika*, Vol. 47, pp. 149-174.
66. Masters, G. N., and Wright, B. D. (1984). The essential process in a family of measurement models. *Psychometrika,* Vol. 49 No. 4, pp. 529-544.
67. McNulty, T., and Pettigrew, A. (1999). Strategists on the board. *Organization Studies,* Vol. 20 No. 1, 47.
68. Minichilli, A., Zattoni, A., and Zona, F. (2009). Making boards effective: An empirical examination of board task performance. *British Journal of Management*, Vol. 20 No. 1, pp. 55-74.
69. Mizruchi, M. S. (1983). Who controls whom? An examination of the relation between management and boards of directors in large American corporations. *Academy of Management Review*, pp. 426-435.
70. Monks, R., and Minow, N. (1995). Corporate Governance Blackwell. *Cambridge, MA*.

71. Nash, J. M. (1988). Boards of privately held companies: Their responsibilities and structure. *Family Business Review,* Vol. 1 No.3, pp. 263-269.
72. Ocasio, W. (1994). Political dynamics and the circulation of power: CEO succession in US industrial corporations, 1960-1990. *Administrative science quarterly*, pp. 285-312.
73. Pearce, I., John, A., and Zahra, S. A. (1992). Board composition from a strategic contingency perspective. *Journal of Management Studies*, Vol. 29 No. 4, pp. 411-438.
74. Pettigrew, A., and McNulty, T. (1995). Power and influence in and around the boardroom. *Human Relations,* Vol. 48 No. 8, 845.
75. Pfeffer, J. (1972). Size and composition of corporate boards of directors: The organization and its environment. *Administrative science quarterly*, pp. 218-228.
76. Pfeffer, J., and Salancik, G. R. (1978). The external control of organizations. *New York, 263*.
77. Pugliese, A., Bezemer, P. J., Zattoni, A., Huse, M., Van den Bosch, F. A. J., and Volberda, H. W. (2009). Boards of directors' contribution to strategy: A literature review and research agenda. *Corporate Governance: An International Review,* Vol. 17 No. 3, pp. 292-306.
78. Rasch, G. (1960). Studies in mathematical psychology: I. Probabilistic models for some intelligence and attainment tests.
79. Rasch, G. (1980). Probabilistic Models for Intelligence and Attainment Tests. Chicago: U: of Chicago Press.
80. Roberts, J., McNulty, T., and Stiles, P. (2005). Beyond Agency Conceptions of the Work of the Non Executive Director: Creating Accountability in the Boardroom. *British Journal of Management,* Vol. 16, S5-S26.
81. Saunders, M., Lewis, P., and Thornhill, A. (2009). *Research methods for business students*: Prentice Hall.
82. Shanker, M. C., and Astrachan, J. H. (1996). Myths and realities: Family businesses' contribution to the US economy—A framework for assessing family business statistics. *Family Business Review,* Vol. 9 No. 2, 107.
83. Simsek, Z., Veiga, J. F., Lubatkin, M. H., and Dino, R. N. (2005). Modeling the multilevel determinants of top management team behavioral integration. *The Academy of Management Journal*, pp. 69-84.
84. Stiles, P. (2001). The impact of the board on strategy: an empirical examination. *Journal of Management Studies*, Vol. 38 No. 5, pp. 627-650.
85. Tagiuri, R., and Davis, J. (1982). *Bivalent attributes of the family firm. Cambridge*: MA: Working paper, Harvard Business School, Reprinted 1996, Family Business Review, Vol. 9 No. 2, 199–208.
86. Uhlaner, L., Wright, M., and Huse, M. (2007). Private firms and corporate governance: An integrated economic and management perspective. *Small Business Economics*, Vol. 29 No. 3, pp. 225-241.
87. Ward, J. L. (1991). *Creating effective boards for private enterprises: Meeting the challenges of continuity and competition*: Jossey-Bass.
88. Wright, B. D. (1977). Solving measurement problems with the Rasch model. *Journal of*

Educational Measurement, Vol. 14 No. 2, pp. 97-116.

89. Wright, B. D., and Masters, G. N. (1982). *Rating Scale Analysis. Rasch Measurement*: MESA Press, 5835 S. Kimbark Avenue, Chicago, IL 60637 ($25). Fax: 773-702-1596; Fax: 773-834-0326; e-mail: MESA@ uchicago. edu; Web site:< http://www. rasch. org>.

90. Wright, B. D., and Stone, M. H. (1979). Best Test Design. Rasch Measurement.

91. Zahra, S. A., and Pearce, J. A. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management,* Vol. 15 No. 2, 291.

92. Zhu, W., Timm, G., and Ainsworth, B. (2001). Rasch calibration and optimal categorization of an instrument measuring women's exercise perseverance and barriers. *Research quarterly for exercise and sport*, Vol. 72 No. 2, 104.

93. Zhu, W., Updyke, W. F., and Lewandowski, C. (1997). Post-hoc Rasch analysis of optimal categorization of an ordered-response scale. *Journal of outcome measurement,* Vol. 1 No. 4, 286.

94. Zona, F., and Zattoni, A. (2007). Beyond the black box of demography: Board processes and task effectiveness within Italian firms. *Corporate Governance: An International Review,* Vol. 15 No.5, pp. 852-864.

CORPORATE GOVERNANCE MODELS AND THEIR IMPACT ON FINANCIAL PERFORMANCE. EVIDENCE FROM ITALIAN UTILITY LISTED COMPANIES

Giuseppe Grossi*, Patricia Bachiller**

Abstract

This paper analyses the theme of the corporate governance models of Italian utilities companies and explores how the changes of ownership structure after a merger affects financial performance. The objective of this paper is to study whether the mergers of utilities are effective for companies to be more competitive. We compare the financial performance of four Italian utility listed companies listed (A2A, IRIDE, HERA and ENIA) before and after the merger. Specifically we analyse six financial ratios (P/L for period, Profit margin, EBITDA, ROE, ROA and Gearing). Our results show that utility mergers are effective to create a more competitive firm because of the changes in the ownership of the company and consequently in the corporate governance system. Results also indicate that a listed merger company has a higher financial performance that pre-merger companies.

Keywords: Corporate Governance Models, Financial Performance, Mergers, Utility, Italy

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1. Introduction

Public sector reform initiatives worldwide as parts of the New Public Management (NPM) movement have resulted in a variety of governance arrangements for public services delivery (Hood 1991, Kettl 2000). New governance forms such as government-owned companies, public-private partnerships, contracting-out or private companies together with the implementation of NPM elements (e.g. accountability on results, performance measurement and budgeting, and whole of government financial reporting) are often used by public organisations to react to external pressures and challenges related to public services provision (Doherty and Horne 2002, Torres and Pina 2002, Dexia 2004, Reichard 2006, Grossi 2007).

These changes of public governance associate closely with discussions about public services performance (Hartley and Skelcher 2008, Skelcher 2008, Osborne 2010) and give rise to questions on the relationship between governance and performance, since the public sector reforms in the Western democracies have been initiated in the name of performance improvement (Van Dooren *et al* 2010).

In the light of that, the present research focusing on the public governance and performance relationship contributes to a research area that is topical and is expected to be important for maintaining and enhancing public services in the years ahead.

In the context of public services, Skelcher (2008) shows that there is little systematic research conducted on the relationship between public governance and performance, the debate lacking 'an integrated corpus of empirically based knowledge.' In the same vein, a meta-analysis of the literature by Hill and Lynn (2005) on that field concludes that there is a large research gap as regards to the influence of governance on performance in public services. The present research seeks to fill this gap by applying a holistic in-depth research approach and mapping the patterns of governance influence on public services performance.

This paper analyses the context of the four Italian utility listed companies and explores how changes in the ownership structure after a merger affect financial performance (Wettenhall and Thynne, 2005; Gomes and Novaes, 2006; Sorensen, 2007).

The article is organised as follows. In the next section, we develop the theoretical framework. Section 3 describes de data and methodology employed. Section 4 shows results and, finally, in Section 5 the conclusions are presented.

2. Theoretical framework

2.1. Merger and models of corporate governance of utilities

A changing scenario and a higher level of competitiveness force smaller public service companies (mostly owned by local governments) to react and find the proper strategies to keep their market shares (Hughes, 1994; Osborne and Brown, 2005; Grossi, 2007). Well-established and territorial concentrated companies more easily overcome *free-rider* problems and better compete for political favours. Therefore, in the case of a utility merger, the main objective may be the pursuit of competitive advantage, through the sharing and combined development of resources and competencies, in order to compete with national and international rival companies (Bachiller and Grossi, 2012). Mergers of local utilities seem to be more popular in Italy, where local utilities often merge to constitute large-scale corporations (mainly in the cases of the largest cities, Rome, Genoa, Milan, Bologna and Turin).

The joint stock company is attractive in Italy, as local utilities have the opportunity to register at the Stock Exchange and thus have easy access to the capital market. Municipalities play two different roles in governing owned corporations: they are owners (shareholders) and they are contractors (purchasers) and regulators of services. Both roles can be in conflict (Grossi *et al*. 2010).

Governance mechanisms have to take account of this double role. Governance depends largely on commercial law, that is, the law on limited liability companies and stock corporations. This legislation focuses on the shareholders' interests and provides few mechanisms in favour of the purchasers' role.

Relationships between local governments and the various joint stock and limited companies used are regulated by service contracts. In order to allow for a tight results control, local governments need to arrange contracts which clearly state what the desired results are and set specific targets that are consistent with its strategic plans (Greve, 2008; Grossi, 2005). The municipality is at the same time purchaser, local regulator and shareholder, which may cause conflicts of interest. This applies not only to the companies which are totally owned by local governments, but also to the mixed ownership companies, including those which are listed on the stock exchange. The problem of interest conflicts is especially strong in the water, waste and transportation sectors, because in those sectors no strong national authorities exist and the municipalities are the only real regulators (Argento *et al*, 2010, p. 48).

Italian corporations are based mainly on a one-tier board system (so called Latin model), and the shareholders' meeting is quite influential. Additionally, there is a board of auditors, which inspects the financial reports. The board of directors is composed by independent members and former politicians (Grossi *et al*, 2010).

The shareholders' meeting is really only meaningful when a company is owned by more than one local government or has mixed public-private ownership. The meeting is formed by the mayors of the municipalities which are the owners of the company, along with other owners in the case of a mixed ownership company. The meeting approves (or does not approve) the annual report of the company (but seldom the budget). Sometimes, the shareholders approve 'strategic documents' for the company, which the directors must respect in managing the company. The board of directors is an independent body in managing the company. Shareholders cannot directly interfere in the management of the company. Directors are nominated by the mayor or mayors by a personal decree and are appointed by the shareholders' meeting, which decides the number of directors and their remuneration (Grossi, 2007). In some cases, local government representation on the board of directors is exactly proportional to a local government's participation in the equity of the company. In other cases, it can be more than proportional, with a local government having the right to appoint the majority of directors without holding the majority of the shares. The term of office for directors is three years. Internal financial control of a company is guaranteed by the board of auditors, appointed by the shareholders' meeting and consisting of independent personalities.

The one-tier model of governance outlined above continues to be used by a great majority of Italian listed companies, including those that operate in the sector of local public services, but we have a growing number of companies that they are using the two-tier system (so called German model).

In the two-tier model a part of the shareholder's powers, including those of nomination of the executive body and approval of the annual report, are assigned to the supervisory board which operates as a controlling body of the Board of directors. However, when compared to the previous model, the relationship of trust between the supervisory board and the Shareholder's Meeting seems to be weaker. The supervisory also carries out functions of supervision and control over management assigned in the traditional system to the Board of Auditors.

In the dualistic model, the role of the Shareholders' Meeting is certainly reduced in favour of the supervisory board. In the case of local public services, considering the current ownership structure configuration, adoption of the dualistic model should not, in theory, create particular problems, as it involves less direct involvement of the local government owner in processes of the nomination of the board's members.

A municipal council does not participate in the management of a company. It decides only on the

creation of new companies, on possible mergers and on liquidation. Mayors and members of the mayoral cabinet cannot be appointed to the boards of directors. Conflicts of interest are regulated by the commercial law (civil code). In the case of companies listed on the stock exchange, shareholders must respect a specific self-regulation code (the so-called Preda Code) in appointing the directors (Grossi, 2007).

In the case of companies owned by two or more local governments, relationships between the shareholders are regulated by specific 'shareholder agreements'; and in the case of companies with a mix of public and private ownership, the relationships are regulated by 'agreements between partners'. These agreements include methods for appointing the boards of directors, the company presidents and/or CEOs and the boards of auditors. The statutes of the company define the majority shareholding necessary to approve the balance sheet and other extraordinary decisions (such as liquidation) in the shareholders' meeting.

The legal framework for local governments in Italy has not been as stable over time. During the last two decades, the regulation of local public service provision has been changed several times. Currently, a distinction is made between the management of local services of economic relevance (energy, water, waste disposal, public transportation) and the management of local services without economic relevance (esp. theatres, museums). The arrangements for the provision of services of economic relevance are the subject of particular concern and debate. At the national government level, because of European Commission pressures, there is support for restricting both direct management and mixed ownership management in favour of the competitive selection of public and private providers through public tender (Argento *et al.*, 2010). According to the new national law on public service provision of 2010, the private partners selected through public tender should be involved in the management of the service(s) and be owner at least of 40% of the shares. According to the same legislation, in the case of listed companies involved in the utilities, public owners (such as regions, and local governments) should reduce their shares to 40% by June 2013 and to 30% by June 2014.

2.2. Financial performance of utilities

The provision of public services by means of utilities has substantially changed in the past two decades. The public economy in many countries developed specific modes and different institutional arrangements of provision. In the European Union as well as outside, utilities have been involved in a liberalisation process. Enhanced competition has a positive impact on efficiency gains through stimulating managerial effort to face the risk of losing market share or providing greater opportunities for comparing performance across firms (OECD, 2007). To have efficient public utilities it is necessary to introduce competition, which will guarantee that private firms or even public firms will be obliged to act to lower costs and improve the quality of the good or service provided. Therefore, it is supposed that liberalisation policies in network industries have led to higher performance, better quality and, often, lower prices.

Economic and technological variables are also highly significant in explaining variations in the timing and extent of changes in utility sectors at both European and domestic levels. Progress in technology has contributed to redesigning service production and delivery. It has even caused the break up of those monopolies that were considered to be natural ones. Therefore, there are economic and technical possibilities of liberalization, which makes it possible for the new companies to enter the market. For local companies, on one hand, it means an opportunity of entering into the market (to which they have not had an access so far), but on the other hand, it appears the risk of being overtaken by other companies operating on an international level. This is especially a threat to Italian companies that are smaller than their foreign competitors (Rienzner and Testa, 2003). International market and technological forces increased the institutional resources, allowing the progress liberalization (Humpreys and Padget, 2006).

To understand the performance of utilities, we must consider the market regulation. The transition towards the free market, the rules governing the market, and the necessity to regulate certain aspects of service require new procedures regulating the production and the delivery of these services. For this, impartial authorities create benchmarking methods that involves decisions about data requirements, collection procedures, reporting formats, and quality of supply as well as regulatory governance issues such as commitment and transparency. Regulators are developing the so-called incentive regulation. The main objective of this method is to promote efficiency improvement by rewarding good performance relative to some pre-defined benchmark.

Farsi and Filippini (2009) assert that because of their considerable economies of scale, a direct introduction of competition is not optimal in sectors such as energy. Instead, incentive regulation can be used to ensure the productive efficiency of the utility companies. Incentive regulation differs from ROR regulation by allowing the earnings of the regulated firm to diverge from target levels. In particular, the firm is permitted to keep some or all of its incremental earnings. Consequently, incentive

regulation may provide the regulated firm with greater incentives than ROR regulation to increase its revenues and reduce its operating costs and managers may be more willing to correct possible inefficiencies in their regulated firms (Lewis and Sappington, 1989; Parker, 1999; Sappington, 2003; Armstrong and Sappington, 2006). Although regulated companies can reduce costs to prevent new companies from entering into the market, incentive regulation is more appropriate to ensure adequate competitive pressure and to avoid problems of opportunism. This regulatory system provides incentives to develop new technologies, which allow companies to save costs and, thus, to obtain more benefits. So, incentive regulation gives more productivity gains, even when the market is non-competitive and the company does not need to be efficient. In short, this regulatory system is adequate when the regulatory objective is to maintain the market efficiency until the market is really competitive.

In general, we can assert that the aim of the regulatory reforms is to provide the utilities with incentives to improve their investment and operating efficiency and to ensure that consumers benefit from the efficiency gains. A related aspect of regulatory reform is regulatory governance which emphasises the formal status of the regulator and rules of conduct in carrying out their duties and exercising power.

These changes in the environment result in a redefinition of the company's organizational processes and the reformulation of the strategy. A major consequence of liberalisation is that utilities can prefer merge to increase their market share, therefore several recent takeovers in Europe involved newly privatised firms. In the economics literature, the traditional motives for mergers and acquisitions involves such notions as synergies, economies of scale, marketing advantages and even better management. Managers of merged utilities are subjected to the pressure of the financial markets and monitors and disciplines profit-oriented investors. The accountability to shareholders and the introduction of incentive systems give a better incentive for utility companies to operate efficiently (Jia, 2009). Moreover, these companies are introducing instruments for performance measurement in order to enhance transparency and improve organisational learning (Johnsen *et al.*, 2006; Van Helden *et al.*, 2008).

However, concentration is another important obstacle to both the development of more vigorous competition in the sector and the development of liquid wholesale markets. In the EU, concentration in the sector remains high, with the exception of the Nordic and UK markets which now have between five and ten major competitors plus a range of smaller companies in the generation sector (OCDE, 2007). Mulherin *et al.* (2004) claim that mergers of

privatised entities result in wealth creation and better performance. In the merger process, companies introduced instruments for performance measurement in order to enhance transparency and improve organisational learning (Johnsen *et al.*, 2006; Van Helden *et al.*, 2008). Moreover, the capital markets work as a mechanism to establish management incentives for the companies previously non-quoted.

In energy sector, reforms are transforming the structure and operating environment of this industry across many countries. The central aims of these reforms are to introduce market-oriented measures and to improve the efficiency of the natural monopoly activities of distribution and transmission (Jamasb and Pollit, 2001). The main feature of many sector reforms is the market-orientation by using the discipline of the product and capital markets to achieve efficiency through competition, privatisation, and the price mechanism (Vickers and Yarrow, 1988). These reforms generally involve design of organised power markets and, as we have commented, the introduction of benchmarking that improves the performance.

The re-organization of energy companies resulted in the implementation of an expansionist strategy by companies. In this sector, horizontal integration strategy allows the multi-utility companies to save on cost by exploiting the economies of scope and to provide customers with an integrated set of services. The perceived need for some utility companies to expand in order to increase profits is supported by the wider global liberalization of the energy industry, the need for greater performance by utilities and the support by the EU Commission to promote an internal energy market. The common legal framework brought about EU membership does influence the strategic thinking and asset management of utilities. Importantly, it affects their strategic movements, which reflect the broader influence that EU enlargement has on the operation of utility companies. In the long term, both EU and company strategies aim to increase coordination and cooperation across country borders, allowing greater emphasis to be given to regional coordination of companies (LaBelle, 2009). EU membership played a key role in fostering a common legal framework in each country and encouraged the opening of national markets for investments. The newest task for countries in the EU, and those looking to join in the future, is the development of regional markets. Such markets may allow greater coordination of assets, greater efficiency for energy producers, and the potential for a higher level of competition.

3. Sample and Methodology

3.1 Corporate governance models

A2A, Hera, Iride and Enia are multi-utility companies, which are listed in the electronic stock market. These four companies have a very solid financial structure and a market capitalization of more than one billion euros. The criteria for the selection of these four companies lie in the particulars, as they are:

- Companies that are partially owned by local governments,
- Companies that are managing local utilities,
- Companies that are listed on the stock exchange and,
- Companies that were interested in merger process during the last years.

Table 1. Corporate Governance Models of Italian utilities listed on the Stock Exchange

Company and year of birth	Ownership structure	Model of corporate governance	Location of business	Business Sector
ENIA (2005)	21,85% City of Reggio Emilia 17,20% City of Parma 4,6% City of Piacenza 7,97% Other municipalities 38,88% Private owners	One-tier board system	Emilia Romagna Region	Water, gas and environmental services
HERA	18,8% City of Bologna 3,3% City of Ferrara 13,95 City of Modena 26,0% Other Local Governments of Emilia Romagna 7,5% Banks 30,5 % Private owners	One-tier board system	Emilia Romagna and Marche Regions	Water, electricity, gas and environmental services
IRIDE (2006)	58,9% FSU 4,7%,Intesa Sanpaolo Bank 4,0% Foundation CR TORINO 31,7% Private owners 2,0% Generali Insurance Company	One-tier board system	Piemonte, Liguria, Lombardia, Toscana and Marche Regions	Water, and electricity
A2A	27,5% City of Brescia 27,5% City of Milano 2,0% City of Varese 2,0% City of Bergamo 7,5% Private owners 34,8% Shareholding	Two-tier system	Lombardia Region	Water, gas and electricity

This is situation is updated to June 2010.

IREN was set up on 1st July 2010 through the merger of Enìa and Iride and is at the top in the Italian multi-utilities sector occupying a leading position in its business areas, a balanced mix of regulated activities and free activities and a close integration between upstream and downstream activities. Due to its production assets, its past and present investments, its position in all business areas, in all phases in the energy chain, and its roots within the country, IREN is now one of the main Multi-utilities Groups on the Italian scene.

3.2 Financial performance (for utilities)

The companies analysed are listed in the stock market. Figure 1 shows evolution of share price in the Italian stock market.

Figure 1. Evolution of price share in the Stock Exchange (2006-2008)

A2A

HERA

IRIDE

ENIA

- All the companies showed a negative tend in capital markets from 2007, except to A2A that achieve to improve its value in the middle of this year.

- The price of shares for all the companies decrease significantly in 2008, probably due to Italia, as the rest of countries, has experienced the international crisis. The significant recovery of A2A in 2007 may indicate that the German model of corporate governance used by the company is seen positively by the investors in the stock markets.

3.3 Methodology

We compare the financial performance of four Italian utility companies listed in the Stock Exchange (A2A, IRIDE, HERA and ENIA) before and after the merger. We analyse six financial ratios (P/L for period, Profit margin, EBITDA, ROE, ROA and Gearing) (Table 2).

Table 2. Ratios for financial performance of companies analysed

Variable	Ratio
P/L for period	Profit/Loss before tax
Profit margin	Profit/Loss before tax / Operating revenue
EBITDA	Earnings before interest, taxes, depreciation, and amortization
ROE	Earning before taxes / Equity
ROA	Earning before taxes / Total net Assets
Gearing	Long term financial debts + other long term liabilities / Capital + other shareholders funds

4. Results

We explore the financial performance of 4 Italian firms. The seven ratios are described in Table 2. (to create table with description of ratios). The table 3 reports company's ratio for each company during the period 2006–2008.

Table 3. financial performance

Th Euros	A2A S.P.A.				IRIDE S.P.A.			
	2006	2007	2008	2009	2006	2007	2008	2009
P/L for period	462000.00	486000.00	347000.00	107000,00	595.41	7089.53	10922.49	8863.35
Var. %		5.19	-28.60	-69,16		2.66	3.73	2.75
Profit margin	7.68	8.35	9.17	2,22	2.54	15.29	19.26	16.80
Var. %		8.72	9.82	-75,81		2.66	3.73	2.75
EBITDA	1400000.00	1473000.00	1068000.00	1021000.00	n.a.	12649.11	10927.66	9938.47
Var. %		5.21	-27.49	-4.40		n.a.	-13,61	-9,05
ROE	12.75	12.44	11.84	2.33	0.83	9.08	13.11	11.77
Var. %		-2.43	-4.82	-80.33		988,73	44,36	-10,22
ROA	4.10	4.54	5.01	0.88	0.28	2.66	3.73	2.75
Var. %		10.73	10.35	-82.43		867,27	40,11	-26,24
Gearing	161.72	133.66	99.32	132.12	20.12	18.12	16.60	18.23
Var. %		-17.35	-25.69	33.03		-9,93	-8,41	9,82

	HERA S.P.A.				ENIA S.P.A.			
	2006	2007	2008	2009	2006	2007	2008	2009
P/L for period	100238.00	109903.00	110264.00	84964.00	31025.83	30328.20	37839.54	38056.39
Var. %		9.64	0.33	-22.94		-2.25	24.77	0.57
Profit margin	7.01	4.54	4.67	3.70	4.42	4.40	4.08	6.09
Var. %		-35.26	3.07	-20.75		-0.50	-7.18	49.16
EBITDA	426678.00	453378.00	528301.00	525301.00	127726.41	138217.11	148982.92	163147.36
Var. %		6.26	16.53	-0.57		8.21	7.79	9.51
ROE	6.61	7.14	6.98	5.00	6.88	4.33	7.12	7.13
Var. %		8.05	-2.24	-28.45		-36.99	64.38	0.14
ROA	2.30	2.30	2.00	1.45	1.78	1.58	2.09	2.00
Var. %		0.13	-12.99	-27.41		-11.23	32.07	-4.41
Gearing	120.49	134.34	140.96	164.02	173.48	91.54	142.04	181.45
Var. %		11.49	4.93	16.35		-47.23	55.16	27.75

Note: Var. % indicates the increase or decrease of the figure between one year and the previous one.

This table shows the variables of the financial performance of the companies analysed from 2006 to 2009. These variables are Profit/Loss for period, profit margin, EBITDA, ROE, ROA and gearing. To extract relevant results, we analyse the variation of these variables between one year and the previous one.

The profit for period decreases during the period analysed. Specially, for A2A and HERA, whose evolution is extremely negative in 2009. In general terms, the profit of IRIDE and ENIA increase and it is notable the increase of 24.77% in 2008 for ENIA.

In A2A, the profit margin has had a favourable evolution until 2009, when this magnitude slumps. In this year, the same occurs for HERA, whose result is also negative in 2007. The profit margin of IRIDE remain steady and that of ENIA decreases until 2009, when shoots up. The evolution of these variables is consistent with the previous one.

As for the EBITDA, by one hand, the evolution of three companies –A2A, IRIDE and HERA- decreases in 2009. By other hand, ENIA obtains good results each year. This variable is indicative of the operative efficacy of the company; therefore, the decrease shows that these companies are not able to carry out an adequate activity in its sector.

The variation of ROE for A2A and HERA is negative during the period analysed. In line with previous magnitudes, this variable plunges in 2009. For IRIDE and ENIA, evolution is positive except to ENIA in 2007.

Results for ROA magnitude are contradictory. The ROA for A2A is higher than other companies, however, this variable decreases in 2009. This decrease also appears for IRIDE, HERA and ENIA, which is consistent with crisis period.

Similar to ROA variable, the gearing shows a negative result for each company in 2009 by increasing its value. Especially significant, it is the increase for A2A and ENIA. This indicates that companies have needed more debt to operate in markets by increasing their leverage until undesirable rates.

As previous results indicate, the evolution of performance of A2A and HERA is negative. By contrast, ENIA obtains good values followed by IRIDE. This is confirmed by the strength of ENIA to acquire IRIDE and stablish the new merged company IREN.

The four lised companies have different models of corporate governance, the German model for A2A and the Latin model for other three companies, so the results indicate that the former model is more appropriate for utilities companies.

Table 4 shows results for IREN in 2010 and the average for ENIA and IRIDE (2006-2009), the merged company compounded by ENIA and IRIDE. As we can see in Table 4, the Profit for period and EBITDA of IREN are extremely higher than that of pre-merger companies (Enia and Iride). The Profit margin is higher than the average of all the companies in Table 3, but this variable is not higher than the average of IRIDE. ROE of Iren is similar to pre-merger companies and the same occurs with the ROA variable. Finally, the gearing is higher for IRIDE than IREN, but lower for ENIA than IREN. According whit data, we can assert that merger has lead to better results for IREN by improving the P/L for the period and EBITDA and maintaining similar results to pre-merged companies for the rest of variables.

Table 4. financial performance

	IREN SPA (2010)	ENIA (2006-2009)	IRIDE (2006-2009)
P/L for period	150,391	34,312.49	6,867.70
Profit margin	8.38	4.75	13.47
EBITDA	473,753	144,518.45	11,171.75
ROE	9.00	6.36	8.70
ROA	2.21	1.86	2.35
Gearing	197.50	147.12	220.29

5. Conclusions

The aim of this research was to analyze the context of Italian utility listed companies and explores how post-merger changes in the ownership structure affect the governance systems and financial performance. The four companies analysed used different corporate governance models, the German and the Latin model and our results indicate that the Latin model is more appropriate for utilities companies to have better financial performance.

According to our data, we can assert that merger of ENIA and IRIDE has lead to better financial results for IREN (the new merged company) by improving its profit and EBITDA.

In conclusion, the evolution of the financial performance of utility listed companies analysed is favourable when they adopt the Latin model of corporate governance. Moreover, we can assert that mergers generate good financial results in the four listed companies. This indicates that sharing control is optimal and increases firm value, as it increases

the equity stake of decision markets. Thus, incentive to obtain private benefits from managers is decreased. Additionally, shareholders in merged company try to prevent decisions that harm minority shareholders. Mergers create control distribution among shareholders and moderate the discretion of main shareholder.

One limitation of this study is that we have only used data from 2006 to 2009, when crisis started to appears in Italy. Therefore, we need to be cautious about evidences. However, this is the period relevant to study mergers in utility companies in the country.

The study has implications for politicians and managers because shows that the one-tier (Latin) model is still preferable to the dualistic (German) model. So, owners should be considered to implement this system to improve financial performance of companies and to be more competitive.

References

1. Argento, D., Grossi, G., Tagesson, T. & Collin, S.O. (2010), "The *externalisation* of local public service delivery: experience in Italy and Sweden" , *International Journal of Public Policy, Vol. 5, No. 1, 2010, pp. 41-56.*
2. Bachiller p. and Grossi, G., "Great expectation and poor results: Financial and Social performance of Toscana Energia merger", Public Money & Management, 2012, Vol. 31, N. 1, pp. 69-74.
3. Doherty, T.L, Horne, T. (2002). *Managing public services-implementing changes.* 559 pp, Routledge.
4. Greve, C. (2008), *Contracting for public services*, London: Routledge.
5. Grossi, G. (2005), *La Corporate Governance delle società miste. L'esperienza in Italia e negli altri paesi europei*, Padova: Cedam.
6. Grossi, G. (2007), "Governance of public-private corporations in the provision of local Italian utilities"; *International Public Management Review*, Vol. 8, pp. 132-153.
7. Grossi, G. and Reichard C. (2008), "Municipal corporatization in Germany and Italy", *Public Management Review*, 2008, 10 (5), pp. 597-617.
8. Grossi, G., Marcou G., and Reichard, C. (2010), "Comparative aspects of institutional variants of public service delivery ", in H. Wollmann & G. Marcou, The Provision of Public Services in Europe. Between State, Local Governments and Market, Edward Elgar Publishing, pp. 217-239.
9. Hartley, J; Skelcher, C. (2008). *The agenda for public service improvement*. Managing To Improve Public Services edited by Hartley, J. *et al*; pp. 3-23. Cambridge University Press.
10. Hill, C.L; Lynn, L.E. (2005). Is hierarchical governance in decline? Evidence from empirical research. *Journal of Public Administration Research and Theory*, Vol. 15, no. 2.
11. Hood, C. (1991). A Public Management for All Seasons? *Public Administration*, 69: 3-19.
12. Hughes, O.E. (1994), *Public Management & Administration. An Introduction*, London, Macmillan Press LTD.
13. Kettl, D. (2000). *The Global Public Management Revolution*, Washington, DC: The Brookings Institution.
14. Osborne S.P. (2010). *The (New) Public Governance: a suitable case for treatment?* The New Public Governance edited by Osborne, S.P. pp 1-16, Routledge.
15. Osborne, S.P. and Brown, K. (2005): *Managing change and innovation in public service organizations*. London: Routledge.
16. Reichard, C. (2006). Strengthening Competitiveness of Public Service Providers. *International Review of Administrative Sciences*, pp. 473-492.
17. Skelcher, C. (2008). *Does governance perform? Concepts, evidence, causalities and research strategies*. Managing To Improve Public Services edited by Hartley, J. *et al*; pp. 27-45. Cambridge University Press.
18. Sørensen, R. J. (2007), "Does dispersed public ownership impair efficiency?". The case of refuse collection in Norway. *Public Administration, Vol. 85, No. 4, 1045–1058.*
19. Torres, L. and Pina, V. (2002) "Changes in public service delivery in the EU countries", *Public Money & Management*, Vol. 22, No. 4, pp.41–48.
20. Wettenhall R. and Thynne I. (2005), "Ownership and Management in the Public Sphere: Governance Issues and Concerns", The Asia Pacific Journal of Public Administration, Vol. 27., No. 2, pp. 263-290.

LIQUIDITY MANAGEMENT BY SOUTH AFRICAN BANKS

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Abstract

The management of liquidity is of prime importance to banks. This management process should be carefully planned and continuously managed to master a global and/or national financial crisis. The objective of this research paper embodies the improvement of financial decision-making by banks regarding the management of their liquidity. To achieve this objective, a literature study was initially done.

An empirical survey followed thereafter, focusing on the 10 biggest banks in South Africa. They are the leaders of the South African banking industry, and as South Africa is a developing country with an emerging market economy, the conclusions of the study may also be valuable to banking industries of similar countries. The importance of the liquidity management factors, the problem areas surrounding this topic, as well as how often the requirements are adjusted to ensure proper and effective liquidity management are addressed.

Keywords: Banks, Basel Reports, King Reports, Liquidity, Management, Problem Areas, Ratios, Reserves Strategy

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1. Introduction and objective of research

Banks, which are officially called 'bank financial institutions', need to pay adequate attention to liquidity management to survive in the ever-changing and challenging business environment. This fact was emphasised once again after the 2007 recession. The liquidity of banks is an important financial aspect which should be carefully planned and continuously managed to master a global and/or national financial crisis. The term liquidity refers to the continuous capability of a firm to settle current and short-term obligations to be able to continue its normal business operations (Lambrechts, 1990:113). This description encompasses much more than just the available cash flow of a firm. The concept of liquidity can also be described as how easy and cost-effective liquid assets can be converted into cash flow.

The *objective* of this research paper evolves around the improvement of financial decision-making by banks regarding the management of their liquidity. The importance of the liquidity

management factors, the problem areas surrounding this topic, as well as how often the requirements are adjusted to ensure proper and effective liquidity management are addressed. These related aspects will be described by means of the following literature study and empirical survey.

2. Liquidity of banks and liquidity risk

Banks primarily need liquidity for two reasons, namely to be able to meet the withdrawals of depositors and also to repay the loans and other obligations which the bank is liable for. The *net* cash inflow of banks as a source of liquidity is mainly generated from loans made to clients at a higher interest rate than what the depositors receive, as well as the various services rendered by the bank to its clients.

The liquidity of banks is often seen as the ability to meet the credit needs of the community at large and to assist depositors with withdrawals. Banks accept risk in order to generate a return, but taking on extreme liquidity risks can jeopardise the

financial position of a bank seriously (Crosse & Hempel, 1980:59). External risks, such as the business cycles, interest rate levels, as well as foreign exchange rates can also impact negatively on the operations, cash flow and profitability of banks.

It is clear that the liquidity of banks depends on the expected future net cash inflow which is generated by a bank. The relationship between the interest rate received by a bank from a lender and the credit risk which is involved, may impact positively or negatively on the net cash inflow of the particular financial institution. Mismatches may occur as the banks may have taken a wrong view on the future interest rate movements against the background of the associated credit risk and banks may not be able to absorb economic and financial disasters when they occur (Bank for International Settlements, 2011(a):1).

The structure of the balance sheet is financially unacceptable when an inadequate buffer is available to cover unexpected cash outflow of a bank. Banks should also pay special attention to the positive economic impact over the long run when they enhance their capital and liquidity requirements (Bank for International Settlements, 2010). Forecasts of future net cash inflows may be incorrect and a safety margin should be in place to assist a bank when unforeseen negative circumstances occur. Banks may easily experience detrimental situations as illiquid assets usually have higher returns than liquid assets. Banks should resist the temptation to employ a high proportion of illiquid assets. When unforeseen unfavourable conditions occur, a bank with a high percentage of illiquid assets may experience extreme liquidity risks.

A manner to measure a bank's liquidity risk and to manage it properly, is the utilisation of various liquidity ratios (Firer, *et al.*, 2004:57-61; Mittner, 2011). According to the Bank for International Settlements, banks should also pay attention to the following monitoring tools (2009:25-30):

- The cash inflows and cash outflows due to contracts should be monitored;
- The concentration of wholesale funding should receive attention to avoid that the withdrawal of funds may cause liquidity problems;
- The unencumbered assets of banks, which may serve as collateral for loans to obtain additional liquidity, should also be taken into account; and
- Banks should monitor market information as markets tend to react quickly to any new data.

Early warning signals may be present to caution banks about their level of liquidity risks. The internal signals may consist of a rapid asset growth rate which may lead to huge liquidity risks, as well as the exposure of the bank's financial position to off balance sheet financing (Brigham & Daves, 2004:15). External warning signals may be the deterioration of a bank's financial reputation due to harmful rumours, when the market price of a bank decline persistently while the banking sector in general experiences a prosperous period, or when a bank's credit rating is downgraded.

3. Liquidity management by banks

The liquidity risk of banks is here to stay. In order to reduce the possible detrimental impact of this particular risk, it should be effectively managed by the financial institutions. There are various manners which can be employed by banks to obtain proper liquidity management (Sybase, 2011), viz.:

- By employing *operational management* to provide the right amount of cash when it is needed by the bank and to limit future cash outflows to the lowest possible level.
- By obtaining *fund optimisation* when cash and fund managers determine liquidity excesses and shortfalls. Accurate and reliable information is needed to attain fund optimisation.
- By reducing the *operational cost* of liquidity management as a result of proper strategic planning, with a lower error probability and a reduction in penalty costs.

The Basel II report was followed by the *Basel III report* which addressed amongst others the management strategy towards credit and liquidity risks (Bank for International Settlements, 2011(a)). Minimum standards for liquidity funding were addressed, in order that adequate liquidity resources of an acceptable quality are employed by banks, and to ensure that banks are funding their operations with stable and continual sources (Bank for International Settlements, 2011(a):8-9). The indications are, however, that the Basel III report will be implemented over a number of years. Banks need time to investigate and find the best manner to manage and adhere to the new liquidity requirements (Mittner, 2011). According to Van Dyk (2011) it is clear that the South African banks are heading for a difficult period to adhere to the Basel III requirements, although it may be more difficult for many international banks to implement the various stipulations. The Basel Committee on Banking Supervision is however monitoring the implementation of the Basel III report by its members (Bank for International Settlements, 2011(b)).

Another report which has an influence on the liquidity management of banks in South Africa, is the *King III report*, which was released in 2009 (SAICA, 2009). This report addressed corporate governance in *all entities* and used the "apply or explain" framework (PWC, 2010). This report makes it therefore possible for banks to

differentiate from one another when their size and nature are different. According to this report, a director should be satisfied by applying the solvency and liquidity test, that the enterprise will be able to pay its obligations during the 12 months following a particular transaction (PWC, 2009). The liquidity position of banks is thus also addressed by the King III report.

It must be emphasised that the reports mentioned can only provide a framework for the management of liquidity in banks and cannot be a substitute for proper and effective management. The objective of these reports is obviously not to be a manual for liquidity management, but to set the requirements which should be met.

4. Research methodology

As mentioned in the introduction to this paper, the objective of this research embodies the improvement of financial decision-making by banks regarding the management of their liquidity. The view of the market leaders of the South African banking industry should therefore be obtained to provide a framework for the specific industry. South Africa is a developing country with an emerging market economy and recently became a member of the BRICS countries ((MSCI Barra, 2010; SouthAfrica.info, 2011). The framework may therefore also be valuable to the banking industries of other developing countries with emerging market economies.

All the banks in South Africa were ranked in a declining order according to their total assets by using their consolidated financial statements of 2010. The top 10 banks were selected as the sample of this study. It must be emphasised that the top 10 banks had more than 99% of the total assets of all the banks in South Africa. The top four banks represented just over 90% of the total assets of all the banks in South Africa and therefore dominate the particular market.

A questionnaire was constructed which was based on the literature study. The questionnaire was sent to the chief executive officers of the selected 10 banks together with a covering letter. After following up, executives who are employed in liquidity management of the 10 banks, completed the questionnaires.

A five point Likert interval scale was also used in the questionnaire and the answers of the respondents were summarised to provide an overall picture of each related aspect. It was possible to apply weights to the answers of the respondents as it was explicitly stated on the questionnaire that the five point Likert scale forms a continuum when it was a applied (Albright, Winston & Zappe, 2002:224-229 & 245). The following weights were assigned to the responses received from the respondents:

Assigned a weight of 5 for: Extremely important /Always

Assigned a weight of 4 for:Highly important /Very often

Assigned a weight of 3 for: Moderately important /Sometimes

Assigned a weight of 2 for:Little important /Seldom

Assigned a weight of 1 for:Not important / Never

5. Empirical results

The empirical results obtained from the survey focus on the importance of the liquidity management factors, the problem areas of liquidity management, as well as how often the requirements are adjusted to ensure proper and effective liquidity management. The following sections provide the detail thereof.

5.1 The importance of liquidity management factors

The perceptions of the respondents regarding the importance of the liquidity management factors when evaluating liquidity management are depicted in Table 1.

Table 1. The importance of the liquidity management factors when evaluating liquidity management, as perceived by the respondents

Liquidity management factors	Extremely important	Highly important	Moderate-ly impor-tant	Little important	Not important
Liquidity manage-ment as a compe-tetive advantage for the bank	4	2	4		
Having more li-quidity reserves as required by the South African Reserve Bank	4	3	1	2	
Using South African banking industry's trends for diversifying liquidity	3	3	1	3	
Applying inter-national standards regarding the li-quidity diversifi-cation.	4	2	3		1
Always have a proper strategy in place when mana-ging liquidity	10				
Forecasting liqui-dity requirements for more than one year ahead	3	6	1		
Ensure that mana-gement have re-gular training to keep up with trends in liquidity management	4	4	2		
Liquidity safety nets in the bank's strategy	9	1			
Risk averseness towards liquidity reserves	3	6	1		
Maintaining sta-ble liquidity ratios during global and/or national financial crises	5	4		1	

It is interesting to note that all respondents indicated that it is extremely important that a bank should always have a proper strategy for managing liquidity, while they all said that liquidity safety nets are at least highly important for a bank. The responses of the preceding table are weighted (as described in Section 4) and the total weighted scores calculated appear in the following table, in a declining order of importance.

Table 2. The weighted responses on the importance of liquidity management factors as perceived by the respondents, in a declining order of importance

Total weighted score calcu-lated	Declining order of importance	Liquidity management factors
50	1	Always have a proper strategy in place when managing liquidity
49	2	Liquidity safety nets in the bank's strategy
43	3	Maintaining stable liquidity ratios during global and/or national financial crises
42	4	Ensure that management have regular training to keep up with trends in liquidity management
42	4	Forecasting liquidity requirements for more than one year ahead
42	4	Risk averseness towards liquidity reserves
40	7	Liquidity management as a competitive advantage for the bank
39	8	Having more liquidity reserves as required by the South African Reserve Bank
38	9	Applying international standards regarding the liquidity diversification.
36	10	Using South African banking industry's trends for diversifying liquidity

It was already indicated that always having a proper strategy in place when managing liquidity received a *unanimous vote* of extremely important as a liquidity management factor, while liquidity safety nets in the bank's strategy takes the *second* most important place as a liquidity management factor. Maintaining stable liquidity ratios during global and/or national financial crises was regarded as the *third* most important liquidity management factor by the respondents. The *fourth* most important place were allocated to the following three liquidity management factors, viz.:

- Ensuring that management have regular training to keep up with trends in liquidity management;
- Forecasting liquidity requirements for more than one year ahead; and
- Risk averseness towards liquidity reserves.

Overall, it is clear from the preceding empirical results that a bank's liquidity strategy, liquidity safety nets and liquidity ratios should form the basis of liquidity management factors, while regular training concerning liquidity management, forecasting liquidity requirements for more than

one year, and risk averseness towards liquidity reserves should also play an important role.

5.2 Problem areas in the management of liquidity

The respondents were requested to indicate three problem areas which they experience when managing liquidity. The responses of the respondents are shown in Table 3.

Table 3. Problems areas in the management of liquidity, as perceived by the respondents

Problem areas	Number of respondents who mentioned the problem area
Complying with the new regulations of the Basel III report	10
Planning for possible future occurrences and risks associated with liquidity management	9
Maintaining the required liquidity ratios throughout a financial year	4
Complying with the regulations and requirements of the South African Reserve Bank	2
Managing the daily liquidity in the bank	2
Allocation of liquidity in the asset portfolio of the bank	2
Regular training and development opportunities for liquidity managers	1

The problem area which was indicated by all the respondents, is to comply with the new regulations of the Basel III report. As banks will implement it over a number of years and need to investigate and find the best way to adhere to the new liquidity requirements, the Basel III report will remain a vital topic in the banking industry for a long time. The implementation of the Basel III report will require a large input from the banks.

It seems that the detrimental impact of financial crises remain in the memories of managers for many years, as nine of the respondents mentioned the planning for possible future occurrences and associated risks as a problem area when managing liquidity. The liquidity strategy, liquidity safety nets and the liquidity ratios which form the basis of liquidity management factors (according to the results of Table 2) should be applied by banks when planning for possible future events and related risks.

Although the remaining problem areas mentioned in Table 3 were indicated by a minority of respondents, they are all very vital topics in liquidity management. The maintenance of required liquidity ratios throughout a financial year, complying with the regulations and requirements of the South African Reserve Bank, managing the daily liquidity in the bank, and the allocation of liquidity in the asset portfolio of the bank, definitely pose problem areas to the liquidity managers.

5.3 How often the requirements of liquidity are adjusted to ensure proper and effective management

There are many requirements of liquidity to which banks must adhere. The answers of the respondents to the question on how often they adjust the requirements to ensure proper and effective liquidity management, are depicted in Table 4.

Table 4. How often the requirements are adjusted to ensure proper and effective liquidity management, as perceived by the respondents

Requirements for liquidity management	Always	Very often	Some-times	Seldom	Never
Requirements of the South African Reserve Bank	5	1	1	2	1
Industry trends concerning liquid-dity that change over and above the requirements of the South African Reserve Bank	3	4	3		
Basel reports regarding regulations and requirements for banks	4	2	1	2	1
King reports regarding regulations and requirements for banks	2	1	3	1	3
Adjusting liquidity ratios during global and/or national financial crises	3	4	1	2	
Strategic restructuring of liquidity in the bank	3	2	2	3	
Liquidity allocation requirements according to the bank size	4	2	3	1	

To obtain a clear picture of the information contained by the preceding table, the responses of Table 4 are weighted (as described in Section 4).

The total weighted scores calculated appear in the following table, shown in a declining order of frequency.

Table 5. The weighted responses on how often the requirements are adjusted to ensure proper and effective liquidity management as perceived by the respondents, in a declining order of importance

Total weighted score calculated	Declining order of frequency	Requirements for liquidity management
40	1	Industry trends concerning liquidity that change over and above the requirements of the South African Reserve Bank
39	2	Liquidity allocation requirements according to the bank size
38	3	Adjusting liquidity ratios during global and/or national financial crises
37	4	Requirements of the South African Reserve Bank
36	5	Basel reports regarding regulations and requirements for banks
35	6	Strategic restructuring of liquidity in the bank
28	7	King reports regarding regulations and requirements for banks

Based on the information of the preceding table, it can be concluded that the requirements of liquidity, based on the industry trends that change over and above the requirements of the South African Reserve Bank, are *most* often adjusted. The industry trends therefore play a vital role in setting the requirements of liquidity for every bank individually. It is further clear that the regulatory liquidity requirements of the South African Reserve Bank obtained only the *fourth* place in the declining order of frequency (according to Table 5). The requirements of liquidity based on the industry trends are *over and above* the regulatory requirements of the South African Reserve Bank.

The liquidity allocation requirements according to the bank size are *second* most often adjusted by the respondents, while the adjustment of liquidity ratios during global and/or national financial crises takes the *third* place in the declining order of frequency according to Table 5.

The requirements of liquidity due to the Basel reports, strategic restructuring of liquidity in the bank, and the King reports are not as often adjusted as the other aspects mentioned in Table 5. This conclusion must be seen in the correct perspective. The *Basel II* report was already implemented, while

the *Basel III report* will take a number of years before banks have investigated and found the best manner to manage and adhere to the new liquidity requirements. That is the reason why complying with the new regulations of the Basel III report, was a problem area which was mentioned by all respondents according to Table 3. Concerning the *strategic restructuring* of liquidity in the bank, it is common knowledge that strategies are not adjusted often, but are only reformulated and implemented when needed. The *King III report* applies to all entities and banks are only one type of the entities where corporate governance plays a role. Although the King III report is not a guideline for liquidity management as such, it also focused, amongst others, on the liquidity position of enterprises.

6. Conclusions

The objective of this research paper embodies on the improvement of financial decision-making by banks concerning the management of their liquidity. The findings of this research paper emphasise the following important conclusions, which may also be valuable to the banking

industries of other developing countries with emerging market economies:

(1) It was concluded that always having a proper strategy in place when managing liquidity received a *unanimous vote* of extremely important as a liquidity management factor. Liquidity safety nets in the bank's strategy take the *second* most important place as a liquidity management factor. The *third* most important liquidity management factor according to the respondents consists of the maintenance of stable liquidity ratios during global and/or national financial crises. Overall, it is clear a bank's liquidity strategy, liquidity safety nets and liquidity ratios should form the basis of liquidity management factors.

(2) The problem area which was indicated by all the respondents, is to comply with the new regulations of the Basel III report. As banks will implement it over a number of years and need to investigate and find the best way to adhere to the new liquidity requirements, the Basel III report will remain a vital topic in the banking industry for a long time. It seems that the detrimental impact of financial crises remain in the memories of managers for many years, Nine of the 10 respondents mentioned the planning for possible future occurrences and associated risks as a problem area when managing liquidity, which emphasised that the detrimental impact of financial crises are carved into the memories of managers.

(3) It was concluded that the requirements of liquidity, based on the industry trends that change over and above the requirements of the South African Reserve Bank, are *most* often adjusted by banks. The empirical survey further indicated that the liquidity allocation requirements according to the bank size are *second* most often adjusted by banks. The study also concluded that the adjustment of liquidity ratios during global and/or national financial crises are *third* most often adjusted by banks. The regulatory liquidity requirements of the South African Reserve Bank obtained only the fourth place in the declining order of frequency.

References

1. Albright, S.C., Winston, W.L. & Zappe, C.J. 2002. *Managerial Statistics*. Australia: Duxbury.
2. Bank for International Settlements, Basel Committee on Banking Supervision. 2009. *International framework for liquidity risk measurement, standards and monitoring*. [Online]. http://www.bis.org/publ/bcbs165.pdf [Accessed on 27 October 2011].
3. Bank for International Settlements, Basel Committee on Banking Supervision. 2010. *An assessment of the long-term economic impact of stronger capital and liquidity requirements*. [Online]. Available: http://www.bis.org/publ/bcbs173.pdf [Accessed on 27 October 2011].
4. Bank for International Settlements, Basel Committee on Banking Supervision. 2011(a). *Basel III: A global regulatory framework for more resilient banks and banking systems*. [Online]. Available: http://www.bis.org/publ/bcbs189.pdf [Accessed on 27 October 2011].
5. Bank for International Settlements, Basel Committee on Banking Supervision. 2011(b). *Progress report on Basel III implementation*. [Online]. Available: http://www.bis.org/ publ/bcbs203.pdf [Accessed on 27 October 2011].
6. Brigham, E.F. & Daves, P.R. 2004. *Intermediate Financial Management*. 8th ed. Ohio: Thomson South-Western.
7. Crosse, H.D. & Hempel, G.H. 1980. *Management Policies for Commercial Banks*. 3rd ed. Englewood Cliffs, N.J.: Prentice-Hall.
8. Firer, C., Ross, S.A., Westerfield, R.W. & Jordan, B.D. 2004. *Fundamentals of Corporate Finance*. 3rd South African ed. London: McGraw-Hill.
9. Lambrechts, I.J. (Ed.) 1990. *Financial Management*. 1st English ed. Pretoria: J.L. Van Schaik Pty (Ltd).
10. Mittner, M. 2011. Basel 3 – Capital and liquidity requirements: Banks in for a tough time. *Financial Mail*. 27 January. [Online]. Available: http://www.fm.co.za.ez.sun.ac.za/Article.aspx?id=13 2627 [Accessed on 27 October 2011].
11. MSCI Barra. 2010. *Emerging markets*. [Online]. Available: http://www.mscibarra.com/products/indices/tools/in dex_country_membership/emerging_markets.html [Accessed on 19 October 2010].
12. PWC. 2009. *King III – Chapter 13: Solvency and liquidity tests*. [Online]. Available: http://www.pwc.com/za/en/king3/solvency-and-liquidity-tests/index.jhtml [Accessed on 19 October 2011].
13. PWC. 2010. *Corporate governance – King III report – Introduction and overview*. [Online]. Available: http://www.pwc.com/za/en/king3 [Accessed on 19 October 2011].
14. SAICA (The South African Institute of Chartered Accountants). 2009. *Summary of report on governance for South Africa – 2009 (King III): King Committee on Governance*. [Online]. Available: http://www.auditor.co.za/Portals/23/king%20111%2 0saica.pdf [Accessed on 26 October 2011].
15. SouthAfrica.info. 2011. *South Africa joins BRICS*. [Online]. Available: http://www.southafrica.info/global/brics/brics-080411.htm [Accessed on 22 July 2011].
16. Sybase. 2011. *Liquidity management suite*. [Online]. Available: http://www.sybase.com/ products/financialservicessolutions/liquiditymanage mentsuite [Accessed on 27 October 2011].
17. Van Dyk, F. *Basel III: An overview of the safer 'safety net'*. [Online]. Available: http://www.financialmarketsjournal.co.za/13theditio n/printedarticles/basel3.htm [Accessed on 25 October 2011].

THE ROLE OF EFFECTIVE AUDIT COMMITTEE IN STRENGTHENING THE FINANCIAL REPORTING: EVIDENCE FROM JORDANIAN LISTED COMPANIES

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Abstract

This study aims to understand the features of an effective audit committee and its role in strengthening financial reporting. A questionnaire based survey was circulated to public listed companies on the Amman Stock Exchange (Banking, insurance, and financial institutions). The study was aimed at internal audit managers and finance managers. Out of 156 questionnaires, we received 110 back which represents a 71% response rate. The study results show that the research respondents have a good level of education and experience. In addition, there is a relationship between internal controls, international standards on auditing, institute of internal audit; Jordan securities commission requirements, external audit, understanding of audit committee functions, and financial reporting. Further more, the internal control, international standard on auditing and institute of internal audit, Jordan securities commission requirements, External audit, understanding of audit committee functions can explain a significant amount of the variability in financial reporting. Finally, the research results also show that age and gender make a difference for our respondents when they evaluate financial reporting. The study like other cross sectional studies is not free of limitations. Managerial implications and new avenues of future research are supplied. Future research also can borrow the research model and apply a longitudinal study to solve the cross sectional study problems.

Keywords: Audit Committee, Effectiveness, Independence, Internal Control, Financial Reporting, Disclosure, Corporate Governance

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1. Introduction

Audit committees play a crucial role in firms' financial reporting processes, and thus have attracted considerable attention from researchers, especially in the wake of recent high profile financial reporting scandals. Research has not, to date, examined how audit committee features in Jordan's efforts to strengthen the firm's financial reporting environment. Audit committees have been in existance for many decades.

The establishment of audit committee aimed to mitigate corporate fraudulent or creative accounting practices through internal control initiated by independent and effectively functioning non-executive members of audit committee. Recently; Jordan has made firm moves to be an attractive investment environment; so that there is an increasing need of a good corporate governance and accountability in the corporate sector in Jordan.

There are three benefits of having an audit committee:

- to improve or maintain the quality of the financial reporting process,
- to aid the actual and perceived independence of the internal and external auditors, and finally;
- to improve the confidence of the financial statement users in the quality of financial reports (Simnet et al., 1993).

The existence of an audit committee should improve the monitoring of corporate financial reporting and internal control. Indeed, users of financial statements often lack information relating to the company except that disclosed in the annual report and other statutory announcements, because most of the documents and records are classified as private and confidential.

Generally, our motives for such research are enforcing and encouraging the establishment of an audit committee. Which may lead to the following:

- to institute good corporate governance,
- to strengthen the role and effectiveness of non-executive directors, to assist directors in

discharging their statutory responsibilities with regard to financial reporting,

- to preserves and enhances the independence of internal auditors,
- to improve communication between the board and internal auditors,
- to assist auditors in the reporting of serious deficiencies in the control environment or management weaknesses,
- to improve communication between the board and external auditor, and
- to preserves and enhances the independence of external auditors (Collier, 1993).

One of the main responsibilities of the audit committee is to oversee the external audit function, including the selection, compensation, work and independence of the external auditor. Effective oversight is expected to strengthen "audit quality".

Additionally one of the primary functions of the audit committee is the oversight of internal control (BRC, 1999; Carcello et al., 2002). Effective oversight is assumed to strengthen internal quality control .

Therefore, there is need for a study to be carried out to examine features and characteristics of an effective audit committee, and its role in strengthening the financial reporting process in Jordanian listed corporations on the Amman Stock Exchange. The objective of this research is to explore and evaluate features of an effective audit committee, and its role in strengthening the financial reporting of companies that are listed on the Amman Stock Exchange. The findings are important for policy makers, stakeholders and company's management to help them formulate practical guidelines to improve the corporate governance practices among listed firms.

Given the new corporate governance environment, it is essential for audit committees to focus on a process to support effective oversight that goes beyond mere compliance with the rules. This requires an oversight framework that facilitates the coordination of the activities and information needed to support the audit committee's understanding and monitoring of the company's financial reporting process.

The paper is organised into eight sections. The first section provides an introduction. The Jordanian Business Environment and corporate governance structure are explained in the second section. The third Section provides research objectives. The fourth section provides a literature review on audit committees. The fifth section presents the research model and hypothesis development. While the sixth section offers the data collection and research methodology, the seventh section discusses data analysis and research findings. And finally; the last section concludes the research.

2. The Jordanian Business Environment and Corporate Governance Structure

Jordan is a free market oriented economy, with outward-oriented economic policies and a private sector led approach. Jordan experienced an ongoing privatization of major state-owned enterprises and implemented significant advances in structural and legal reform. Below are select highlights for the data included in the profile.

1. Index of Economic Freedom score improved this year reflecting a substantial increase in business freedom, moderate increases in trade freedom and government size, and a slight decline in freedom from corruption.
2. According to the World Economic Forum's Global Competitiveness Report for 2007-08, the three most problematic factors for doing business are tax regulations, inefficient government bureaucracy, and tax rates.

- Income category: Lower middle income
- Population: 5,906,042
- GNI per capita (US$): 3306.07 (World Bank, IFC, 2009).
- Jordan ranks in the top six of the seventeen countries examined with regard to doing business in the Middle East region (Doing Business Report, World Bank, 2009).
- Jordan enjoys competitive labour laws: ranks 2nd in areas of employing workers, hiring and firing and flexibility in hours (Doing Business Report, World Bank, 2009).
- Jordan does an exemplary job at moving goods quickly across borders.
- Jordan is committed to the protection of investors' rights irrespective of national origin.
- Jordan has one of the most impartial and efficient legal systems in the region, comparable to international standards.

The Annual Doing Business Report conducted by the World Bank's International Finance Corporation (IFC) provides a comparative insight into Jordan's relative rankings along a number of measures for typical business operations. The results show that Jordan ranks in the top six of the seventeen countries examined with regard to doing business in the Middle East region. Jordan ranks in the top tier among countries ranked for employing workers in the areas of hiring and firing and flexibility in hours. The country has very competitive laws in this regard. The Kingdom is ranked first relative to its peers for enforcing contracts in a timely matter and second for legal rights involved in obtaining credit. The legal protections encourage investors to continue investing capital in Jordan. (Jordan Investment Board, 2009).

3. Research Objectives

The objectives of this research are to explore and evaluate the features of an effective audit committee, and its role in strengthening the financial reporting of Listed Companies in Amman Stock Exchange. Based on these objectives, the research problem can be formalised as follows: "What are the Features of an effective audit committee and its role in strengthening the financial reporting of Listed Companies in Amman Stock Exchange? The following questions can be derived from the research problem.

1. Does Effective Internal Control strengthen the Financial Reporting?
2. Does the Effective application of International Standards on Auditing and compliance with Institute of Internal Audit Requirements strengthen the Financial Reporting?
3. Does Compliance with Jordan Securities Commission Requirements strengthen the Financial Reporting?
4. Does an Effective External Audit strengthen Financial Reporting?
5. Does an Effective understanding of Audit Committee Functions by its members strengthen Financial Reporting?
6. Are there any differences in the financial reporting that can be attributed to demographic variables (Age, Gender, and Level of education, Professional certificates, and Years of experience)?

4. Literature Review

This section provides some relevant literature review on audit committees. The Merriam-Webster Online Dictionary defines effective as follows: "means producing a decided, decisive, or desired effect." In general, for regulators, the desired effects or goals of the audit committee consist of providing quality financial reporting and strengthening investor confidence in the quality of financial reporting and financial markets (BRC, 1999). In the USA an increasing number of earnings restatements by publicly traded companies, coupled with allegations of financial statement fraud and lack of responsible corporate governance of high profile companies (e.g. Enron, Global Crossing, World com in the USA, Parmalat in Italy and MacMed, Masterbond and Leisurenet in South Africa) have sharpened the ever increasing attention on corporate governance in general and audit committees in particular. The fall of these companies raised concerns regarding the lack of vigilant oversight by their boards of directors and audit committees in the financial reporting process and auditing functions (Rezaee et al, 2003). Audit Committees can improve the quality of information

directly by overseeing the financial reporting process and indirectly through their oversight of internal control and external auditing. Investors' perceptions complicate the process as, for example, audit committees can improve public confidence in the quality of financial reporting by adopting practices that are considered by the market as best practices – no matter their substantive impact on information quality. According to (Sabia and Goodfellow ,2005), an audit committee cannot be effective if it does not have the right people as members; that means that audit committee members should be independent and competent. Members' independence is generally defined as the absence of any relationship with the company that may interfere with the exercise of their independence from management and the company (BRC, 1999). Contemporary best practices and regulation recommend that audit committee members should possess certain personal characteristics. Interest regarding members' competencies was especially aroused as a result of the BRC (1999) report. US stock exchanges' rules and SOX have institutionalized competencies by requiring every AC member to be financially literate and companies to disclose whether at least one of their AC members is an "audit committee financial expert (SEC 2003c); Both the NYSE and NASDAQ have listing requirements demanding each audit committee to have at least one member with experience in accounting or finance. Generally, audit committee should provide an early warning signal to protect the company from unexpected financial collapse and to safeguard from any deliberate attempts by management to conceal problems from auditor (Majid, 1993).Two main facets of member qualifications are examined in this section: independence and competencies. One of the most important variables in the composition of an audit committee is the question of independence (Joshi and Wakil, 2004). The effectiveness of the audit committee depends on the background of the members which should consist of both financial and non-financial people. Six process dimensions determine the role of formal and informal processes in affecting audit committee effectiveness: agenda, meetings, questioning, relationships, power and leadership. (Bedard et al., 2008). The existence of a majority of non-executive directors on the audit committee board might indicate the level of protection against fraud, misstatement or negative behaviour of managers. (Beasley ,1996) pointed out that firm with a significantly lower percentage of independent; outside directors commit a higher degree of financial statement fraud than matched firms with a higher percentage of independent directors. This finding indicates that independent non-executive directors would pursue good corporate governance and behave in a way consistent with stakeholder

interest. Worldwide committees on corporate governance and/or audit committee (e.g. the US's Blue Ribbon Committee) recommended that audit committees should have relevant experience and qualifications and that this would further enhance the committee's effectiveness. In the context of financial literacy, research findings in the US reveal that the majority of audit committee members did not have a related background in accounting or auditing (Lee and Stone, 1997); thus, many US companies did not rely on their audit committees (Menon and William, 1994). (Defond, et al., 2005) examine the market reaction to the appointment of financial experts on audit committees. However, few papers study the compensation and incentives of audit committee members. Members of audit committees should ideally be individuals with integrity, a sense of accountability, and a good track record. They should possess certain core competencies such as financial literacy, experience with organisations, leadership, and strategic thinking. (Srinivasan,2005), investigates whether audit committee members are held accountable for financial reporting failure by looking at director turnover and the loss of board positions in other companies when their companies experience accounting restatements, and suggested that audit committee members suffer reputation penalties as a result of financial reporting failure. The members of an audit committee should be selected preferably from all walks of life such as minority shareholders, lawyers, educators, bankers, analysts and representatives from institutional investors. (Mohamad and Sori, 2001). For regulators, the desired effect or goal of the Audit Committee is to strengthen the quality of financial information and to maintain/strengthen investor confidence in the quality of financial reporting and financial markets, the Audit Committee can improve the quality of information directly, by overseeing the financial reporting process, and indirectly through the oversight of internal control and external auditing. In the end, improved information quality as well as strengthened controls may result in investors being more confident about the quality of financial reporting and the functioning of financial markets. Investors' perceptions may also be affected by the adoption of practices that are considered as best practices for Audit Committees. (Bedard et al., 2009). Several studies have examined how "financial expertise" relates to the identification of financial accounting reporting issues and the assessment of financial reporting quality (McDaniel et al., 2002). In the surrounding of financial scandals (2002), it is increasingly understood that internal auditing is a key component of internal control over financial reporting; (Sarens and De Beelde, 2006). Sections 404 and 302 of SOX have added internal control to the agenda of audit committees. One of the main mandatory

responsibilities of the AC established by new regulations relates to external auditing oversight. The primary function of the audit committees is to assist the board in fulfilling its oversight responsibilities by reviewing the financial information that will be provided to the shareholders and other stakeholders, the systems of internal controls, which management and the board of directors have established, and all audit processes (Bean 1999). Audit committees in developing countries may have difficulties in performing this role since they suffer from a shortage of accounting skills. Several studies have been undertaken on the audit committees' oversight responsibilities. In general, the findings indicated wide variations in both perceived and stated responsibilities. (Coopers and Lybrand, 1995) and (DeZoort, et al., 2002) found that audit committee responsibilities revolved mainly in the areas of financial reporting, auditing and overall corporate governance. (Kalblers and Fogarty, 1993) found that the responsibilities of audit committee included oversight of financial reporting, external auditor and internal controls. (Guy and Burke, 2001) argued that every company that has an audit committee should develop a tailor made charter for the committee that describes the committee's composition, and specifies access to appropriate resources. A prerequisite for the effective performance of the audit committee requires its status to be formally established, such as by a resolution of the board or embodied in the by-laws of the company (Braiotta 1999). The effectiveness of the audit committee depends on the background of the members which should consist of both financial and non-financial people. The audit committee's effectiveness and independence is greatly enhanced if the audit committee appoints the external auditors. (Saad et al, 2006). (Tackett ,2004) stated that although the audit committee represents the interests of stockholders, current procedures make it difficult for an individual stockholder to become a candidate for the board of directors without the blessings of corporate management. In regard to financial literacy; (Rezaee, et al., 2003) defined financial literacy as the ability to read and understand fundamental financial statements. (Herdman, 2002) questioned whether the capital markets requirement about financial literacy of audit committee members went far enough. In contrast, (Jonathan and Carey ,2001) questioned whether in a world of ever more complicated accounting standards, which even fully trained accountants can struggle to understand, if this is a completely realistic and necessary requirement for audit committee members. Some studies have been carried out in the area of experience and expertise. Experimental evidence from (DeZoort and Salterio, 2001) indicates that greater audit knowledge is associated with higher

Audit Committee members' degree of support for the auditor in a dispute with client management.
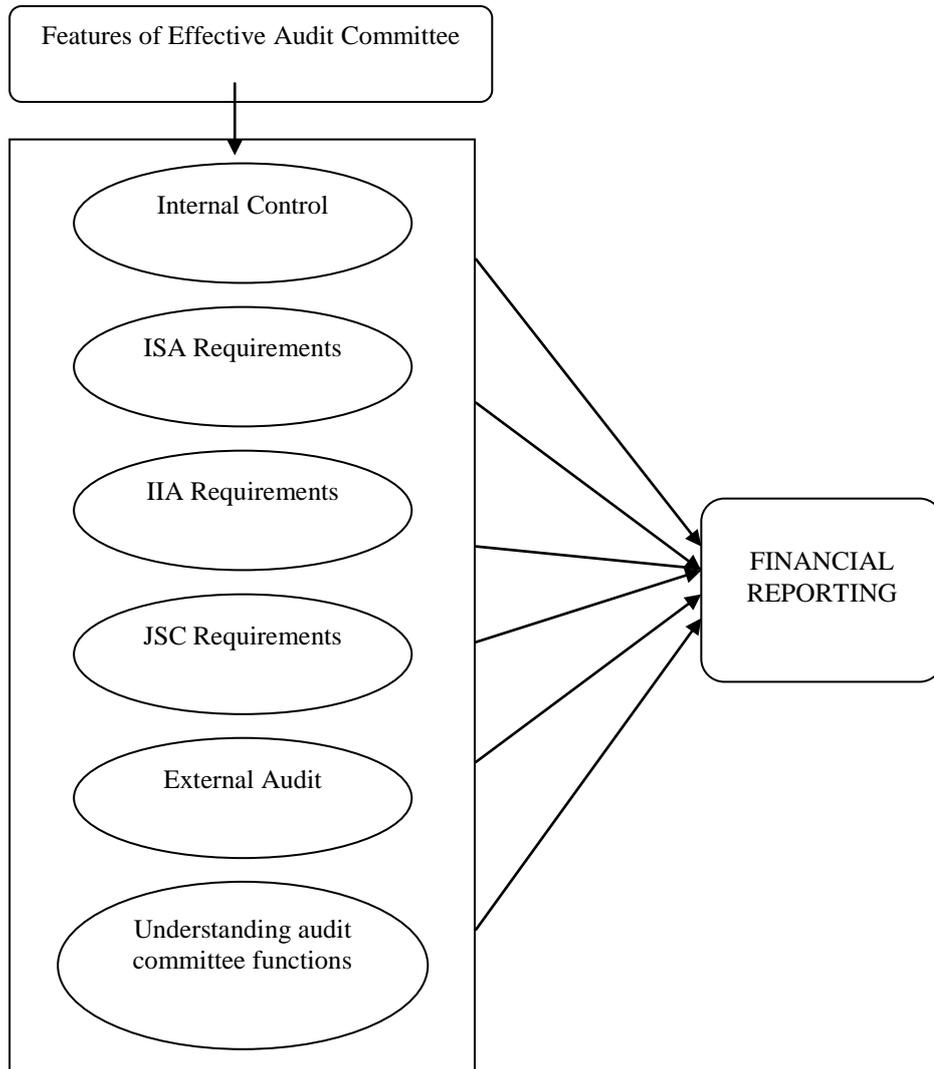
5. Research Model and Hypothesis Development

From the research model (figure 1); the following hypotheses can be derived:

H°1: Effective Internal Control doesn't strengthen the Financial Reporting.

H°2: Effective application of International Standards on auditing requirements and compliance with Institute of Internal Audit Requirements doesn't strengthen the Financial Reporting.

H°3: Compliance with Jordan Securities Commission Requirements doesn't strengthen the Financial Reporting.

H°4: Effective External Audit doesn't strengthen the Financial Reporting.

H°5: Effective understanding Audit Committee Functions by its members doesn't strengthen the Financial Reporting.

H°6: There are no differences in the financial reporting can be attributed to demographic variables (Age, Gender, and Level of education, Professional certificates, and Years of experience).

6. Data collection and research methodology

Based on the aim of the study and review of literature, the study attempted to answer the following research question: "What are the Features of an effective audit committee and its role in strengthening the financial reporting of Listed Companies in Amman Stock Exchange? A postal questionnaire survey was deemed the most appropriate research tool to answer the above question. It is an effective tool to seek opinions, attitudes and descriptions about audit committee effectiveness issues. A listing of Share -Traded Jordanian Companies was available from the

Amman Stock Exchange as of 30 September 2010. A total of 156 companies' Shares were traded on that day. It was decided to distribute the questionnaire to all those companies, with confidence level of 95% and internal level of (10). The response rate of the questionnaire survey was (71%), where only (110) out of (156) questionnaires were returned.

7. Data analysis and research findings

The research sample consisted of 81 males (73.6%) while the rest (29) were females (26.4%) (See Table: 1). Also less than (14%) of respondent have 1-5 years of experience while the majority of respondents (86.3%) have between (10) and more than (15) years of experience. Amongst the respondents there were four discrete categories of age groups, the range of age groups was 25 to more

than 40 years, with the majority aged between 31 to 35 years old(34 respondents). An equal number of respondents (22) were aged between 25 to 30 and more than 40 years, which indicates that our respondents can provide objective and deep data that enriches the research results. Of the research sample, 66 respondents hold bachelor's degree, and (40 respondents) hold a master's degree. Therefore; more likely the research sample has sufficient level of education to respond to research questionnaire. Nearly, more than (55.5%) of the respondents had (10 years of experience and above), which indicates that the respondents have a good level of experience to answer the research questionnaires without any difficulties. Overall; the demographic features of the research respondents shows the target sample is relevant to answer the research questions.

Table 1. Demographic characteristics of research respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
AGE	25-30	22	20.0	20.0	20.0
	31-35	34	30.9	30.9	50.9
	36-40	32	29.1	29.1	80.0
	More than 40	22	20.0	20.0	100.0
	Total	110	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
EDUCATION	College certificate	4	3.6	3.6	3.6
	Bachelor Degree	66	60.0	60.0	63.6
	Master Degree	40	36.4	36.4	100.0
	Total	110	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
EXPERIENCE	1-5 YEARS	15	13.6	13.6	13.6
	6-10 YEARS	34	30.9	30.9	44.5
	11-15 YEARS	27	24.5	24.5	69.1
	More than 15	34	30.9	30.9	100.0
	Total	110	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
GENDER	Male	81	73.6	73.6	73.6
	Female	29	26.4	26.4	100.0
	Total	110	100.0	100.0	

To test hypothesis the research hypothesis number, correlation analysis was used to examine the strength of the relationships between independent variables: internal control, international standard on auditing and institute of internal auditors' requirements, Jordan securities commission requirements about the audit committee, External audit, understanding of audit committee functions, and financial reporting. The correlation analysis allows testing the strength of relationships between several independent variables and one dependent variable, which is the case in

this study. The results of correlation analysis (see Table 2) shows that the relationships between internal control, international standard on auditing and institute of internal auditors' requirements, Jordan securities commission requirements about the audit committee, external audit, understanding of audit committee functions and financial reporting are significant on .01 level of significant (P-Value=.000 < .01). Thus, further analysis becomes possible to examine the amount of variance in the dependent variables that can be explained by independent variables.

Table 2. Pearson correlation coefficients between the research variables

Variables		JSC	EA	AACF	INCO	ISA &IIA	FR
JSC	Pearson Correlation	1	.416(**)	.461(**)	.612(**)	.739(**)	.666(**)
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000
	N	110	110	110	110	110	110
EA	Pearson Correlation	.416(**)	1	.316(**)	.410(**)	.493(**)	.567(**)
	Sig. (2-tailed)	.000	.	.001	.000	.000	.000
	N	110	110	110	110	110	110
AACF	Pearson Correlation	.461(**)	.316(**)	1	.284(**)	.476(**)	.501(**)
	Sig. (2-tailed)	.000	.001	.	.003	.000	.000
	N	110	110	110	110	110	110
INCO	Pearson Correlation	.612(**)	.410(**)	.284(**)	1	.638(**)	.606(**)
	Sig. (2-tailed)	.000	.000	.003	.	.000	.000
	N	110	110	110	110	110	110
ISA & IIA	Pearson Correlation	.739(**)	.493(**)	.476(**)	.638(**)	1	.658(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000
	N	110	110	110	110	110	110
FR	Pearson Correlation	.666(**)	.567(**)	.501(**)	.606(**)	.658(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	110	110	110	110	110	110

** Correlation is significant at the 0.01 level (2-tailed).

Regression

In order to test if the independent variables are able to explain the variance in the dependent variable, a multiple regression test was carried out to test the relationship between internal control, international standard on auditing and institute of internal auditors requirements, Jordan securities commission requirements about the audit committee, external audit, and understanding of audit committee functions are able to explain nearly 79% (R=0.785 P< 0.000) of the variance in financial reporting. This indicates that there is a significant positive relationship between internal control, international standard on auditing and institute of internal auditors' requirements, Jordan securities commission requirements about the audit committee, external audit, understanding of audit committee functions, and financial reporting. Thus, we reject the null hypotheses that assumed there are no significant relationship between internal control, international standards on auditing and institution of internal auditors' requirements, Jordan securities commission requirements about the audit committee, external audit, and understanding of audit committee functions. The coefficients factors and T value at 0.05 level of significant support this suggestion (2.672, 009), (3.603, 0.000), (2.620, .010), (2.627, 0.010).

Table 3. Regression analysis of research variables

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
1		.785(a)	.616	.598	3.97196

a Predictors: (Constant), ISA & IIA, AACF, EA, INCO, JSC

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2632.604	5	526.521	33.374	.000(a)
	Residual	1640.750	104	15.776		
	Total	4273.355	109			

a Predictors: (Constant), ISAIIA, AACF, EA, INCO, JSC
b Dependent Variable: FR

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9.216	5.342		-1.725	.087
	JSC	.447	.167	.256	2.672	.009
	EA	.200	.056	.256	3.603	.000
	AACF	.340	.130	.186	2.620	.010
	INCO	.260	.099	.218	2.627	.010
	ISAIIA	.115	.102	.115	1.131	.261

a Dependent Variable: FR

Table 4. ANOVA analysis to test the impact of demographic characteristics on financial reporting

ANOVA Age Impacts on Financial Reporting					
FR	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	307.220	3	102.407	2.737	.047
Within Groups	3966.135	106	37.416		
Total	4273.355	109			
ANOVA GENDER IMPACTS ON Financial Reporting					
FR	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	165.481	1	165.481	4.351	.039
Within Groups	4107.874	108	38.036		
Total	4273.355	109			

The One-Way ANOVA test was carried out to analyze if there are any differences in the financial reporting can be attributed to demographic variables (Age, Gender, and Level of Education, Professional Certificates, and Years of Experience). The results in table (4) show that the financial reporting differs by the existence of age and gender respectively ((F= 2.737, with P –value= .047) and (F= 4.351, with P- value= .039, P < .05). Thus, we reject the null hypothesis that stated there are no differences in the financial reporting can be attributed to age and gender. From the above data analysis a decision can be made toward accepting or rejecting the research hypothesis.

Table 5. Summary of the research hypotheses and Decisions

Hypothesis	Decision
Hº1: Effective Internal Control doesn't strengthen the Financial Reporting.	Rejected
Hº2: Effective application of International Standards on Auditing and compliance with Institute of Internal Audit Requirements doesn't strengthen the Financial Reporting.	Rejected
Hº3: Compliance with Jordan Securities Commission Requirements doesn't strengthen the Financial Reporting.	Rejected
Hº4: Effective External Audit doesn't strengthen the Financial Reporting.	Rejected
Hº5: Effective understanding Audit Committee Functions by its members doesn't strengthen the Financial Reporting.	Rejected
Hº6: There are no differences in the financial reporting can be attributed to demographic variables (Age, Gender, and Level of education, Professional certificates, and Years of experience).	Accepted except Age and Gender

8. Conclusions and Recommendations

The research results show that our respondents have good level of education and experience. The research results also shows that there is a relationship between internal control, international standards on auditing and institute of internal auditors, Jordan securities commission requirements, external audit, understanding of audit committee functions, and financial reporting. These results are in line with prior studies (Sori, et al. 2009), (Siti Saad, et al. 2009), ((Bedard. J. and Gendron. Y, 2009).In addition, the research result shows that the internal control, international standard on auditing and institute of internal auditors, Jordan securities commission requirements, external audit, understanding of audit committee functions can explain a significant amount of variance in financial reporting. In other words, if internal control, international standard on auditing and institute of internal auditors, Jordan securities commission requirements, external audit, understanding of audit committee functions change in one unit of variance, the financial reporting changes in 79% unit of variance. Therefore, internal control, international standard on auditing and institute of internal auditors, Jordan securities commission requirements, external audit, understanding of audit committee functions are good predictors of financial reporting. Furthermore, the research results also show that age and gender make a difference for our respondents when they evaluate financial reporting. This result is inline with (Siti Saad, et al, 2009). This study like other cross sectional studies is not free of limitations. The limitations should be seen as new opportunities for future research rather than deficiencies. Future research can apply the same research model in other context to proof the validity of the research model a cross context. Future research also can borrow the research model and apply longitudinal study to heal the cross sectional study problems. Based on the research results and limitations, practical recommendations can be provide as follows: 1- managers should take this research output as a guide to improve their financial reporting by establishing effective codes of conducts of international financial reporting standards and international accounting standards (IFRS and IAS). 2 - Managers can enhance and strengthen the

internal control systems through effective and efficient segregation of duties, more institution of good corporate governance principles by separating between ownership and executive management. 3 - The board of director should contain at least of three highly qualified members to oversee the executives, to preserves and enhances the independence of internal auditors, to improve communication between the board and internal auditors, and to assist auditors in the reporting of serious deficiencies in the control environment or management weaknesses, 4 – The audit committee should be qualified, committed, independent and accountable; this represents the most reliable guardians of the public interest. 5 – The Board of directors and audit committee should together ensure external audit independence, through separation of executive management from hiring or firing the external auditor, and let a professional public body do so, this should also be the practice for the setting of audit fees, 6 - Furthermore; effective and efficient understanding of audit committee functions plays a crucial role in improving the financial reporting quality.

References

1. Abbott, L.J. and Parker, S. (2000) Auditor selection and audit committee characteristics, Auditing. Journal of Practice & Theory, Vol. 19, No. 2**,** pp. 47-66.
2. Abbott, L.J., Parker, S. and Peters, G.F. (2004) Audit committee characteristics and restatements, Auditing. Journal of Practice & Theory, Vol. 23, No. 1**,** pp. 69-87.
3. Abbott, L.J., Parker, S., Peters, G.F. and Raghunandan, K. (2003) The association between audit committee characteristics and audit fees', Auditing: A Journal of Practice & Theory, Vol. 22, No. 2**,** pp. 17-32.
4. Bean, J. W. (1999), the audit committees' roadmap, AICPA- USA.
5. Beasley, M. S. (1996) An empirical analysis of the relation between the board of director composition and financial statement fraud. The Accounting Review.Vol, 71. No.4 (October):pp.433-465.
6. Bedard, J., Chtourou, S.M. and Courteau, L. (2004) The effect of audit committee expertise, independence, and activity on aggressive earnings management, Auditing. Journal of Practice & Theory, Vol. 23, No. 2**,** pp. 13-35.
7. Bedard, J., Coulombe, D. and Courteau, L. (2008), 'Audit Committee, Underpricing of IPOs, and Accuracy of Management Earnings Forecasts', Corporate Governance: An International Review, Vol. 16, No. 6**,** pp. 519-535.
8. Bedard, J., Coulombe, D. and Courteau, L. (2008) Audit Committee, Underpricing of IPOs, and Accuracy of Management Earnings Forecasts, Corporate Governance. An International Review, Vol. 16, No. 6**,** pp. 519-535.
9. Bedard. J. and Gendron. Y. (2009) Strengthening the financial reporting system: Can audit committees deliver?' Available from: http://ssrn.com/abstract=1438150. (Accessed on 15/12/2010).
10. Blue Ribbon Committee (BRC). (1999) Audit Committee Characteristics and statements: A Study of the Efficacy of Certain Blue Ribbon Committee Recommendations. New York: New York Stock Exchange and National Association of Securities Dealer.1999.
11. Braiotta, L. (1999) The audit committee handbook. 3rd Edition, John Wiley and sons Inc. Network.
12. Burke, F.M. and Guy, K.W. (2001) Audit committees; a guide for directors: Management and Consultants, Aspen publishers, New York.
13. Carcello, J.V., Hermanson, D.R. and Neal, T.L. (2002) Disclosures in Audit Committee Charters and Reports. Accounting Horizons, Vol. 16, No. 4**,** pp. 291-304.
14. Carcello, J.V., Hermanson, D.R., Neal, T.L. and Riley, R.A. (2002) Board characteristics and audit fees. Contemporary Accounting Research, Vol. 19, No. 3**,** pp. 365-384.
15. Collier, P. A. (1993) Audit Committees in Major UK Companies. Managerial Auditing. pp 25-30.
16. Coopers & Lybrand (1995). Audit committee guide, Coopers & Lybrand, New York.
17. Defond, M.L., Hann, R.N. and Hu, X. (2005) Does the Market Value Financial Expertise on Audit Committees of Boards of Directors? Journal of Accounting Research, Vol. 43, No. 2**,** pp. 153-193.
18. DeZoort F.T., Hermanson, R.D., Archambeault., D.S. and Reed, S.A. (2002) Audit committee effectiveness: a synthesis of the empirical audit committee literature. Journal of accounting literature, Vol.21.No. 1, pp. 38-75.
19. DeZoort, F.T. and Salterio, S.E. (2001) The effects of corporate governance experience and financial-reporting and audit knowledge on audit committee members' judgments', Auditing. Journal of Practice & Theory, Vol. 20, No. 2**,** pp. 31-47.
20. Flyvbjerg, B. (2001) Making Social Science Matter. Cambridge: Cambridge University Press, p. 104.
21. Gaynor, L.M., McDaniel, L.S. and Neal, T.L. (2006) The effects of joint provision and disclosure of non-audit services on audit committee members' decisions and investors' preferences. Accounting Review, Vol. 81, No. 4**,** pp. 873-896.
22. Herdman, R.K. (2002) Making audit committee more effective. Tulane Corporate law Institute, New Orleans.
23. IIA, Audit Committee Requirements (2009) Standards and Guidance on Audit Committee and Board of Directors .Available from: http://www.theiia.org/guidance/standards-and-guidance/audit-committees-board-of-directors/ http://www.hefce.ac.uk/pubs/hefce/2008/08_06/ (Accessed on 20/12/2010).
24. Jonathan, H. and Carey, A. (2001) Audit committees: Effective against risk or just overloaded?' The Balance Sheet, Vol. 9. No.4:37-39.
25. Jordan Depository Centre (JDC), (2009) Annual Report' Available from: http://www.jdc.goc.jo.online. (Accessed on 4th April 2010).
26. Jordan Investment Board (JIB) (2009) Annual Report' Available from: http://www.jib.gov.jo.online. (Accessed on 4th April 2010).

27. Joshi, P.L. and Wakil, A. (2004) A study of the audit committee functions in the Bahrain: Empirical findings. Management Auditing Journal, Vol. 19. No.7, 832-858.

28. Kalbers, L.P. and Forgarty, T.J. (1993) Audit committee effectiveness: an empirical investigation of the contribution of power, Auditing. Journal of Practice & Theory, Vol. 12, No.2, pp.24-49.

29. KPMG. (1999) corporate governance: a guide to corporate accountability. KPMG Audit Committee Institute, London.

30. Lee, T. and Stone, M. (1997) Economic agency and audit committee responsibilities and membership composition. International Journal of Auditing, Vol. 1, No. 2, pp.97-116.

31. Lerner, J.S. and Tetlock, P.E. (1999) Accounting for the effects of accountability. Psychological Bulletin, Vol. 125, No. 2**,** pp. 255-275.

32. Levitt, A. (2000).'A profession at the crossroads'. SEC Chairman Speech, Boston: Massachusetts.The former Securities and Exchange Commission (SEC) chairman, Levitt (2000).

33. Majid, M. S. (1993), 'Deadline on Audit Committee Stays', the New Straits Times. November 5.

34. McDaniel, L., Martin, R.D. and Maines, L.A. (2002) Evaluating financial reporting quality: The effects of financial expertise vs. financial literacy. Accounting Review, Vol. 77. **,** pp. 139-167.

35. Menon, K. and Williams, D. (1994) The use of audit committees for monitoring. Journal of accounting and Public policy, Vo. 1 13. No.1, 121-139.

36. Mohamad, S. A., Hamid, M. A., and M- Nassir, A. (2006). 'Attributes of an effective audit committee: evidence from an emerging capital market'. Available from: http://www.ssrn.com/author=400207.(Accessed at 22/11/2010).

37. Mohamad, S. and Sori, Z. M. (2001) The Role of Audit Committees in Supporting A Disclosure Based Corporate Environment: Some Comments: Akauntan Nasional. Journal of Malaysian Institute of Accountants, Vol. 14, No. 5, pp. 8-11.

38. Mohamad, S., Sori, Z. M. and A-Hamid, M. A. (2001) Compliance of audit committee: A brief review of the practice: Akauntan Nasional. The Journal of Malaysian Institute of Accountants, vol. 14, no. 5, pp. 4-7.

39. Porter, B., Simon, J. and Hatherly, D. (2003), Principles of External Auditing. 2nd Edition, West Sussex: John Wiley & Sons.

40. Rezaee, R., Olibe, K.O and Minmier, G. (2003) Improving corporate governance: The role of audit committees. Managerial Auditing Journal, Vol. 18. (6/7), pp.530 -537.

41. Sabia, M.J. and Goodfellow, J.L. (2005) Integrity in the Spotlight', 2nd Edition. Toronto: The Canadian Institute of Chartered Accountants, p. 512.Smith Committee, 2003.

42. Sarens, G. and De Beelde, I. (2006) The Relationship between Internal Audit and Senior Management: A Qualitative Analysis of Expectations and Perceptions. International Journal of Auditing, Vol. 10, No. 3**,** pp. 219-241.

43. Shapiro, B.P. (2006) Accounting science's contribution to the corporate governance and executive accountability problem. Accounting and the Public Interest, Vol. 6**,** pp. 51-69.

44. Srinivasan, S. (2005) Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. Journal of Accounting Research. Vol. 43, No.2, pp 291-334.

45. Tackett, J. (2004) Sarbanes-Oxley and audit failure management auditing. Managerial Auditing Journal. Vol.19.No. 3. pp. 340 – 350.

46. Turpin, R. A. and DeZoort, F. T. (1998) Characteristics of firms that include an audit committee report in their annual report. International Journal of Auditing. Vol. 2. No.1.pp. 35-48.

47. Walker, R. G. (2004) Gaps in guidelines on audit committees. Abacus, Vol. 40, No. 2, pp. 157-192.

48. Williams, P.F., Jenkins, J.G. and Ingraham, L. (2006) The winnowing away of behavioural accounting research in the US: The process for anointing academic elites', Accounting, Organizations and Society. Vol. 31, No. 8**,** pp. 783-818.

49. World Bank, IFC (2009). (Doing Business Report, World Bank). Available From: http://www.jib.gov.jo.online. (Accessed at 4th April 2010).

MANAGERIAL COMPENSATION AND FIRM PERFORMANCE: EVIDENCE FROM CORPORATE SPINOFFS

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Abstract

In this paper, we study changes in the incentive structure of the CEOs in both parent and spun-off companies, and the effect of managerial incentives on operating performance due to an improved agency relationship between shareholders and managers of both firms after the spinoff. We construct a unique dataset that covers corporate spinoffs between 1992 and 2004. We find a certain level of increase in pay-performance sensitivity of the CEOs of spun-off firms as compared to the CEOs of parent firms. We find that pay-performance sensitivities of both parent and spun-off firms' CEOs are positively related to the operating performance improvement after the spinoff. Overall, our study provides evidence that improved managerial incentive is a source of gains in spinoffs.

Keywords: Executive Compensation, Corporate Spinoffs, Pay-performance Sensitivity

JEL Classification: G34, G35, J33, L14

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1. Introduction

A corporate spinoff is a restructuring event that divides a company (referred to as a parent company) into two (and sometimes more) independent firms. After a spinoff, existing shareholders receive a pro rata distribution of equity in the newly created firm. A number of studies have documented the value-enhancing impact of spinoffs (e.g.,Hite and Owers (1983), Slovin, Sushka, and Ferraro (1995), Berger and Ofek (1999), Burch and Nanda (2003)). Possible explanations for the benefits of spinoffs have also been offered by several studies. For example, improved capital allocation efficiency (Gertner, Powers, and Scharfstein (2002)), investment efficiency (Ahn and Denis (2004)), and top management structure (Wruck and Wruck (2002)) are among the sources of gains of spinoffs that have been explored.

Theoretically, spinoffs are considered to be a remedy for agency conflict and information asymmetry problems. This stems from the fact that after spinoff, the division becomes an independent public company, and therefore more information about the division, including its stock price and performance, becomes observable to the public. Krishnaswami and Subramaniam (1999) find that firms engaging in spinoffs have higher levels of information asymmetry compared to their counterparts, and that information problems decrease significantly after the spinoffs. Charoenwong, Ding and Pan (2008) also document that information asymmetry significantly decreases for sample firms following spinoffs.

This improvement in information transparency can potentially improve the design of a managerial compensation package and more efficiently connect managerial compensation with the new firm's performance and stock price. Also, managers of spun-off divisions can be more effectively monitored after the spinoff. In other words, spinoff improves information transparency for the newly created firms and provides an opportunity for shareholders and the boards of directors to improve monitoring and governance mechanisms (Krishnaswami and Subramaniam (1999)). Therefore, it is asserted that a spinoff "often creates the need for major surgery on executive compensation programs"(Ochsner (1991)). In

addition, Aron (1991) argues that the spinoff event itself can serve as anincentive for managers who will become spun-off firms' executives. Ahn and Walker (2007)support this hypothesis by showing that diversified firms conducting a spinoff are associated with more effective corporate governance (such as greater ownership by outside board members, more heterogeneous boards, and fewer board members). They also show that after spinoffs, these firms' values improve significantly. However, very limited empirical research has directly looked at spun-off firms' management to see whether a better managerial incentive mechanism is indeed established after the spinoff, or whether the two new firms (parent and spun-off firm) perform better after the spinoff as a consequence of improved agency relationships between shareholders and managers.

In this paper, we study spinoffs from the perspective of managerial compensation and incentives. In a review of related literature, Seward and Walsh (1996) find that CEOs of the newly created firms are mostly former managers from parent firms (insiders), that they are usually given a compensation plan that includes stock options, and that a majority of their pay is performance-based. Wruck and Wruck (2002) argue that spinoff events provide an opportunity for management restructuring, and they find evidence that value created in a spinoff announcement is significantly associated with characteristics of the spun-off firm's top management team. But overall very few researchers have further investigated further the managerial incentives and efficiency of the incentive mechanism in parent and spun-off firms. Therefore, in this paper we study the managerial incentives in parent and spun-off companies with a focus on pay-performance sensitivity (PPS) of equity-based compensation and the effect of managerial incentives on the change of pre- and post-spinoff performance of both parent and spun-off firms.

To our knowledge, this paper is most similar to Pyo (2007), which also looks at changes in managerial compensation and managerial incentives after spinoffs. We share Pyo's finding that there is an increase in PPS in the spun-off companies, but no significant increase in PPS for parent companies. Pyo also concludes that changes in PPS are consistent with changes in operating performance in both parent and spun-off companies. However, Pyo's conclusion on operating performance is based on a set of univariate analyses of differences in operating performance across subgroups, without controlling for important factors that may affect firm performance, such as firm size, leverage, and PPSs of parent and spun-off firms. In this paper we conduct a more thorough multivariate analysis to investigate the impact of change in incentives on the change in firm performance.

Our sample consists of 107 spinoff events announced and completed in the U.S. between 1992 and 2004. Our univariate test results provide some evidence of significant increase in CEOs' pay-performance sensitivity in the spun-off firms compared to the CEOs of the (both pre- and post-spinoff) parent firms. We do not observe any significant change in the pay-performance sensitivity of the parent CEO after the spinoff event. When we divide the sample into subgroups, the pay-performance sensitivity of the spun-off firm's CEO dominates the pay-performance sensitivity of the parent firm mainly in the subgroups of insider CEOs, focus-increasing spinoffs, and spinoffs that bring positive abnormal return to parent firms.

We also investigate the impact of improved managerial incentives after spinoff on the operating performances of both parent and spun-off firms. In our regression analysis, we find a positive relationship between the change in the combined operating perforrmance of the parent and the spun-off firms and the pay-performance sensitivities of the CEOs of these firms after spinoff, whereas the pay-performance sensitivity of the CEO before spinoff does not seem to affect this performance change. Overall our results support the argument that spinoff can benefit firms when the managerial incentive mechnism improves after spinoffs.

This paper is organized as follows: In Section 2 we explain our data sources and the sample selection process. In Section 3we present our results. Section 4 briefly concludes the paper.

2. Data Collection and Sample Construction

We draw our initial sample of spinoff events from the Security Data Corporation's (SDC) Merger and Acquisition database. First we identify spinoff events that were announced and completed between 1992 and 2004 in the U.S. market, a total of 467deals. After removing spun-off financial and utility firms, we are left with 357 observations. Based on the brief deal synopsis provided by SDC, we remove a deal from our sample set if

a) it occurred because of parent company's pressure from a lawsuit or being acquired/takenover,

b) it occurred because the parent companywas acquiring another company,

c) either the parent or the spun-off company merged with (or was acquired by) another company within one year after spinoff,

d) it was classified as a reverse spinoff,

e) the parent company holds more than 50% of the shares of the spun-off firm, or

f) One person was the CEO of both the parent and the spun-off firm.

This procedure leaves 303 observationsin our sample. We then restrict our sample to firms that have financial and CEO compensation data available. For parent companies, we require two years of data: one year before the spinoff (year -1) and one year after the spinoff (year +1). For spun-off companies, we require one year of data (year +1). Financial and CEO compensation data is initially obtained from Standard and Poor's Compustat and ExecuComp databases. If either the spun-off or the parent company's data is not available directly from the above databases, we supplement it by manually collecting data from the company's 10-K and proxy statements. We also crosscheck the spinoff deals with media coverage, such as the *Wall Street Journal*, local newspapers, or the company's own website. Sources such as 10-K, proxy statements, and company websites also provide information about the spinoff event, spun-off company,and CEOs' job histories. We further remove an observation if (a) we cannot find any information about the spinoff or about the company from Compustat, ExecuComp, 10-K, proxy statements, or media coverageor (b) the information disclosed in 10-K or proxy statements reveals that either the spun-off or the parent company ceased to exist after the spinoff (due to merger/acquisition activities or bankruptcy). Overall, after an intensive search, we construct a final sample with 107 observations with financial and CEO compensation data for both spun-off and parent companies.

Our variable of interest, the CEO's equity-based incentive, is measured by the pay-performance sensitivity of the CEO's portfolio in the firm's equity. This incentivearises from the executive compensation component, which is tied to the stock price of the firm and is cumulative over years. Consistent withAggarwal and Samwick (2003), we define PPS as the sum of stock and option sensitivities, each computed per $100 change in shareholders' wealth.

Specifically,

PPS=[percentage of shares held by CEO + (delta of options x number of options held by CEO / total number of shares outstanding)]x 100   (1)

Since the delta for stocks is one, for the stock portion of the CEO's equity portfolio, we use the percentage of stock ownership at the beginning of the year for each CEO in our sample. For option holdings, we first obtain the number of options held by the manager at the beginning of the year, which are option grants made in prior years. We use the Black-Scholes formula to determine the delta of options held. The proxy statement does not provide the exercise prices and time to maturities for these options but provides their intrinsic value if they are

in the money. We followMurphy (1999) to determine an average exercise price for all previously granted options (exercisable and unexercisable), assuming that the intrinsic value is based on the year-end stock price, and we treat all options that are held at the end of the fiscal year as a single grant with a five-year time to maturity. We obtain the risk-free rate using data from the five-year treasury bills constant maturity series available from the Federal Reserve Bank's official website, and the dividend yield and stock volatility from ExecuComp.For the observations that are not in the ExecuComp database, we use the average values of dividend yield and stock volatility of all observations in the ExecuComp database for the sample year.[9]

3. Empirical Results

3.1. Descriptives

In Table 1, we report the descriptive statistics of executive compensation components for the CEOs of sample firms. The median level of total compensation earned by the CEO of the parent companies is $3.9 million before the spinoff and $5.4 million after the spinoff. The median CEO earnings of the spun-off companies is $1.8 million. The large difference in total compensation between the parent and spun-off firm's CEOs is consistent with the difference in the sizes of the parent and spun-off firms presented in Table 2. The median PPS of the parent firms' CEOs is $0.76 per $100 of change in total shareholders' wealth for the year prior to the spinoff and $1.17 for the year after the spinoff, whereas the median PPS of the spun-off firms' CEO is $1.70 per $100 of change in total shareholders' wealth.

We present descriptive statistics for major financial variables in Table 2.It is clear that the spun-off firms are much smaller than the parent firms. On average, a spun-off firm's total assets in year +1 are about 13% of its parent firm's assets before the spinoff (year -1), and this ratio is about 19% for sales comparison. The median values of operating return on assets (OROA) measured as operating income before depreciation over total assets do not seem to vary significantly over subsamples of parent and spun-off firms. The median OROA for parent firms at year -1 is 13.9% and at year +1 is 13.4 %. The median OROA for spun-off firms at year +1 is 14.4%, slightly higher than the median values of OROA of parent firms. Spun-off companies seem to be slightly less leveraged, compared to the parent companies before or after the spinoffs.

Table 3 presents the distribution of the sample based on deal and CEO characteristics.We define

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[9] For more details of PPS calculation, see Kale, Reis, and Venkataswaran (2009).

"insiders" as those who have worked in the parent company for at least one year before the spinoff. Among the 107 new CEOs of the spun-off companies, 89 of them are "insiders" (83%) and 18 (17%) of them are "outsiders." Overall, these statistics are consistent with the findings in the literature (Seward and Walsh (1996), Wruck and Wruck (2002), and Pyo (2007)).In addition to CEO characteristics, we also examine certain deal characteristics. Empirical works such as Daley et al. (1997) and Desai and Jain (1999) document that stock market performance as well as operating performance is positively related to increase in focus around spinoffs. We classify a spinoff deal as "focus increasing" if the spun-off division is in a different industry than the parent company with the industry defined by 2-digit SIC code. In other words, if the spun-off division and parent company have different 2-digit SIC codes, we consider the spinoff to be an effort of the parent company to refocus and reduce the negative impact of diversification. In our sample, we have 66 deals (62%) that are labeled "focus increasing," while in the remaining 41 deals (38%) spun-off divisions share the same 2-digit SIC code as the parent company and therefore are considered to be the outcome of non-focus- increasing spinoffs.

To determine if the spun-off company is a badly performing division before the spinoff event, we compute the cumulated abnormal return (CAR) for parent firms for an event window of day (-1, +1) around the spinoff announcements, with the announcement date being day 0. Stock return and return data for parent companies are obtained from CRSP (The Center for Research in Security Prices). CARs are computed as the sum of the differences between the actual return of the parent company's stock and its expected return, while the expected return is computed following a standard market model. The CRSP value-weighted index is used as market return in the market model to estimate betas. In our sample, six parent firms do not have their stock return data available from CRSP and therefore have to be excluded from our CARs computation. Mean value of CARs for our sample firms is 4.29%, and it is significantly positive at the 5% level. This is consistent with the literature about the overall positive stock market response to spinoff events(Hite and Owers (1983), Miles and Rosenfeld (1983), and Veld and Veld-Merkoulova (2004)).However, not all parent firms enjoyed positive announcement effects from their spinoff events. In the 101 sample parent firms, 66 (65%) of them had positive CARs, while the other 35 (35%) firms experienced negative abnormal returns after spinoff announcements.

3.2. Univariate Analyses

In Table 4, we present a set of univariate test results for the level of pay-performance sensitivity around spinoffs. First we test the difference in the mean and median values of CEO PPSs for our full sample. Both t-tests and Wilcoxon tests are conducted to compare the difference in (a)the spun-off firms in year +1 versus the parent firms in year -1 and (b) the parent firms in year -1 versus the parent firms in year +1. According to the Wilcoxon sign-rank test results, spun-off firms demonstrate significantly higher pay-performance sensitivity compared to pre-spinoff (with sign-rank test value s =848.5) parent firms. However t-test results do not give us the same conclusion (t= -0.66). This suggests a skewness in our sample data. For parent firms, there is no significant difference in CEO pay-performance sensitivity between the pre- and post-spinoff periods, according to both t-test and Wilcoxon test results.

To address the skewness issue, we investigate which group(s) of firms induces changes in CEO incentives.We divide our sample into four subgroups according to the quartiles in pre-spinoff parent firms' PPS levels; [0%, 25%), [25%, 50%), [50%, 75%), and [75%, 100%].We then report our t-test and Wilcoxon test results for differences in PPS in the second part of Table 4. As seen from the table, only spinoffs that come from parents in the highest quartile (above 75%) show significantly decreased PPS in spun-off firms: the t-test value for the difference in the PPS between spun-off firms and pre-spinoff parent firms is -3.22 (p <0.01) and Wilcoxon sign-rank test value is -121 (p <0.01). In the other three quartiles, the PPS of the spun-off firms is significantly higher than the PPS in pre-spinoff parent firms. Therefore our results in Table 4 suggest a higher level of CEO PPS in spun-off firms compared to CEO PPS of parent firms for the majority of the firms in our sample.Our results may also indicate that firms that already provide high equity incentives to their CEOs do not necessarily provide a similar compensation package design in their spun-off firms.

To further study the impact of deal characteristics and CEO characteristics on changes in pay-performance sensitivity, we break down our sample into several sets of subsamples according to whether the spinoff announcement brings positive CARs to parent firms, whether the spun-off firm's CEO is an insider or outsider, and whether the spin-off is considered to be a refocusing effort. These results are reported in Table 5. The upper part of Table 5 reports the mean and median values of CEO PPS in spun-off firms at year +1 and in parent firms at both year -1 and year +1. The lower part of Table 5 reports t-test and Wilcoxon sign-rank test results for the difference in CEO PPS in various subgroups. While we do not observe any statistical

significance from our t-test results, the Wilcoxon sign-rank test results show that the differences in PPS between spun-off firms and pre-spinoff parent firms are generally positive and significant (at a 5% level) if the spinoff firm's CEO is an insider, if the spun-off firm is a bad performer measured using positive stock price reaction to spinoff announcement or if the spinoff is focus increasing for the parent firm. Neither t-test nor Wilcoxon test results indicate a significant difference in CEO PPS for parent firms themselves after spinoff.

To summarize, our univariate tests present some evidence that in our overall sample spun-off firms present a higher level of pay-performance sensitivity, and this PPS improvement prevails in

3.3. Multivariate Analysis

In this section, we describe our findings on the relationship between the equity incentives of CEOs and the change in firm performance around spinoffs. If spinoffsreduce information asymmetry and mitigate agency problems between the shareholders and the CEOs, the positive impact should translate into improvement in firm performance after spinoffs. Therefore we hypothesize a positive relationship between the change in operating performance of firms and the improved equity incentives of the CEOs. The regression model is:

$$\Delta Performance = \alpha + \beta_1 * PPS_{spinoff,1} + \beta_2 * PPS_{parent,-1} + \beta_3 * PPS_{parent,1} + \beta_4 * TA_{spinoff,1} + \beta_5 * TA_{parent,1} + \beta_6 * TA_{parent,-1} + \beta_7 * Leverage_{spinoff,1} + \beta_8 * Leverage_{parent,1} + \beta_9 * Leverage_{parent,-1} + \beta_{10} * Asset\ Ratio + \beta_{11} * Insider + \beta_{12} * Focus + \varepsilon$$

(2)

Here, as independent variables, $PPS_{parent,1}$, $PPS_{parent,-1}$,and $PPS_{spinoff,1}$ are the pay-performance sensitivity measures for the parent company in year 1, parent company in year -1, and the spun-off company in year +1, respectively.Standard control variables include total assets (TA) and leverage ratios (Leverage), also for the parent company in year +1, parent company in year -1, and the spun-off company in year +1, respectively. To control for the size effect, we also include an Asset Ratio (the ratio between spun-off company's assets and the parent company's assets after the spinoff). In addition, we include two dummy variables, Insider and Focus, to control for the impact of deal characteristics on the change in performance.

Since it is difficult, if not impossible, to identify the performance of the spun-off firms prior

to the spinoff when the divisions' performance is not reported separately, our dependent variable ($\Delta Performance$) is computed by an imputed measure. We first compute the combined operating performance of the parent and the spun-off firm one year after the spinoff year, weighted by their respective total assets. We then use the difference between this combined operating performance one year after spinoff and the operating performance of the parent firm one year before spinoff as a proxy for the improvement or deterioration of operating performance due to spinoff. This measure is illustrated in the following two equations:

$$Combined\ performance = \frac{OROA_{parent,1} * TA_{parent,1} + OROA_{spinoff,1} * TA_{spinoff,1}}{TA_{parent,1} + TA_{spinoff,1}}$$ (3)

$$\Delta Performance = Combined\ performance\ in\ year\ 1 - ROA_{parent,-1}$$ (4)

Here, $TA_{parent,1}$ and $TA_{spinoff,1}$ stand for the total assets in year +1 for the parent company and the spun-off company, respectively. $OROA_{parent,-1}$, $OROA_{parent,1}$, and $OROA_{spinoff,1}$ stand for the operating return on assets for the parent company in year -1, the parent company in year +1, and the spun-off company in year +1, respectively. By definition, combined performance after spinoff essentially is the asset-weighted average of OROA of the spun-off company and the post-spinoff parent company. The difference between this variable and the OROA of the parent company before spinoff captures the overall impact of the spinoff on operating performance of both firms. For our sample firms, the mean value of the combined performance one year after spinoff is 12.95%, while

the median value is 13.35%. The mean value of the variable$\Delta Performance$ is -0.58%, while the median is 0.46%.Considering the fact that spun-off firms and parent firms may not be in the same industry anymore after the spinoff, to make sure that the performance measures can be comparable, we also compute the industry-adjusted operating performance for both spun-off and parent firms by subtracting the median value of OROA in their 2-digit SIC industries.

Our main set of independent variables are the CEO PPS for the spin-off firm ($PPS_{spinoff,1}$), for the post-spinoff parent firm($PPS_{parent,1}$), and for thepre-spinoff parent firm ($PPS_{parent,-1}$). Control variables include log value of total assets for parent

firms and spun-off firms, and the leverage ratios of the spun-off firms and parent firms before and after spinoff. We also include an *Asset Ratio* variable, which measures the ratio between a spun-off firm's total assets at year 1 and the parent firm's total assets at year 1 to control for the size differences of spun-off and post-spinoff parent firms. In addition, we also include *Insider* and *Focus* dummy variables in the regression to explore the impact of CEO and deal characteristics on the potential performance improvement.

We report our findings in Table 6. In the first model in Table 6, we look at the relationship between the change in combined operating performance and the PPS of the spun-off firm's CEO. The coefficient estimate is positive (0.0058) and statistically significant (t = 2.00) at the 5% level. In the second model, in addition to the PPS of the spun-off firm's CEO, we also include the PPS of the parent firm's CEO before and after spinoff as two separate variables. In this specification, the coefficient of the PPS of the parent firm at year 1 is positive and significant. However, the coefficient of the PPS of the spun-off firm is not significant at conventional levels (t-value = 1.54), though it remains positive.Models 3 and 4 essentially replicate the first two models with the industry-adjusted measure of performance as the dependent variable instead of the raw value of performance. Coefficients ofthe PPS of the spun-off firms are positive and significant in both Model 3 and Model 4, while in Model 4, the coefficient of the PPS of the parent firms at year +1 is also positive and significant.These OLS regression estimations offer some support for the conjecture that PPSs of both spun-off firm's CEO and a post-spinoff parent firm's CEO positively affect the combined operating performance of spun-off and parent firms after the spinoff event. Pre-spinoff PPS for the parent firms does not seem to be a significant factor in the change in combined operating performance. Moreover, we do not find any statistical evidence of the effect of deal characteristics on the change of operating performance after spinoff, since all coefficients on*Asset Ratio*, *Insider,*and *Focus* are statistically insignificant in all models in Table 6.

4. Conclusion

In this paper we investigate the change of managerial incentives after spinoff in both parent and spun-off companies and the effect of managerial incentives on the operating performance of spinoff firms due to improved agency relationships between shareholders and managers of both firms. We argue that after the spinoff, the effectiveness of equity-based compensation of the new CEO of the spun-off firm is directly linked to the performance of the spun-off division. We find a certain level of increase in pay-performance

sensitivity of the CEOs of spun-off firms compared to the CEOs of parent firms. However, we find no systematic change in the equity-based incentives of CEOs of parent firms after the spinoff event. We also show that pay-performance sensitivity of both spun-off firm's CEO and parent firm's CEO are positively related to the operating performance difference between the combined (parent and spun-off) firm one year after the spinoff and the parent firm one year prior to the spinoff. Overall, our paper provides evidence that improved managerial incentive is one of the sources of gains in spinoffs.

References

1. Aggarwal, R. K., and Samwick, A. (2003), "Performance Incentives within Firms: The Effect of Managerial Responsibility", *Journal of Finance*, Vol.58 No. 4, pp. 1613-1650.
2. Ahn, S., and Denis, D. (2004),"Internal Capital Markets and Investment Policy: Evidence from Corporate Spinoffs", *Journal of Financial Economics*, Vol.71No. 3, pp. 489-516.
3. Ahn, S., and Walker, M. (2007), "Corporate Governance and the Spinoff Decision", *Journal of Corporate Finance,* Vol.13 No. 1, pp. 76-93.
4. Aron, D. J. (1991), "Using the Capital Market as a Monitor: Corporate Spinoffs in an Agency Framework", *The RAND Journal of Economics*, Vol. 22 No. 4, pp. 505-518.
5. Berger, P. G., and Ofek, E. (1999), "Causes and Effects of Corporate Refocusing Programs", *Review of Financial Studies,* Vol.12 No. 2, pp. 311-345.
6. Burch, T., and Nanda, V. (2003), "Divisional Diversity and the Conglomerate Discount: Evidence from Spinoffs", *Journal of Financial Economics,* Vol. 70 No. 1, pp. 69-98.
7. Charoenwong, C., Ding, D.,and Pan, J. (2008), "Asymmetric Information and Conglomerate Discount: Evidence from Spinoffs", Working Paper. Available at SSRN: http://ssrn.com/abstract=1103724.
8. Daley, L., Mehrotra, V., and Sivakumar, R. (1997), "Corporate Focus and Value Creation Evidence from Spinoffs",*Journal of Financial Economics,* Vol.45 No. 2, pp. 257–281.
9. Desai, H., and Jain, P. (1999), "Firm Performance and Focus: Long-run Stock Market Performance Following Spinoffs", *Journal of Financial Economics*, Vol. 54No. 1, pp. 75–101.
10. Gertner, R., Powers, E., and Scharfstein, D. (2002), "Learning about Internal Capital Markets from Corporate Spinoffs", *Journal of Finance,* Vol. 57 No. 6, pp. 2479-2506.
11. Hite, G. L., and Owers, J. (1983), "Security Price Reactions around Corporate Spin-off Announcements", *Journal of Financial Economics*, Vol. 12 No.4, pp. 409-436.
12. Kale, J., Reis, E., and Venkataswaran, A. (2009), "Rank Order Tournaments and Incentive Alignment: The Effect on Firm Performance", *Journal of Finance,* Vol.64 No. 3, pp. 1479-1512.
13. Krishnaswami, S., and Subramaniam, V. (1999), "Information Asymmetry, Valuation, and the Corporate Spin-off Decision", *Journal of Financial Economics,* Vol. 53 No. 1, pp. 73-112.

14. Miles, J., and Rosenfeld, J. (1983), "The Effect of Voluntary Spin-off Announcements on Shareholder Wealth", *Journal of Finance,* Vol. 38 No. 5, pp. 1597-1606.
15. Murphy, K. (1999), "Executive Compensation", in Ashenfelter, O.and Card, D. (Ed.), *Handbook of Labor Economics,* Elsevier Science, Amsterdam, pp. 2485-2563.
16. Ochsner, R. (1991), "Executive Compensation in Spinoffs", in Foulkes, F. K. (Ed.), *Executive Compensation: A Strategic Guide for the 1990s,* Harvard Business School Press, Boston, pp. 499-511.
17. Pyo, U. (2007), "Enhancing Managerial Incentives and Value Creation: Evidence from Corporate Spinoffs", *Journal of Economics and Finance,* Vol. 31 No. 3, pp. 341-358.
18. Seward, J. and Walsh, J. (1996), "The Governance and Control of Voluntary Corporate Spin-Offs", *Strategic Management Journal*, Vol. 17 No. 1, pp. 25-39.
19. Slovin, M., Sushka, M., and Ferraro, S. (1995), "A Comparison of the Information Conveyed by Equity Carve-outs, Spin-offs, and Asset Sell-offs", *Journal of Financial Economics,* Vol. 3 No. 1, pp. 89-104.
20. Veld, C., and Veld-Merkoulova, Y. V. (2004), "Do Spin-offs Really Create Value?", *Journal of Banking and Finance*, Vol. 28 No. 5, pp. 1111-1135.
21. Woo, C., Willard, C., and Daellenbach, U.(1992), "Spin-off Performance: A Case of Overstated Expectation?", *Strategic Management Journal*, Vol.13No. 6 , pp. 433-447.
22. Wruck, E., and Wruck, K. (2002), "Restructuring Top Management: Evidence from Corporate Spinoffs", *Journal of Labor Economics*, Vol. 20 No. S2, pp. 176-218.

Table 1. Descriptive Statistics of CEO Compensation

The sample consists of parent and spun-off firms that were involved in completed spinoffs between 1992 and 2004. "Spinoff (yr +1)" stands for variable information for spun-off companies one year after the spinoff. "Parent (yr -1)" stands for variable information for parent companies one year before the spinoff. "Parent (yr +1)" stands for variable information for parent companies one year after the spinoff. Dollar amounts for salary, bonus, options grants and total compensation are in thousands, and have been converted to 2005 dollars. PPS (pay-performance sensitivity) is the dollar change in CEO's equity portfolio per $100 change in total shareholderswealth (SHW).

| | Spinoff (yr +1) | | Parent (yr +1) | | Parent (yr -1) | |
| | n =107 | | n =107 | | n =107 | |
Variable	Mean	Median	Mean	Median	Mean	Median
Salary ($ 000)	563.88	549.03	825.76	786.33	882.18	851.22
Bonus ($ 000)	460.67	231.29	911.94	545.95	1,129.30	558.27
Option grants($000)	2,668.27	481.24	3,914.17	1,892.68	4,567.24	1,523.06
Total compensation($000)	3,817.04	1,759.91	8,122.37	5,439.09	6,986.93	3,864.59
Stock ownership (%)	1.04	0.27	1.64	0.16	2.00	0.23
PPS($ per $100 of SHW)	2.66	1.70	2.74	1.17	3.00	0.76

Table 2. Descriptive Statistics of Major Financial Variables

The sample consists of parent and spun-off firms that were involved in completed spinoffs between 1992 and 2004. All dollar amounts are in millionsand have been converted to 2005 dollars. "Spinoff (yr +1)" records the spun-off company's financial data one year after the spinoff. "Parent (yr -1)" and "Parent (yr +1)" are for parent companies one year before and after the spinoff event, respectively. OROA is operating income before depreciation (OIBD) standardized by total assets. Leverage is computed as total long-term liabilities over total assets.

| | Spinoff (Yr +1) | | Parent (Yr +1) | | Parent (Yr -1) | |
| | n =107 | | n = 107 | | n = 107 | |
Variables	Mean	Median	Mean	Median	Mean	Median
Assets ($)	1,725.26	751.32	11,657.69	3,085.55	12,950.85	3,280.17
Sales ($)	1,889.86	738.28	9,160.15	2,381.73	10,214.00	2,914.72
OIBD ($)	268.85	114.58	1,291.36	320.34	1,731.22	427.70
OROA (%)	9.11	14.40	12.72	13.35	13.52	13.86
Leverage (%)	21.09	17.42	22.60	22.06	20.93	19.18

Table 3. Deal and CEO Characteristics

A spun-off firm's CEO is labeled an insider if he/she has been working in the parent firm (at either the corporate or divisional level) for at least one year before the spinoff. Otherwise, he/she is considered an outsider. Positive AR equals 1 if the sum of CARs of the spinoff event is positive over the (-1, +1) event window, and 0 otherwise. Focus equals 1 if the spun-off firm has a different 2-digit SIC code than the parent firm, and equals 0 if the two firms share the same 2-digit SIC code.

Dummy Variable		1	0
Insider	07	CEO is an insider 89 (83.3%)	CEO is an outsider 18 (16.7%)
Positive AR	01	Positive abnormal return 66 (65.4%)	Nonpositive abnormal return 35 (34.6%)
Focus	07	Focus increasing 66 (62%)	Non-focus increasing 41 (38%)

Table 4. Univariate Tests of Pay-Performance Sensitivity

Table 4 presents t-test and Wilcoxon test results for the change in PPS in the full sample as well as in subsamples. "Spinoff (yr+1) vs. Parent (yr -1)" stands for the difference in PPS between the spun-off company one year after the spinoff and the parent company one year before the spinoff. "Parent (yr+1) vs. Parent (yr -1)" stands for the change in PPS for parent companies between one year after the spinoff and one year before the spinoff. Subsamples are drawn according to quartile classification of the PPS in parent firms one year before spinoff. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

	Spinoff (yr+1) vs. Parent (yr -1)		Parent (yr+1) vs. Parent (yr -1)	
Full Sample	**t-test**	**Wilcoxon**	**t-test**	**Wilcoxon**
PPS	-0.66 (0.51)	848.5*** (<0.01)	-0.43 (0.67)	273 (0.40)
Parent Firm PPS (Yr -1)				
Very low PPS [<25%)	3.51*** (<0.01)	202*** (<0.01)	3.36*** (<0.01)	157.5*** (<0.01)
Low PPS [25%-50%)	3.92*** (<0.01)	146*** (<0.01)	2.40** (0.02)	73** (0.03)
High PPS [50% - 75%)	2.41** (0.02)	88** (0.03)	0.95 (0.35)	5 (0.91)
Very high PPS [>75%]	-3.22*** (<0.01)	-121*** (<0.01)	-1.64 (0.11)	-84** (0.04)

Table 5. Univariate Tests by CEO Origin, Abnormal Return, and Focusing Effort

Table 5 presents mean and median statistics for PPS in subsamples by various CEO and deal characteristics, as well the t-test and Wilcoxon-test statistics for the difference in PPS. PPS is computed as the stock price sensitivity of the executive's stock and stock option portfolio. "Parent (yr -1)" and "Parent (yr +1)" stand for parent companies one year before and after the spinoff, respectively. "Spinoff (yr +1)" stands for the spun-off companies one year after the spinoff. "CEO Insider" represents spinoffs where the new CEO of the spun-off firm was employed by the parent company at least one year prior to the spinoff. "Positive (Negative) Abnormal Return" represents the spinoff events where the sum of CARs of spinoff announcement is positive (negative) over (-1, +1) event window. "Focusing" represents spinoffs that are considered to be a refocusing effort by the parent companies (where the parent firm and spun-off firm do not share the same two-digit SIC code).***, **, and * represent statistical significance at the 1%, 5%, and 10% levels respectively.

	CEO Insider	CEO Outsider	Positive Abnormal Return	Negative Abnormal Return	Focusing	Non-Focusing
No. of Observations	**89**	**18**	**66**	**35**	**66**	**41**
Mean PPS						
Spinoff (yr +1)	**2.50**	**3.05**	**2.23**	**3.53**	**2.71**	**2.29**
Parent (yr -1)	**2.88**	**3.30**	**3.23**	**2.85**	**2.74**	**3.30**
Parent (yr +1)	**2.68**	**2.88**	**2.54**	**3.30**	**3.02**	**2.23**
Median PPS						
Spinoff (yr +1)	**1.66**	**1.85**	**1.58**	**2.15**	**1.63**	**1.86**
Parent (yr -1)	**0.73**	**1.04**	**0.82**	**1.13**	**0.71**	**0.98**
Parent (yr +1)	**1.13**	**1.29**	**1.16**	**1.37**	**1.17**	**1.26**
Difference Tests						
t-test statistics						
Spinoff (yr+1) minus Parent (Yr -1)	-0.69	-0.14	-1.23	0.94	0.05	-1.01
Parent (yr+1) minus Parent (Yr-1)	-0.44	-0.17	-0.96	0.42	0.40	-1.13
Wilcoxon test statistics						
Spinoff (yr+1) minus Parent (Yr -1)	571.5**	22.5	317.5**	94	377.5**	99
Parent (yr+1) minus Parent (yr-1)	243.5	-0.5	72.5	22	194.5	-25.5

Table 6. Operating Performance and Pay-Performance Sensitivity of Spinoff CEOs

Table 6 presents OLS regression resultsfor the relation between the change of operating performance and the CEO incentives around spinoffs. Operating Performance is the ratio of operating income to total assets. "Parent,yr -1" and "Parent,yr +1" stand for one year before and after the spinoff, respectively. "Spioff,yr +1" stands for one year after the spinoff event. "PPS" is the stock price sensitivity of the executive's stock and stock option portfolio. "Total Assets"variable is the log of firm's total assets. Leverage is computed as total long-term liabilities over total assets. Asset ratio is the ratio of total assets of spun-off firm to total assets of post-spinoff parent firm. "Insider"equals 1 if the new CEO of the spun-off firm was employed at least one year prior to the spinoff, and equals 0 otherwise. "Focus" equals 1 if the parent firm and spun-off firm do not share the same two-digit SIC code, andequals 0 otherwise.

Dependent Variable	Δ Combined Operating Performance			
	Raw returns		Industry-adjusted returns	
Coefficient	Model 1	Model2	Model 3	Model 4
PPS (Spinoff , yr +1)	0.0058**	0.0046	0.0069**	0.0055*
	(2.00)	(1.54)	(2.24)	(1.78)
PPS (Parent, yr -1)		-0.0018		-0.0018
		(-1.01)		(-0.99)
PPS (Parent, yr +1)		0.0035**		0.0043**
		(2.13)		(2.49)
Total Assets (Spinoff, yr +1)	0.0042	0.0012	0.0067	0.0036
	(0.40)	(0.11)	(0.60)	(0.32)
Total Assets (Parent, yr -1)	0.0595***	-0.0662***	0.0625***	0.0660***
	(3.12)	(3.30)	(3.09)	(3.32)
Total Assets (Parent, yr +1)	-0.0678***	-0.0662***	-0.0732***	-0.0714***
	(-3.90)	(-3.85)	(-3.96)	(-3.94)
Leverage (Spinoff, yr +1)	0.0805**	0.0884**	0.6677*	0.0778*
	(2.13)	(2.35)	(1.69)	(1.97)
Leverage (Parent, yr -1)	0.1452**	0.1306*	0.1754**	0.1590**
	(2.14)	(1.93)	(2.43)	(2.23)
Leverage (Parent, yr +1)	-0.0914*	-0.0890*	-0.1201**	-0.1173**
	(-1.70)	(-1.69)	(-2.10)	(2.09)
Asset Ratio	-0.0029	-0.0005	-0.0077	-0.0050
	(-0.31)	(-0.06)	(-0.79)	(-0.52)
Insider	0.0228	0.0216	0.0296	0.0283
	(1.07)	(1.03)	(1.31)	(1.28)
Focus	-0.0138	-0.0175	-0.0178	-0.0223
	(-0.84)	(-1.07)	(-0.79)	(-1.30)
Constant	-0.0322	-0.0450	-0.0289	-0.0511
	(-0.65)	(-0.77)	(-0.54)	(-0.83)
Adjusted R^2	0.20	0.22	0.20	0.23
No. of Observations	103	103	103	103

SECTION 2
CORPORATE OWNERSHIP

INTERPLAY AMONG THE LARGE INVESTOR GROUPS AND THE OWNERSHIP-PERFORMANCE RELATIONSHIP

J. Barry Lin*, Bingsheng Yi**, Jane Mooney***

Abstract

This paper applies several methodologies to examine the interplay among large shareholders. We find that firm performance is positively associated with insider and institutional ownership, but negatively associated with blockholder ownership. More importantly, we find that insider and institutional ownership are negatively related to each other, functioning as substitutes. However, they are both positively related to blockholder ownership, indicating that the endogenous optimal ownership requires higher insider and/or institutional ownership when there is high blockholder ownership. Methodologically, we find that using residual ownership reduces or eliminates spurious variations in the non-linear relationship between firm performance and insider ownership, and industry adjustment generates more reliable estimates. This paper sheds light on the complex interplay among these various types of large investors.

Keywords: Corporate Governance, Ownership, Performance, Investors

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1. Introduction

While the relationship between corporate ownership structure and firm performance has been extensively studied, empirical evidence has been mixed. Jensen and Meckling (1976) and Stulz (1988), among others, argue that the ownership structure of a firm affects its performance. Others argue that if the ownership structure is endogenously determined, then it should not affect firm performance: that either (1) ownership structure is an endogenous outcome reflecting shareholder influence (Demsetz 1983), or (2) the proper functioning of outside mechanisms such as the managerial labor market, the product market, and the takeover market, reduces the importance of ownership structure as it relates to firm performance.

Many empirical studies on ownership structure and firm performance treat ownership as a one dimensional factor by focusing only on insider ownership. Although institutional and blockholder ownership have been included in some studies, they do not consider the interaction among the different types of ownership.[10]

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[10] In their study of firm performance and mechanisms to control managerial agency problems based on Forbes 800

This paper investigates the relationship between firm performance and the structure of different types of equity ownership. We incorporate insider and institutional ownership as well as blockholder ownership and consider their interaction.

In the US, institutional investors hold a substantial portion of publicly traded equity capital.[11] In recent years, institutional investors have become increasingly vocal in commenting on firm's managerial and operating decisions—acting as investor activist on behalf of he investor general public. Understanding and evaluating the roles of institutional investors and blockholders, in addition to insiders, on firm performance, and in particular the interaction between institutional investors and blockholders, is therefore a timely issue.

We follow the seminal paper by Morck, Shleifer and Vishny (1988) anduse Tobin's q as proxy for firm valuation. We examine the effects of different stakeholders on firm performance, and firm performance on them, using 2-Stage-Least-Square (2SLS) within a set of simultaneous equations. Our study presents new evidence on (1) whether insider ownership affects firm performance, (2) what kind of roles institutional investors and blockholders exert in corporate governance, and (3) how firm performance affects different kinds of large shareholdings.

Overall, we find little evidence that insider ownership affects firm performance, implying that insider shareholding is endogenous and thus has no cross-sectional valuation effect.[12] Confirming earlier studies, we find that institutional holdings areassociated with higher firm value, reflecting their positive monitoring effect. In addition and in

particular, we find strong evidence that blockholder ownership is negatively associated with firm valuation. This contrasts to the role played by institutional investors, providing evidence that the existence of blockholders neither improves firm performance nor protects outside minority shareholders.

Investigating the relationship from the opposite direction, we find strong evidence that improvement in firm performance is associated with an increase in insider and institutional shareholdings, while negatively associated with blockholder shareholdings. This again highlights the different motivations between insiders and institutional holders on the one hand, and blockholders on the other hand.

The paper is organized as follows. Section 2 describes our data and variables. Section 3 contains the empirical methodology. Section 4 presents the empirical results and Section 5 concludes.

2. Data and variable descriptions

2.1 Data Selection

To be in our sample, a firm must be contained in COMPUSTAT, CRSP and COMPUSTAT Disclosure CD-ROM simultaneously. The final sample is constructed through the following procedures:

1. Excluding firms in the finance (SIC 6000 to 6999) and utility (SIC 4900 to 4999) industries;
2. Excluding firm with missing information on ownership or with the percentage ownership reported exceeding 99.9;
3. Excluding firms whose insider ownership, institutional ownership, and blockholder ownership simultaneously equal zero;[13]
4. Excluding any firms with Tobin's q less than zero or greater than 10;[14]
5. Following MacKie-Mason (1990), we assume a firm's expenditure on advertising, or research & development is zero if they are missing;[15]
6. Deleting firms with missing information on any other variables used in our analysis.
7. The final sample contains 27,475 firm-year observations of 6,479 firms from 1987 to 1998.

firms in 1987, Agrawal and Knoeber (1996) treat firm performance and six mechanisms (including shareholdings of institutions, and large blockholders) as endogenous by using 2SLS within a simultaneous system. Our study differs in sample selection, utilization of a simultaneous system methodology, and most importantly in our results.

[11] Brancato (1997) estimates that institutional ownership of domestic equities increased from $1.6 trillion in 1980 to $10.2 trillion in the second quarter of 1995. Institutions accounted for over 50% of the aggregate equity market value in 1995.

[12] If insider shareholdings are determined cooperatively by a firm's decision-makers, the level of insider ownership should reflect all costs and benefits, leading to firm value-maximization. The cross-sectional regression reflecting differences in firm's underlying environment should not find a relation between firm performance and insider ownership. However, since shareholdings of large outsiders (e.g.,institutional investors and blockholders) are independently determined by those outsiders, who need not be firm value maximizers , their ownershipmay be related to the underlying environment. Additionally, there may be cross-sectional evidence of institutional/blockholder ownership on firm performance.

[13] Including such firms does not qualitatively change the results.

[14] including firms with q>10 does not qualitatively change the results.

[15] Firms usually do not report their R&D (xrd) and advertising expenditures(xad) if their expenses on R&D or advertising are not material. .MacKie-Mason (1990) indicates that assuming xrd/xad equal to zero if they are missing does nott lead to any significant bias.

2.2 Variable Definitions and Descriptions

Table 1 presents our variable definitions.

Table 1. Variable Descriptions and Definitions

A variable name with "a" as the initial character means that the variable value is adjusted by the mean value of samples within the same industry and size group. The industry and size adjusted value is obtained through the following procedure: we first assign a firm to an industry according to its 4-digit primary sic code at the end of calendar year (from CRSP), if there are less than 10 firms under the 4-digit sic code, we then use 3-digit sic code or even 1-digit sic code, until there are at least 10 firms under each industry code. Then we divide firms within the same industry into three groups, small, middle and large according to the book value of total assets. The small (large) group under an industry contains the smallest (greatest) 30 percent firms, and the middle group contains firms whose sizes (book value of total assets) belong to the middle 30 to 70 percent. Then a firm's industry-size adjusted value of a variable is equal to the value of the variable minus the median value of the variable of firms in the same industry and size group.

variable	Definition
q	Tobin's Q=[Market value of equity + Preferred stock liquidating value + Long term debt – (Current assets – Current liabilities)] / (Total assets)
ins	% of common shares held by insiders
ins^2	The square of insider ownership
ins^3	The cube of insider ownership
int	% of common shares held by institutional investors
blo	% of common shares held by blockholders
ta	Book value of total assets
ltdta	The ratio of long-term debt to total assets
xrdta	The ratio of research and development expenditures to book value of total assets
xadta	The ratio of advertising expenditures to TA
cape	The ratio of capital expenditures to the stock of property, plant and equipment. CAPX-capital expenditures, PPENT-the total net value of property, plant and equipment
ebita	The ratio of earnings before interests and taxes (ebit) to book value of total assets, TA.
beta	Market risk, measured by the coefficient of a firm's weekly stock return regressed on weekly NYSE/AMEX/NASDOQ value-weighted return in 1998
sdr	Firm specific risk, measured by the standard error of the residuals of the above regression
trat	Total trading volume turnover, the ratio of calendar year end trading volume to common shares outstanding at the end of a calender year
tat	Total assets turnover, measured by net sales divided by book value of total assets
cr	Current ratio, measured by total current assets divided by total current liability

Morck, Shleifer and Vishny (1988) were the first to use Tobin's q as a measure of firm performance. Most subsequent studies also use Tobin's q as measure of firm performance. Earlier studies (Demsetz and Lehn, 1985) used the accounting rate of return. To make our results comparable to most others, we use Tobin's q as measure of firm performance.

Originally, Tobin's q is defined as the ratio of market value of a firm (including intangible assets) to the replacement costs of its tangible assets. Tobin's q and accounting rates of return are correlated, but their focus and constraints are different. Demsetz and Villalonga (2001) discuss conceptual issues on using Tobin's q and accounting rates of return as alternative measures of firm performance. Tobin's q is forward-looking, reflecting investors' anticipation on what the firm is expected to achieve. In contrast, accounting rates of return are historic, measuring what the firm has accomplished in the past. They are not affected by investor psychology, but by accounting standards and practices. Since it is often difficult to estimate the replacement costs of tangible assets, many studies instead use the book value of tangible assets to compute the denominator of Tobin's q. Tobin's q computed this way is therefore affected by

accounting practices to some degree. We follow the methodology in Chung and Pruitt (1994), and Pantzalis (2001) to compute Tobin's q. The resulting approximation to the original Tobin's q is simpler to compute and is highly correlated with the original q.

Following the literature, we use BETA to proxy for the market risk of a firm, and we use the standard deviation of the residuals in the following market model to proxy for firm specific/ideosyncratic risk:

$$RET_{it} = \alpha_0 + BETA_i * RMKT_{it} + \varepsilon_i \ (1)$$

Where RET_{it} is the weekly stock returns of a firm in 1998, and $RMKT_{it}$ is the NYSE/AMEX/NASDOQ value-weighted index returns. **sdr** is the standard deviation of the residuals in the market model, and ε is the residual.

Other variables are calculated in a straightforward manner, as described in the table.

2.3 Summary Statistics

Table 2 contains summary statistics of the key variables, by industry (2-digit SIC) and in aggregate.

Table 2. Summary Statistics

Mean values of total assets, Tobin's q and different kinds of ownership based on 2-digit SIC code at the end of calendar year from CRSP.

2-digit SIC	N	ta ($Mil)	q	ins (%)	int (%)	blo (%)
10	351	794.611	1.50743	10.253	24.233	23.709
11	23	726.12	1.74397	24.156	17.758	23.051
12	68	1130.416	0.96157	13.899	34.799	32.493
13	974	1512.715	1.14184	18.549	35.322	30.079
14	37	728.381	1.26603	16.033	25.328	17.708
15	25	354.650	0.88241	34.874	16.649	32.246
16	136	539.915	0.93033	24.442	27.183	37.179
17	89	184.880	0.87070	34.353	24.838	38.560
18	24	321.761	1.07119	28.104	30.836	35.11
19	1	231.6	6.47675	0	2.16	65.42
20	774	2032.617	1.34990	19.764	28.387	31.082
21	20	1665.405	4.02375	4.122	38.284	13.757
22	232	364.371	0.67972	22.488	38.531	38.010
23	294	355.515	0.79308	23.158	34.126	30.339
24	180	1561.054	0.79925	22.362	34.071	27.841
25	225	303.742	0.89129	25.649	29.758	31.396
26	381	2678.109	1.11876	10.457	42.439	20.307
27	580	1061.976	1.40998	17.822	40.706	35.060
28	2243	1237.852	2.12061	17.522	32.150	29.137
29	186	7959.865	1.09602	12.916	40.05	25.849
30	418	568.654	1.08260	19.926	31.124	32.261
31	110	458.493	0.92012	15.252	39.193	34.047
32	290	602.440	0.89301	18.456	31.220	31.101
33	612	1093.75	0.72385	15.742	43.229	31.489
34	806	594.010	0.86983	17.242	34.974	32.951
35	2497	1083.984	1.15520	18.243	34.275	31.172
36	2895	564.157	1.38732	19.849	30.359	29.668
37	586	1987.256	0.85240	21.192	34.437	30.632
38	2005	536.303	1.65359	20.770	26.199	30.803
39	458	255.531	0.87898	25.273	27.830	37.985
40	87	2236.261	0.90321	18.917	30.972	29.663
41	22	1317.51	1.23365	12.391	44.973	26.753
42	316	245.554	1.03467	32.994	32.026	38.731
44	92	994.792	0.96726	14.819	41.898	35.843
45	208	2352.339	1.03233	15.852	35.035	38.454
47	59	316.526	1.29421	31.449	39.841	49.614
48	586	4313.472	1.74874	21.703	28.195	33.902
50	955	280.641	0.95645	24.857	30.484	35.758
51	593	682.345	1.14279	25.105	28.464	34.720
52	81	640.892	0.95055	31.356	24.943	34.149
53	223	4095.775	1.07172	20.467	47.449	35.782
54	178	1297.624	1.24747	26.427	29.689	31.806
55	95	282.451	0.84084	28.297	23.250	38.985
56	317	408.170	1.36657	28.231	37.980	38.178
57	226	359.693	0.72075	25.986	35.849	34.891
58	520	500.084	1.49498	25.273	29.887	37.888
59	657	493.672	1.20361	26.119	36.304	41.168
70	165	709.563	1.26524	20.517	33.892	39.679
71	9	1158.049	1.05409	19.197	49.27	23.894
72	146	847.904	1.76498	19.910	40.651	33.977
73	2350	313.049	2.02731	25.537	31.286	34.735
74	8	133.7	1.15543	24.34	20.85	34.39
75	70	1017.991	1.22918	20.672	32.997	37.003
76	35	344.591	1.28878	21.305	32.821	25.700
78	134	712.071	1.38672	20.188	24.914	33.769
79	198	399.955	1.53147	26.229	22.401	33.456
80	749	304.082	1.60677	22.792	29.201	33.428
81	4	21.465	2.36324	13.54	2.1	22.663
82	86	173.374	1.82966	26.254	30.644	35.805
83	56	576.166	1.34796	33.738	34.342	36.897
86	11	89.234	0.60964	7.882	14.444	36.464
87	559	137.730	1.84215	22.930	25.628	32.144
89	147	131.316	1.25158	24.351	25.154	38.990
91	2	222.2	0.86728	20.92	19.15	23.84
92	1	41.76	0.28161	0	9.51	25.47
94	1	29.88	1.21825	55.7	3.87	58.57
95	3	2167.93	1.27488	14.083	38.673	35.51
96	2	61.505	0.61559	6.235	18.04	66.635
99	4	297.708	1.83078	22.013	23.743	36.855
average	398.188	930.423	1.30477	21.035	30.018	33.864
stdev	621.681	1200.489	0.81400	8.453	9.702	8.668

The mean value of Tobin's q is 1.3. On average, insiders, institutional investors, or blockholders respectively hold 21, 30 and 34 percent of the total common shares outstanding.

2.4 Industry Adjustment

The industry and size adjusted value is obtained through the following procedure: a firm is assigned to an industry according to its 4-digit primary sic code. If there are less than 10 firms under the 4-digit sic code, we use 3-digit sic code, and so on, until there are at least 10 firms under each industry code. Firms within the same industry are then divided into three groups, small, middle and large according to the book value of total assets (*ta*). The small (large) group in an industry contains the smallest (largest) 30 percent of firms. The middle group contains firms whose sizes (book value of total assets) belong to the middle 30 to 70 percent. A firm's industry-size adjusted value of a variable is equal to the value of the variable minus the *median* value of the variable of firms in the same industry and size group.

Using Welch's t- (Wilcoxon rank-sum z-) statistic as the mean (median) difference test statistic, we find strong evidence of significant differences in firm performance (industry-adjusted Tobin's q, or *aq*) between firms with different industry adjusted ownership holdings (insiders, institutional investors, and blockholders). In particular, for firms with high industry-adjusted performance (*aq*), mean insider ownership is higher, mean institutional is higher, while mean blockholder ownership is lower.

3. Methodology

3.1 A Set of Simultaneous Equations

Many theoretical studies predict that ownership affects firm performance.[16] Conversely, other studies have found that firm performance affects insider ownership (Loderer and Martin, 1997; Cho, 1998; and others). Different types of ownership may also affect each other. Leland and Pyle (1977) argue that insider shareholding is a signal of the quality of a firm and that consequently, insider ownership may affect institutional and blockholder ownership. However, if we assume institutional investors and blockholders are effective monitors and share common interests with atomistic shareholders, then less insider shareholding is needed to align insiders' interests with those of outside shareholders. Furthermore, managers may have less incentive to hold higher stakes since the benefits of shirking are decreased as the result of effective monitoring by institutional investors and blockholders. It is also possible that institutional investors or blockholders, or both, are not good monitors in other ways. Even though they monitor well, they might act for themselves or collude with insiders. In the latter case, minority shareholders are in a disadvantaged situation, and firm performance/market valuation on such firm may go down. In any case, it is highly likely that different types of ownership and firm performance interact in game-theoretical fashion and affect the choices of the other stakeholders. It is this potentially complex set of interaction that we examine empirically.

In equations (2) to (6), we follow Morck, Shleifer, and Vishny (1988) and other studies in using *ltdta*, *xrdta* and *xadta* as explanatory variables to examine the effect of insider ownership on firm performance. Following Pantzalis et. al. (2002), we use earnings before interests and taxes as another control variable. However, we use *ta* to standardize those variables. We follow Himmelberg, Hubbard, and Palia (1999) in using the investment rate, *cape*, the ratio of capital expenditure to the net stock of plant, property, and equipment, to control for effect of capital expenditure on firm performance. Previous studies document significant non-linear effects of insider ownership on firm performance (see McConnell, and Servaes, 1990; Morck, Shleifer, and Vishny 1988, Hermalin and Weisbach 1991). We follow Short and Keasey (1999) in using the cubed model of insider to control for the non-linearity. Following Himmelberg, Hubbard, and Palia (1999), we also consider effects of market risk (*beta*) and firm-specific risk (*sdr*) on firm performance in some regressions.

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[16] For research on insider ownership and firm performance see Jensen & Meckling (1976), Stulz (1986) and others. For research on institutional ownership and firm performance see Gorton and Kahl (1999), Pound (1988) and others. For research on blockholder ownership and firm performance see Shleifer and Vishny (1986) and (1997).

$$q_i = f\left(ins_i, ins\char`\^2_i, ins\char`\^3_i, \mathrm{int}_i, blo_i, ta, xrdta_i, xrdta_i, ltdta_i, cape_i, ebita_i, beta_i, sdr_i\right) + \varepsilon_{qi} \quad (2)$$

$$own_i = f\left(q_i, otherown_i, ta, xrdta_i, xrdta_i, ltdta_i, cape_i, ebita_i, beta_i, sdr_i, tat_i, cr_i, trat_i\right) + \varepsilon_{oi} \quad (3), (4),$$

$$(5), \text{ and } (6)$$

where

$own_i = ins_i$, int_i, or blo_i, and

$otherown_i =$ other kinds of ownership except own_i

Following Himmelberg, Hubbard, and Palia (1999), we use *xrdta*, *xadta*, *ltdta*, *cape*, *beta*, *sdr*, and *ebita* as independent variables to explain insider ownership. Our methodology differs in our use of book value of total assets instead of sales as a proxy for firm size, and our use of total assets to standardize the variables, except for *beta* and *sdr*.

Gompers and Metrick (2001) show that large institutions prefer larger and more liquid stocks. We use *trat*, or trading volume turnover, the ratio of calendar year trading volume to shares outstanding at the end of a year, as a proxy for liquidity to measure its effect on institutional ownership. McConnell and Wahal (1998) document a positive effect of R&D expenditure on institutional ownership, therefore we also include the ratio of R&D expenditure to book value of total assets as an explanatory variable on institutional ownership. We expect a positive effect if, by their monitoring, institutional investors prevent managers from making myopic cuts in R&D expenditures.[17] In their test of the prudent investment hypothesis in institutional portfolio composition, Eakins, Stansell, and Wertheim (1998) document significantly positive effects of market risk (*beta*), current ratio (*cr*), profitability (ROA, we use *ebita*) and trading volume turnover on institutional ownerships. We expect these variables to affect blockholder ownership in somewhat similar ways. Crutchley et. al. (1999) find a U-shape effect of insider ownership on institutional ownership. Most importantly, we anticipate that different kinds of ownership affect each other. To better compare these connected determinants, we use equations (3) to (6) to endogenously estimate the interactions between the various types of ownership.

3.2 Empirical Estimation

We first run a series of OLS regressions for the pooling data using White's robust estimator to control for heterogeneity of residuals (White, 1980). The residuals of pooled time-series, cross-sectional data are likely to be correlated over time, potentially leading to inflated T-statistics; we correct for this by running OLS robust regressions year by year. We then compute the average

coefficients of independent variables. We compute different test statistics to assess whether a coefficient is significantly different from zero. We follow Chung (2000) and use the chi-square test outlined in Gibbons and Shanken (1987), as well as the z-statistic outlined in Meulbroek (1992). We also use the t-statistic from Fama and MacBeth (1973).

OLS regressions do not control for the correlations of residuals between different equations (in this case, the correlation between ε_{qi} and ε_{oi}). To eliminate interaction effects between firm performance and ownership (the endogeneity problem), we adopt the seemingly unrelated regression methodology (SUREG) (Zellner, 1962), which should lead to more efficient estimates than would be obtained by running the models separately. We run SUREG for the pooled data and also year by year, and then aggregate the coefficients. The Breusch-Pagan test of independence for the pooling data and each of the yearly SUREG all reject the assumption of no correlations between residuals of different equations, confirming that SUREG results are more efficient than OLS results.

We also follow Himmelberg, Hubbard, and Palia (1999) in using a fixed effects model to control for the effects of unobserved factors on firm performance and shareholdings. Without this, the relationships between firm performance and shareholdings may be spurious as the result of common unobserved firm characteristics. In addition, we also use two-stage fixed effects to control for the potential endogeneity of firm performance and insider ownership. Currently, panel data methodology does not enable us to control for the endogeneity between firm performance, insider ownership, institutional ownership, and blockholder ownership. However, the aggregation of the yearly SUREG coefficients corrects for any potential issues that may arise from this.

3.3 Controlling for Potential Overlap in Different Ownership Groups

To control for potential overlaps between the different ownership groups, we use residual ownerships as described below to repeat the analyses.

Residual insider ownership, residual institutional ownership, and residual blockholder ownership (*reins*, *reint*, and *reblo*) are residuals from the following regressions:

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[17] Previous findings on the effect of R&D expenditure on institutional ownership are mixed.

$$ins_{it} = \alpha_0 + \alpha_1 int_{it} + \alpha_2 blo_{it} + \varepsilon_{it}. \quad (7)$$

$$int_{it} = \beta_0 + \beta_1 ins_{it} + \beta_2 blo_{it} + \mu_{it}. \quad (8)$$

$$blo_{it} = \delta_0 + \delta_1 ins_{it} + \delta_2 int_{it} + v_{it}. \quad (9)$$

In general, most of our results are robust to all the different methods.

4. Empirical Results and Discussions

Because our key interests are in the relationship among firm performance and different types of ownership, we do not discuss effects of control variables unless necessary.

4.1 OLS and SUREG Results from Pooling Data

Table 3 reports the OLS results. Panel A shows industry adjusted results; Panel B shows unadjusted results. Table 4 reports the SUREG results similarly, with Panel A containing the results

without the industry adjustment, and Panel B the results with the industry adjustment.

The SUREG results in Table 4 broadly agree with the OLS results in Table 3. Both insider and institutional ownership positively affect firm performance, while blockholder ownership has a negative effect on firm performance. From the opposite direction, firm performance positively affects insider and institutional ownership, while negatively affecting blockholder ownership. The same pattern is evident with and without industry adjustment, for both the OLS and SUREG results.

With regard to the non-linearity issue in insider holding, only the industry adjusted regressions (both the OLS and the SUREG) are significant. The coefficient for the squared insider holding variable is positive and statistically significant. The coefficient for the cubed insider holding variable is negative and statistically significant. This indicates a significant curvilinear relationship as suggested by Stulz (1988), and found in differing degrees by Morck, Shleifer, and Vishny (1988), Kim and Lyn (1988), and McConnell and Servaes (1990).

Table 3. OLS Pooling Regressions

Panel A: variables are not adjusted by industry and size

independent variable	dependent					variable			
	q (1)	q (2)	q (3)	ins (3)	ins (4)	int (5)	int (6)	blo (7)	blo (8)
intercept	.977[a]	.984[a]	.990[a]	.231[a]	.204[a]	.313[a]	.313[a]	.240[a]	.217[a]
q				.0086[a]	.0100	.0065[a]	.0066[a]	-.0088[a]	-.0064[a]
ins	.391[a]	.310[a]	.147			-.345[a]	-.332[a]	.320[a]	.319[a]
ins^2		.120	.709						
ins^3			-.505						
int	.445[a]	.444[a]	.445[a]	-.299[a]	-.291[a]			.113[a]	.129[a]
blo	-.226[a]	-.225[a]	-.226[a]	.201[a]	.199[a]	.094[a]	.092[a]		
ta	3.46 e-06[b]	3.30 e-06[b]	3.15 e-06[b]	-3.49 e-06[a]	-3.30 e-06[a]	7.15 e-06[a]	6.05 e-06[a]	-6.28 e-06[a]	-6.55 e-06[a]
ltdta	-.609[a]	-.610[a]	-.610[a]	-.008	-.002		.045[a]		.095[a]
xrdta	3.686[a]	3.687[a]	3.689[a]		-.025[c]	-.267[a]	.089[a]		.005
xadta	-.0004	-.0007	-.0008		-.0005		-.004[b]		-.004[a]
ebita	.174[b]	.175[b]	.175[b]	.071[a]	.052[a]		.277[a]		-.034[a]
cape	.518[a]	.518[a]	.518[a]		.020[b]		-.025[a]		.014[b]
tat					.016[a]		-.011[a]		.004[b]
cr					9.22 e-05		-.004[a]		-3.43 e-04
trat					-.002[a]	.044[a]	.041[a]		-.007[a]
beta				-1.09 e-04[c]	-1.10 e-04[c]	-7.41 e-06	1.83 e-06	-1.25 e-04	-1.25 e-04
sdr				1.58 e-04	1.51 e-04	-6.55 e-03[a]	-5.91 e-03[a]	-5.05 e-03[a]	-5.25 e-03[a]
R^2	.132	.132	.132	.177	.181	.190	.247	.083	.089
Model F-stat	148.5[a]	133.8[a]	121.6[a]	746.6[a]	438.7[a]	579.8[a]	393.3[a]	287.5[a]	137.2[a]
Total N	27475	27475	27475	27475	27475	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

Panel B: Variables (except ta) are adjusted by industry and size

independent variable	dependent			variable					
	aq (1)	aq (2)	aq (3)	ains (4)	ains (5)	aint (6)	aint (7)	ablo (8)	ablo (9)
intercept	.242[a]	.236[a]	.229[a]	.041[a]	.041[a]	.011[a]	.016[a]	.008[a]	.006[a]
aq				.010[a]	.010[a]	.010[a]	.008[a]	-.008[a]	-.006[a]
ains	.416[a]	.353[a]	.422[a]			-.204[a]	-.204[a]	.310[a]	.306[a]
ains^2		.221[c]	.540[a]						
ains^3			-.719[b]						
aint	.574[a]	.576[a]	.578[a]	-.262[a]	-.255[a]			.120[a]	.143[a]
ablo	-.244[a]	-.244[a]	-.245[a]	.223[a]	.221[a]	.080[a]	.083[a]		
ta	-3.10×10^{-6}[a]	-2.95×10^{-6}[a]	-2.75×10^{-6}[a]	-1.44×10^{-6}[a]	-1.45×10^{-6}[a]	-1.34×10^{-6}[a]	-1.56×10^{-6}[a]	-1.76×10^{-6}[a]	-1.70×10^{-6}[a]
altdta	-.397[a]	-.398[a]	-.399[a]	.008	.009		-.075[a]		.072[a]
axrdta	2.964[a]	2.964[a]	2.966[a]		-.027[c]	.013	.141[a]		.020
axadta	.025	.0025	.025		-.001		-.001		-.003[a]
aebita	.319[a]	.320[a]	.321[b]	.050[a]	.041[a]		.114[a]		-.016[b]
acape	.388[a]	.388[b]	.388[b]		.011[c]		.0002		-.003
atat					.005[b]		-.0006		.002
acr					-1.56×10^{-4}		5.75×10^{-5}		-1.80×10^{-4}
atrat					-.006[a]	.031[a]	.030[a]		-.014[a]
abeta				-1.40×10^{-4}[b]	-1.38×10^{-4}[b]	-3.64×10^{-5}	-3.10×10^{-5}	-7.10×10^{-5}	-6.89×10^{-5}
Asdr				-1.93×10^{-4}	-2.23×10^{-4}	-3.14×10^{-3}[a]	-2.75×10^{-3}[a]	-4.27×10^{-3}[a]	-4.42×10^{-3}[a]
R^2	.069	.069	.069	.120	.121	.102	.122	.075	.082
Model F-stat	85.4[a]	78.0[a]	72.2[a]	331.7[a]	192.3[a]	243.0[a]	170.7[a]	269.6[a]	132.7[a]
Total N	27475	27475	27475	27475	27475	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

Table 4. Seemingly Unrelated Regressions (SUREG) on the Pooling Data

Panel A: variables are not adjusted by industry and size

Independent variables	Dependent	variables		
	q	ins	int	Blo
intercept	0.8326[a]	0.2073[a]	0.3110[a]	0.1182[a]
q		0.0199[a]	0.0204[a]	-0.0174[a]
ins	0.6408[a]		-0.6141[a]	0.6110[a]
ins^2	0.8145			
ins^3	-0.5757			
int	0.9433[a]	-0.5375[a]		0.3190[a]
blo	-0.5354[a]	0.3804[a]	0.2270[a]	
ta	6.16×10^{-7}	-3.80×10^{-8}	5.04×10^{-6}[a]	-5.89×10^{-6}[a]
ltdta	-0.5985[a]	-0.002	0.0387[a]	0.0788[a]
xrdta	3.605[a]	-0.030[b]	0.0323[b]	0.0304[c]
xadta	-0.0004	-0.0005	-0.0029	-0.0036
ebita	0.0333	0.1213[a]	0.2652[a]	-0.0762[a]
cape	0.5119[a]	0.0036	-0.0236[a]	0.0145[a]
tat		0.0096[a]	-0.0059[a]	0.0011
cr		-0.0008[a]	-0.0032[a]	7.09×10^{-5}
trat		0.0099[a]	0.0369[a]	-0.0107[a]
beta		-6.97×10^{-5}	-1.86×10^{-5}	-8.68×10^{-5}
sdr		-0.0004	-0.0048[a]	-0.0043[a]
R^2	0.1221	0.0730	0.1783	0.0280
Model F-stat	452.65[a]	1382.82[a]	1280.68[a]	617.02[a]
Total N	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

Panel B: Variables are adjusted by industry and size

Independent variables	Dependent		variables	
	aq	ains	aint	ablo
Intercept	0.2021[a]	0.0364[a]	0.0190[a]	-0.0056[a]
Aq		0.0219[a]	0.0205[a]	-0.0175[a]
Ains	0.9660[a]		-0.3999[a]	0.5852[a]
ains^2	0.5400[a]			
ains^3	-0.7127[a]			
Aint	1.217[a]	-0.4992[a]		0.3405[a]
Ablo	-0.5899[a]	0.4219[a]	0.1967[a]	
Ta	-1.62e-06	-1.28e-06[a]	-1.56e-06[a]	-1.00e-06[a]
Altdta	-0.3386[a]	-0.0210[a]	-0.0698[a]	0.0713[a]
Axrdta	2.859[a]	-0.0223	0.0948[a]	0.0301[b]
Axadta	0.0241	-0.0007	-0.0013	-0.0025
Aebita	0.2370[a]	0.0633[a]	0.1120[a]	-0.0384[a]
Acape	0.3742[a]	0.0063[c]	-0.0018	-0.0023
Atat		0.0039[b]	0.0002	0.0004
Acr		-8.86e-05	3.80e-05	-0.0001
Atrat		0.0049[a]	0.0279[a]	-0.0152[a]
Abeta		-0.0001[b]	-4.80e-05	-2.29e-05
Asdr		5.36e-05	-0.0023[a]	-0.0037[a]
R^2	0.0564	0.0253	0.0635	0.0155
Model F-stat	274.71[a]	993.52[a]	671.91[a]	639.17[a]
Total N	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

4.2 Aggregation of Year-by-Year Regressions

Table 5 reports the average coefficient value from 12 year-by-year first order cross-sectional regressions of firm performance on ownership, the percentage of positive coefficients, and the statistics to test the null hypothesis that the average coefficient is zero (Gibbons and Shanken, 1987; Meulbroek, 1992; and Fama and MacBeth, 1973).

Panel A contains the results without industry adjustment, and Panel B contains the results with industry adjustment. The results confirm the patterns reported above, with both insider and institutional ownership variables carrying significant positive coefficients and blockholder ownership variable carrying a significant negative coefficient.

Table 5. Aggregation of Year by Year First Order Regression of Firm Performance on Ownerships

The table shows the average coefficient value from 12 cross-sectional regressions, the percentage of positive coefficients, and the statistics to test the null hypothesis that the average coefficient is zero. We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: Variables not adjusted by industry and size.

	Intercept	ins	int	blo	ta	xrdta	xadta	ltdta	Cape	ebita
Average coefficient	0.8512	0.3605	0.2557	-0.5628	3.65e-08	3.762	0.482	-0.415	0.898	0.300
Positive coefficients	100%	100%	83%	0%	50%	100%	67%	0%	100%	58%
χ^2-statistic	182.907[a]	98.249[a]	94.855[a]	106.469[a]	45.736[a]	176.684[a]	59.138[a]	92.495[a]	126.807[a]	40.050[b]
z-statistic	27.739[a]	8.478[a]	7.341[a]	-8.560[a]	-0.352	21.463[a]	1.599	-8.094[a]	15.842[a]	2.517[b]
t-statistic	14.934[a]	6.773[a]	3.480[a]	-1.874[c]	0.019	15.125[a]	2.509[b]	-5.517[a]	4.857[a]	1.448
Average R^2	0.1425									

Panel B: Variables are adjusted by industry and size

	Intercept	ains	aint	ablo	ta	axrdta	axadta	altdta	Acape	aebita
Average coefficient	0.220	0.392	0.519	-0.495	-5.17e-06	3.485	0.463	-0.279	0.792	0.538
Positive coefficients	100%	100%	100%	0%	8%	100%	83%	8%	100%	83%
χ^2-statistic	182.907[a]	115.216[a]	139.018[a]	84.666[a]	54.353[a]	173.616[a]	36.241[c]	66.597[a]	122.661[a]	49.837[a]
z-statistic	28.212[a]	9.466[a]	11.992[a]	-7.130[a]	-4.968[a]	16.888[a]	3.147[a]	-5.560[a]	13.484[a]	4.809[a]
t-statistic	19.517[a]	9.208[a]	9.575[a]	-1.713	-5.057[a]	10.459[a]	2.751[a]	-5.561[a]	4.410[a]	2.150[c]
Average R^2	0.0982									

a: significant at 1% b: significant at 5% c: significant at 10%

Table 6. Aggregation of Year by Year Second Order Regression of Firm Performance on Ownerships

We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: Variables not adjusted by industry and size

	intercept	ins	ins^2	int	blo	ta	xrdta	xadta	ltdta	Cape	ebita
Average coefficient	0.867	0.159	0.295	0.253	-0.563	-4.55 e-07	3.767	0.476	-0.417	0.900	0.302
Positive coefficients	100%	67%	67%	83%	0%	33%	100%	67%	0%	100%	58%
χ^2-statistic	182.907[a]	27.912	18.776	93.199[a]	106.470[a]	46.149[a]	176.875[a]	58.491[a]	93.087[a]	126.766[a]	50.825[a]
z-statistic	27.528[a]	1.440	1.755[c]	7.208[a]	-8.577[a]	-0.748	21.469[a]	1.539	-8.146[a]	15.851[a]	4.881[a]
t-statistic	15.927[a]	1.346	2.406[b]	3.435[a]	-1.871[c]	-0.239	15.184[a]	2.503[b]	-5.565[a]	4.852[a]	1.454
Average R^2	0.1430										

Panel B: Variables are adjusted by industry and size

	intercept	ains	ains^2	aint	ablo	ta	axrdta	axadta	altdta	Acape	aebita
Average coefficient	0.213	0.324	0.254	0.523	-0.495	-4.97 e-06	3.483	0.450	-0.282	0.792	0.539
Positive coefficients	100%	100%	67%	100%	0%	58%	100%	83%	8%	100%	83%
χ^2-statistic	182.907[a]	77.022[a]	21.818	140.606[a]	84.961[a]	51.755[a]	173.616[a]	35.235[b]	67.210[a]	122.501[a]	49.846[a]
z-statistic	25.389[a]	6.588[a]	1.839[c]	12.130[a]	-7.142[a]	-4.795[a]	16.908[a]	3.037[a]	-5.646[a]	13.475[a]	4.835[a]
t-statistic	17.787[a]	6.849[a]	2.514[b]	9.578[a]	-1.712[c]	-4.918[a]	10.467[a]	2.663[b]	-5.613[a]	4.412[a]	2.152[b]
Average R^2	0.0988										

a: significant at 1% b: significant at 5% c: significant at 10%

Table 6 reports the same for the year-by-year second order regressions, with the additional squared insider holding term. Without industry adjustment (Panel A), the squared insider holding term is weakly significant and positive, while the insider holding term becomes insignificant. With industry adjustment (Panel B), the insider holding term is highly significant, while the squared insider holding term is weakly significant. The overall results, however, still broadly agree with earlier patterns.

Table 7. Aggregation of Year by Year Third Order Regression of Firm Performance on Ownerships

We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: Variables not adjusted by industry and size

	intercept	ins	ins^2	ins^3	int	blo	ta	xrdta	xadta	ltdta	cape	ebita

Average coefficient	0.877	-0.160	1.437	-0.788	0.259	-0.573	4.18 e-07	3.648	0.597	-0.431	0.867	0.316
Positive coefficients	100%	42%	83%	17%	92%	0%	33%	100%	75%	0%	100%	58%
χ^2-statistic	182.907[a]	18.702	17.666	11.076	92.753[a]	111.698[a]	41.618[b]	170.843[a]	61.088[a]	94.698[a]	114.830[a]	39.101[b]
z-statistic	27.670[a]	-0.566	1.827[c]	-1.114	7.358[a]	-8.958[a]	-0.508	21.102[a]	2.387[b]	-8.323[a]	15.193[a]	2.644[b]
t-statistic	16.920[a]	-0.885	2.990[a]	-2.29[b]	3.652[a]	-1.923[c]	0.175	13.045[a]	3.521[b]	-6.085[a]	4.540[a]	1.543
Average R^2	0.1433											

Panel B: Variables are adjusted by industry and size

	intercept	ains	ains^2	ains^3	aint	ablo	ta	axrdta	axadta	altdta	acape	aebita
Average coefficient	0.211	0.376	0.514	-0.580	0.523	-0.497	-4.77 e-06	3.489	0.444	-0.282	0.791	0.542
Positive coefficients	100%	100%	92%	17%	100%	0%	8%	100%	83%	8%	100%	83%
χ^2-statistic	182.907[a]	75.241[a]	28.421	24.328	140.775[a]	85.230[a]	48.771[a]	173.616[a]	34.896	67.260[a]	122.223[a]	49.622[a]
z-statistic	24.081[a]	6.383[a]	2.910[a]	-2.08[b]	12.150[a]	-7.171[a]	-4.572[a]	16.963[a]	3.002[a]	-5.646[a]	13.475[a]	4.867[a]
t-statistic	17.496[a]	6.405[a]	3.072[a]	-2.07[c]	9.677[a]	-1.709	-4.700[a]	10.486[a]	2.625[b]	-5.577[a]	4.410[a]	2.173[c]
Average R^2	0.0993											

a: significant at 1% b: significant at 5% c: significant at 10%

Table 7 reports the same for the year-by-year third order regressions, with the additional cubed insider holding term. Without industry adjustment (Panel A), the squared insider holding term is weakly significant and positive. The insider holding term becomes negative and insignificant, while the cubed term is negative and only weakly significant for one of the 3 tests. This result does not agree with our earlier patterns. With industry adjustment (Panel B), the insider holding term is highly significant and positive, the squared insider holding term is highly significant and positive for 2 of the 3 tests, and the cubed term is significant and negative for 2 of the 3 tests. Again, the industry-adjusted results confirm our earlier finding of a strong U-shaped relationship between insider holding and firm performance.

Table 8. Aggregation of Year by Year Regressions of Ownership on Firm Performance and Other Control Variables

Variables are not adjusted by industry and size. We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: Dependent variable is insider ownership

	intercept	q	int	blo	ta	xrdta	xadta	ltdta	ebita	cape	tat	cr	trat	beta	sdr
Average coefficient	.187	.010	-.294	0.347	-2.55 e-06	-.042	.075	.001	.068	.042	.013	1.56 e-04	-.006	-5.42 e-05	-9.37 e-06
Positive coefficients	100%	100%	0%	100%	0%	25%	83%	50%	100%	83%	17%	67%	17%	17%	50%
χ^2-statistic	182.9[a]	111.5[a]	182.9[a]	182.9[a]	151.3[a]	38.1[b]	25.8	13.1	113[a]	70.6[a]	95.5[a]	33.1	48.1[a]	22.7	47.4[a]
z-statistic	37.9[a]	9.73[a]	-55.0[a]	40.3[a]	-13.3[a]	-2.84[a]	1.52	.182	8.86[a]	6.72[a]	8.13[a]	-.248	-4.09[a]	-.771	.286
t-statistic	18.9[a]	6.64[a]	-18.9[a]	3.29[a]	-16.0[a]	-1.80[c]	3.51[a]	.233	6.33[a]	3.25[a]	6.18[a]	.395	-3.29[a]	-.584	-.008
Average R^2	0.2115														

Panel B: Dependent variable is institutional ownership

	intercept	q	ins	blo	ta	xrdta	xadta	ltdta	ebita	cape	tat	cr	trat	beta	sdr
Average coefficient	.306	.003	-.313	.060	8.24 e-06	.059	-.011	.022	.285	-.042	-.011	-.003	.053	1.05 e-04	-6.35 e-03
Positive coefficients	100%	67%	0%	67%	100%	75%	33%	58%	100%	8%	0%	0%	100%	67%	0%
χ^2-statistic	182.9[a]	74.1[a]	182.9[a]	120.6[a]	106.8[a]	70.6[a]	38.6[b]	66.6[a]	182.9[a]	79.3[a]	78.2[a]	132.6[a]	176.7[a]	25.7	142.5[a]
z-statistic	64.2[a]	3.30[a]	-53.5[a]	15.6[a]	8.61[a]	4.16[a]	-1.8[c]	3.48[a]	31.8[a]	-7.7[a]	-6.9[a]	-11.9[a]	28.2[a]	.144	-12.9[a]
t-statistic	24.3[a]	1.34	-10.6[a]	1.70[c]	8.27[a]	1.87[c]	-.483	1.41	14.2[a]	-3.2[a]	-7.0[a]	-9.13[a]	9.26[a]	1.07	-6.03[a]
Average R^2	0.280														

Panel C: Dependent variable is blockholder ownership

	intercept	q	ins	int	ta	xrdta	xadta	ltdta	ebita	cape	tat	cr	trat	beta	sdr
Average coefficient	.224	-.007	.335	.094	-7.34 e-06	-2.27 e-04	.079	.077	-.024	.015	.005	-3.3 e-04	-.015	-1.22 e-04	-5.45 e-03
Positive coefficients	100%	0%	100%	67%	0%	50%	83%	100%	42%	58%	100%	42%	8%	50%	8%
χ^2-statistic	182.9[a]	95.6[a]	182.9[a]	132.3[a]	173.0[a]	25.6	42.8[a]	106.8[a]	60.7[a]	61.4[a]	22.8	23.1	131.3[a]	40.9[b]	83.1[a]
z-statistic	42.1[a]	-7.08[a]	41.2[a]	15.9[a]	-13.4[a]	.092	.869	9.01[a]	-3.51[a]	2.36[b]	2.73[a]	-.525	-10.2[a]	-1.35	-6.81[a]
t-statistic	12.0[a]	-7.37[a]	11.4[a]	3.29[a]	-11.1[a]	-.016	4.13[a]	7.08[a]	-1.79[c]	1.28	4.27[a]	-.725	-7.63[a]	-.620	-4.01[a]
Average R^2	0.1358														

a: significant at 1%
b: significant at 5%
c: significant at 10%

Investigating the relationship from the opposite direction, Table 8 shows the results from aggregation of year-by-year regressions of ownership on firm performance and other control variables using the same test statistics. Panel A reports the results for insider ownership, Panel B institutional ownership, and Panel C blockholder ownership.

Keeping our focus on the relationship between ownership and firm performance, we observe that firm performance has a positive and highly significant effect on insider ownership, positive and highly significant effect on institutional ownership, and a negative and highly significant effect on blockholder ownership. This confirms our earlier findings. In term of the relationships between the different types of ownerships, we observe an interesting pattern. Insider and institutional ownership have a negative effect on each other, though a positive effect on blockholder ownership. Blockholder ownership has a positive effect on both insider and institutional ownership. It seems that for a given structure involving large ownership groups, insider and institutional ownerships are substitutes for each other, hence when one increases, the other decreases. On the other hand, as blockholder ownership tends to be negatively associated with firm performance, increased blockholder ownership leads to an increase in either inside ownership or institutional ownership, as compensation, to reach an endogenously determined equilibrium ownership structure.

Table 9. Aggregation of Year by Year Regressions of Ownership on Firm Performance and Other Control Variables

Variables are adjusted by industry and size. We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: Dependent variable is industry-size adjusted insider ownership

	intercept	aq	aint	ablo	ta	axrdta	axadta	altdta	aebita	acape	atat	acr	atrat	abeta	asdr
Average coefficient	.040	.012	-.258	.303	-1.45 e-06	-.043	.041	.005	.055	.028	.004	-5.86 e-05	-.011	-4.24 e-06	-7.74 e-04
Positive coefficients	100%	100%	0%	100%	0%	33%	58%	67%	100%	83%	67%	50%	0%	33%	50%
χ^2-statistic	182.9[a]	123.8[a]	182.9[a]	182.9[a]	132.5[a]	37.6[b]	21.9	20.0	88.2[a]	56.4[a]	33.2	28.8	91.8[a]	24.6	52.9[a]
z-statistic	30.7[a]	10.4[a]	-34.1[a]	36.7[a]	-10.4[a]	-2.61[b]	.814	.970	7.20[a]	4.14[a]	2.24[b]	-.589	-7.7[a]	-.517	1.45
t-statistic	43.1[a]	7.58[a]	-15.1[a]	3.74[a]	-11.0[a]	-1.77[c]	1.61	.816	5.61[a]	2.72[a]	2.00[b]	-.158	-6.1[a]	-.056	-.695
Average R^2	0.1365														

Panel B: Dependent variable is industry-size adjusted institutional ownership

	intercept	aq	ains	ablo	ta	axrdta	axadta	altdta	aebita	acape	atat	acr	Atrat	abeta	asdr
Average coefficient	.015	.007	-.192	.110	-8.2 e-07	.144	-.001	-.077	.122	.006	- 6.85 e-04	5.22 e-04	.040	-7.98 e-05	- .003
Positive coefficients	25%	100%	0%	83%	17%	100%	50%	0%	100%	48%	25%	67%	100%	48%	0%
χ^2-statistic	159.2[a]	99.2[a]	182.9[a]	135.0[a]	58.0[a]	138.9[a]	30.8	166.0[a]	179.3[a]	69.6[a]	9.23[a]	26.3	174.5[a]	23.2	84.3[a]
z-statistic	13.2[a]	8.13[a]	-35.4[a]	14.5[a]	-4.3[a]	11.7[a]	-1.97[c]	-11.6[a]	20.0[a]	-.803	- .468	.924	22.6[a]	-1.33	- 7.10[a]
t-statistic	14.7[a]	6.31[a]	-9.50[a]	2.19[b]	-2.9[a]	9.95[a]	.511	-11.2[a]	9.85[a]	.706	- .967	1.49	10.3[a]	-1.58	- 4.43[a]
Average R^2	0.1473														

Panel C: Dependent variable is industry-size adjusted blockholder ownership

	intercept	aq	ains	aint	Ta	axrdta	axadta	altdta	aebita	acape	atat	acr	atrat	abeta	asdr
Average coefficient	.009	- .006	.308	.092	-1.81 e-06	.037	.004	.066	-.021	.001	.001	-3.3 e-05	-.016	-1.52 e-04	-.004
Positive coefficients	83%	0%	100%	83%	0%	67%	58%	100%	17%	50%	75%	33%	0%	33%	17%
χ^2-statistic	84.3[a]	67.1[a]	182.9[a]	135.1[a]	112.3[a]	23.4	28.9	107.9[a]	41.1[b]	58.9[a]	26.1	22.2	132.8[a]	39.5[b]	76.4[a]
z-statistic	5.83[a]	-5.9[a]	37.4[a]	14.8[a]	-8.79[a]	1.56	-1.48	8.36[a]	-2.79[a]	-.254	-.17	-.36	-10.6[a]	-1.6[c]	-5.13[a]
t-statistic	3.12[a]	-5.8[a]	10.9[a]	2.70[b]	-7.70[a]	2.37[b]	.235	5.97[a]	-2.13[b]	.117	.585	-.08	-7.50[a]	-.915	-3.41[a]
Average R^2	0.0967														

a: significant at 1%
b: significant at 5%
c: significant at 10%

Table 9 reports the results from aggregation of year-by-year regressions using the same test statistics with industry adjustment. Panel A reports the results for insider ownership, Panel B for institutional ownership, and Panel C for blockholder ownership. The results in Table 9 confirm the results found in Table 8.

Table 10. Aggregation of Year by Year Third Order Seemingly Unrelated Regression (SUREG)

Variables except book value of total assets are adjusted by industry and size. We follow Chung (2000) to use the chi-square test outlined in Gibbons and Shanken (1987), and the z-statistic outlined in Meulbroek (1992). We also use the t-statistic presented by Fama and MacBeth (1973). We consider an average coefficient to be significantly different from zero only when at least two test statistics reject the null hypothesis, and the significance level will be the same as the test statistic with the greatest significance level.

Panel A: the dependent variable is industry-size adjusted Tobin's q

	intercept	ains	ains^2	ains^3	aint	ablo	ta	axrdta	axadta	altdta	acape	aebita
Average coefficient	0.185	0.879	0.513	- 0.574	1.097	-1.134	-4.13 e-06	3.384	0.416	- 0.224	0.763	0.542
Positive coefficients	100%	100%	92%	17%	100%	0%	8%	100%	83%	8%	100%	83%
χ^2-statistic	182.91[a]	159.80[a]	33.60	28.42	173.16[a]	157.06[a]	17.46	182.91[a]	38.18[b]	63.86[a]	170.44[a]	92.88[a]
z-statistic	20.76[a]	16.09[a]	3.16[a]	-2.16[b]	25.52[a]	-17.28[a]	- 1.83[c]	32.58[a]	3.04[a]	-5.21[a]	21.61[a]	9.49[a]
t-statistic	15.48[a]	8.54[a]	3.10[a]	-2.06[b]	9.661[a]	-1.77[c]	- 3.77[a]	10.07[a]	2.54[b]	-4.45[a]	4.41[a]	1.80[c]
Average R^2	0.0872											

Panel B: the dependent variable is industry-size adjusted insider ownership

	intercept	aq	aint	ablo	ta	axrdta	axadta	altdta	aebita	acape	atat	acr	atrat	abeta	asdr
Average coefficient	.034	.024	-.492	.587	-1.01 e-06	-.044	.041	-.026	.081	.019	.003	7.27 e-05	.003	8.80 e-06	-5.60 e-04
Positive coefficients	100%	100%	0%	100%	0%	42%	58%	17%	100%	67%	75%	50%	0%	48%	50%
χ^2-statistic	182.9[a]	179.3[a]	182.9[a]	182.9[a]	39.3[b]	35.4[c]	21.8	36.2[b]	134.0[a]	52.7[a]	27.8	28.8	39.4[b]	17.8	42.4[b]
z-statistic	26.9[a]	23.2[a]	-74.7[a]	86.9[a]	-3.91[a]	-2.27[b]	1.07	-3.3[a]	11.1[a]	3.17[a]	-.061	-.589	2.90[a]	-.866	-.124
t-statistic	23.6[a]	7.74[a]	-15.4[a]	3.45[a]	-7.30[a]	-1.97[b]	1.28	-3.6[a]	7.45[a]	1.84[b]	.200	-.158	1.86[b]	.109	-.534
Average R²	0.0450														

Panel C: the dependent variable is industry-size adjusted institutional ownership

	intercept	aq	ains	ablo	ta	axrdta	axadta	altdta	aebita	acape	atat	acr	atrat	abeta	asdr
Average coefficient	.018	.018	-.369	.261	-8.6 e-07	.094	-.001	-.074	.120	.005	-1.2 e-04	4.95 e-04	.037	-7.83 e-05	-.003
Positive coefficients	25%	100%	0%	83%	17%	92%	50%	0%	100%	48%	25%	67%	100%	48%	8%
χ^2-statistic	174.8[a]	164.7[a]	182.9[a]	163.3[a]	51.8[a]	87.3[a]	16.8	158.3[a]	182.9[a]	48.8[a]	11.6	27.2	182.9[a]	12.2	48.8[a]
z-statistic	16.5[a]	22.0[a]	-74.7[a]	37.5[a]	-4.3[a]	7.06[a]	-.292	-12.2[a]	20.3[a]	.086	-.08	1.26	31.4[a]	-.871	-4.72[a]
t-statistic	15.6[a]	7.96[a]	-9.21[a]	2.30[b]	-3.3[a]	5.97[a]	-.107	-10.9[a]	9.84[a]	.518	-.13	1.43	10.1[a]	-1.9[b]	-4.08[a]
Average R²	0.0944														

Panel D: the dependent variable is industry-size adjusted blockholder ownership

	intercept	aq	ains	aint	ta	axrdta	axadta	altdta	aebita	acape	atat	acr	atrat	abeta	asdr
Average coefficient	-.002	-.017	.579	.240	-1.19 e-06	.062	-.004	.063	-.042	-.003	4.74 e-04	2.13 e-05	-.014	-1.47 e-04	-.003
Positive coefficients	50%	0%	100%	83%	8%	75%	42%	92%	8%	50%	67%	25%	8%	33%	25%
χ^2-statistic	67.8[a]	154.3[a]	182.9[a]	163.3[a]	28.2	30.3	16.4	110.4[a]	71.3[a]	57.3[a]	10.9	20.7	122.9[a]	29.4	69.1[a]
z-statistic	-1.28	-16.0[a]	81.5[a]	37.5[a]	-3.2[a]	2.20[b]	-.046	8.43[a]	-6.67[a]	-.964	.456	-.14	-10.2[a]	-1.41	-5.73[a]
t-statistic	-.470	-6.95[a]	11.2[a]	3.60[a]	-4.8[a]	3.18[a]	-.199	5.67[a]	-3.93[a]	-.287	.440	-.06	-5.62[a]	-.905	-2.69[b]
Average R²	0.0317														

a: significant at 1%
b: significant at 5%
c: significant at 10%

Table 10 reports the results from aggregation of year-by-year third order regressions (containing the squared and cubed insider holding terms) using SUREG with industry adjustment. The squared insider holding term has a significant positive coefficient, and the cubed insider holding term is significantly negative for 2 of the 3 tests. Results on the ownership structure and firm performance variables are similar to earlier results.

4.3 Seemingly Unrelated Regression Results for Pooling Data and Residual Ownership

Table 11 reports the results from SUREG on pooled data with residual ownership as estimated by equations (7) through (9). Panel A contains results without industry adjustment, and Panel B contains results with industry adjustment. The relationships between firm performance and various ownerships remain the same as before. Interestingly, the different results produced by industry adjustment have disappeared. It seems that using residual ownership eliminates or reduces spurious correlations that are captured in earlier tests, as the negative relationship between firm performance and insider holding only occurs for results without industry adjustment. The industry adjustment procedure appears to generate more reliable estimates and test results.

Table 11. Seemingly Unrelated Regressions on the Pooling Data

The residual ownerships are used. The residual insider ownership, reins, is the residual of regression (1) $ins_{it} = \alpha_0 + \alpha_1 int_{it} + \alpha_2 blo_{it} + \varepsilon_{it.}$ reins^2 is the square of reins. The residual institutional ownership, reint, is the residual of regression (2) $int_{it} = \beta_0 + \beta_1 ins_{it} + \beta_2 blo_{it} + \mu_{it}$. The residual blockholder ownership, reblo, is the residual of regression (3) $blo_{it} = \delta_0 + \delta_1 ins_{it} + \delta_2 int_{it} + \nu_{it}$. Other variables are described in table 1.

Panel a: Variables are not adjusted by industry and size

Independent variables	Dependent	variables		
	q	reins	reint	reblo
intercept	1.1070[a]	-0.4385[a]	-0.0604[a]	0.0085[c]
q		0.0185[a]	0.0183[a]	-0.0141[a]
reins	0.4389[a]			
reins^2	1.1740[a]			
reins^3	-1.9346[a]			
reint	0.7964[a]			
reblo	-0.3544[a]			
ta	9.86e-07	-3.31e-06[a]	5.56e-06[a]	-6.20e-06[a]
ltdta	-0.6032[a]	0.0026	0.0529[a]	0.0914[a]
xrdta	3.624[a]	-0.0568[b]	0.0447[a]	0.0377[b]
xadta	-0.0001	-0.0004	-0.0036	-0.0046
ebita	0.0506	0.0486[a]	0.2718[a]	-0.0229[a]
cape	0.5116[a]	0.0157[a]	-0.0288[a]	0.0164[a]
tat		0.0156[a]	-0.0098[a]	0.0035[c]
cr		0.0001	-0.0032[a]	-0.0005
trat		-0.0028[a]	0.0036[a]	-0.0054[a]
beta		-1.09e-04[b]	-7.21e-06	-1.22e-04[c]
sdr		-0.0002	-0.0059[a]	-0.0055[a]
R^2	0.1266	0.0175	0.1475	0.0201
Model F-stat	434.44[a]	71.45[a]	444.82[a]	62.37[a]
Total N	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

Panel B: Variables are adjusted by industry and size

Independent variables	Dependent	variables		
	aq	areins	areint	areblo
intercept	0.2358[a]	0.0212[a]	-0.0021[c]	0.0182[a]
aq		0.0194[a]	0.0204[a]	-0.0132[a]
areins	0.4745[a]			
areins^2	0.7556[a]			
areins^3	-1.624[a]			
areint	1.002[a]			
areblo	-0.3511[a]			
ta	-1.99e-06	-1.39e-06[a]	-1.46e-06[a]	-1.78e-06[a]
altdta	-0.3443[a]	0.0105	-0.0641[a]	0.0644[a]
axrdta	2.878[a]	-0.0455[a]	0.0960[a]	0.0493[a]
axadta	0.0242	-0.0015	-0.0014	-0.0038
aebita	0.2498[a]	0.0399[a]	0.1127[a]	-0.0079
acape	0.3766[a]	0.0070[b]	-0.0019	0.0003
atat		0.0052[a]	-2.74e-05	0.0023
acr		-5.0e-05	-6.26e-05	-0.0002
atrat		-0.0052[a]	0.0262[a]	-0.0120[a]
abeta		-0.0001[b]	-4.16e-05	-6.21e-05
asdr		-0.0002	-0.0030[a]	-0.0047[a]
R^2	0.0615	0.0060	0.0568	0.0105
Model F-stat	250.01[a]	49.52[a]	200.20[a]	39.50[a]
Total N	27475	27475	27475	27475

a: significant at 1%
b: significant at 5%
c: significant at 10%

5. Summary and Conclusions

It is clear from the exhaustive analyses discussed above that our results are robust to different methodologies and potential interpretative issues that might arise from unobserved underlying variables, correlated variables, and other statistical conerns . We utilized OLS pooled regressions, fixed-effect panel-data regressions, aggregation of year-by-year cross-sectional regressions, SUREG, and panel-data regressions. We also used residual ownership to correct for potential overlap in various ownership types. In addition, we applied industry-size adjustment and test our hypotheses both with and without such adjustment. The results from all the methodologies are similar with only minor differences.

In general, we find that firm performance, as measured by Tobin's q (with or without industry adjustment), positively affects both insider and institutional ownership, but negatively affects blockholder ownership. Examining the relationship from the opposite direction, both insider and institutional ownership are associated with higher firm performance, while blockholder ownership is negatively associated with firm performance.

Looking at these three ownership groups, we find that insider and institutional ownership are negatively related to each other, and thus function as substitutes. On the other hand, they are both positively related to blockholder ownership, indicating that the endogenous optimal ownership requires higher insider or institutional ownership when there is high blockholder ownership. As higher blockholder ownership tends to be associated with lower firm performance, it is logical that more monitoring is required from insider or institutional shareholders.

As a methodological note, we find that using residual ownership reduces or eliminates spurious variations in the non-linear relationship between firm performance and insider ownership. In the same estimation for the non-linear relationship, we also find evidence that industry adjustment generates more reliable estimates.

We note that, even after controlling for the endogeneity of insider ownership, we still find positive effects from insider ownership on firm performance, which conflicts with results found by other studies which controlled for endogeneity.

While we do find non-linearity in the relationship between insider ownership and firm performance, our results do not support a relationship as neat as the inverse U-shape effect predicted by Stulz (1988) and supported by many previous studies. Short and Keasey (1999) documented positive effects on firm performance of managerial shareholdings and the cubed of managerial shareholdings, and a negative effect of the square of managerial ownership based on U.K.

data. Our results are inconsistent with this and indicate that the effects of insider ownership and its square on performance are positive, though the effect of the cubed of insider ownership on firm performance is negative.

We find strong negative effects of blockholder ownership on firm performance, as discussed by Shleifer and Vishny (1997), and our results indicate that institutional investors are efficient monitors and their existence increases firm value and protects minority shareholders.

The strong negative effect of blockholder ownership on firm performance needs more attention, since the market often expects blockholders to be efficient monitors, enhancing firm value. Shleifer and Vishny (1986), Gorton and Kahl (1999) suggest that blockholders play positive roles in corporate governance, and previous studies document positive roles of blockholders in corporate governance (Shome and Sinch, 1995; Shivdasani, 1993; and Shleifer and Vishny, 1997). In some cases blockholders have insignifcant roles (McConnell and Servaes, 1990; and Loderer and Martin, 1997). However, Shleifer and Vishny (1997) acknowledge that "large investors represent their own interests, which need not coincide with the interests of other investors in the firm, or with the interests of employees and managers." Therefore, "large investors might try to treat themselves preferentially at the expense of other investors and employees…They can do so by paying themselves special dividends or by exploiting other business relationships with the companies they control."[18] As a result, firm value or performance will be hurt.

Burkart and Panunzi (2001) argue the presence of a single blockholder can both protect and hurt minority shareholders. In cases when there are several blockholders, Gomes (2000) shows that the bargaining problems led by the presence of multiple controlling shareholders protect minority shareholders; however, the same bargaining problems prevent efficient decisions.

To summarize, blockholders can positively or negatively affect a firm's performance; we cannot predict which role will dominate in a cross-sectional analysis. Our finding that the role of blockholders is predominantly negative role is consistent with the hypothesis that blockholders represent their own interests, and treat themselves preferentially at the expenses of others. Recent financial news reporting, for example the ongoing drama in Yahoo, also are related to incidences of such self-interest driven activities by so-called corporate raiders.

As our results are robust to different methodologies, this paper contributes new evidence

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[18] Dann and DeAngelo (1983) indicate that greenmail and targeted share repurchases are examples of special deals for large investors.

in our understanding of the relationship between firm performance and different types of ownerships, and in particular in the complex interplay between various large investor groups.

References

1. Agrawal, A. and Knoeber C.(1996),"Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders",*Journal of Financial and Quantitative Analysis*, 31 (3), pp. 377-397.
2. Brancato, C. K.(1997),*Institutional Investors and corporate Governance*, Irwin, Chicago, 1997.
3. Burkart, M. and Panunzi, F.(2001),"Agency conflicts, ownership concentration, and legal shareholder protection",*CEPR discussion paper*, No. 2708.
4. Cho, M. (1998),"Ownership structure, investment, and the corporate value: an empirical analysis",*Journal of Financial Economics*, 47, pp. 103-121.
5. Chung, K. and Pruitt, S. (1994),**"**A simple approximation of Tobin's q", *Financial Management*, 23, pp. 70-76.
6. Crutchley, C. E., Jensen, M., Jahera, S. and Raymond, J.(1999),"Agency problems and the simultaneity of financial decision making: The role of institutional ownership",*International Review of Financial analysis*, 8, pp. 177-197.
7. Dann, L. and DeAngelo, H.(1983),"Standstill agreements, privately negotiated stock repurchases, and the market for corporate control",*Journal of Financial Economics*, 11, pp. 275-300.
8. Demsetz, H., (1983),"The structure of ownership and the theory of the firm",*Journal of Law and Economics*, 26, pp. 375-390.
9. Demsetz, H. and K. Lehn, 1985. The structure of corporate ownership: causes and consequences, Journal of Political Economy 93. 1155-1177.
10. Demsetz, H., and Villalonga, B., (2001),"Ownership structure and corporate performance",*Journal of Corporate Finance*, 7, pp. 209-233.
11. Eakins, S. G., Stansell, S. R. and Wertheim, P.,(1998),"Institutional portfolio composition: and examination of the prudent investment hypothesis",*The Quarterly Review of Economics and Finance*, 38, No. 1, pp. 93-109.
12. Gomes, A.(2000),"Going public without governance: Managerial reputation effects",*Journal of Finance*, 55, pp. 615-646.
13. Gompers, P., and Andrew M.(2001),"Institutional investors and equity prices", *Quarterly Journal of Economics*, 116, pp. 229-259.
14. Gorton, G., and Kahl, M.(1999), "Blockholder identity, equity ownership structures and hostile takeovers", *NBER working paper*, Number 7123.
15. Hermalin, B. E., and Weisbach, M. S. (1991),"The Effects of Board Composition and Direct Incentives on Firm Performance",*Financial Management*, 20, pp. 101-115.
16. Himmelberg, C., Hubbard, R.G., and Palia, D.(1999),"Understanding the determinants of managerial ownership and the link between ownership and performance",*Journal of Financial Economics*, 53, pp. 353-384.
17. Jensen, M.C. and Meckling, W.H. (1976),"Theory of the Firm: Managerial behavior, agency costs and ownership structure",*Journal of Financial Economics*, 3, pp. 305-360.
18. Leland, M. and Pyle, D.(1977),"Informational asymmetries, financial structure, and financial intermediation", *Journal of Finance*, 32, pp. 371-387
19. Loderer, C., and Martin, K. (1997),"Executive stock ownership and performance: tracking faint traces",*Journal of Financial Economics*, 27, pp. 595-612.
20. McConnell, J. and Servaes, H.(1990),"Additional evidence on equity ownership and corporate value", *Journal of Financial Economics*, 27, pp. 595-612.
21. McConnell, J.and Sunil, W.(1997),"Do institutional investors exacerbate managerial myopia?",*SSRN Electronic Paper Collection*.
22. MacKie-Mason, J. (1990),"Do taxes affect corporate financing decisions?",*Journal of Finance*, 45, 5, pp. 1471-1493.
23. Morck, R., Shleifer,A. and Vishny, R.(1988), Management Ownership and Market Valuation, an Empirical Analysis, *Journal of Financial Economics*, 20, pp. 293-315.
24. Pantzalis, C.(2001),"Does location matter? Anempirical analysis of geographic scope and MNC market valuation",*Journal of International Business Studies*, 32, pp. 133-155
25. Pantzalis, C., Kim, C., and Kim, S.(1998),"Market Valuation and Equity Ownership Structure: the Case of Agency Conflict Regimes",*Review of Quantitative Finance and Accounting*, 11, pp. 249-269
26. Pound, J. (1988),"Proxy contests and the efficiency of shareholder oversight",*Journal of Financial Economics*, 20, pp.237-265
27. Shivdasani, A.(1993),"Board composition, ownership structure, and hostile takeovers",*Journal of Accounting and Economics*, 16, 167-198
28. Shleifer, A., and Vishny, R. (1986),"Large shareholders and corporate control",*Journal of Political Economy*, 94, pp. 461-488
29. Shleifer, A., and Vishny, R. (1997),"A Survey of corporate governance", *Journal of Finance*, 52, pp.737-783
30. Shome, D., and Singh, S.(1995),"Firm value and external blockholdings",*Financial Management*, 24,4, pp. 3-14.
31. Short, H., and Keasey, K.(1999),"Managerial ownership and the performance of firms: Evidence from the UK",*Journal of Corporate Finance*, 5, pp.79-101.
32. Stulz, R.M.(1988),"Managerial control of voting rights: financing polices and the market for corporate control",*Journal of Financial Economics*, 20, 25-54

OWNERSHIP CONCENTRATION, FREE CASH FLOW AGENCY PROBLEM AND FUTURE FIRM PERFORMANCE: NEW ZEALAND EVIDENCE

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Abstract

This study seeks to empirically examine the effect of ownership concentration on mitigating free cash flow agency problem in New Zealand. Following Jensen's (1986) argument that managers have incentives to misuse free cash flows, this study tests whether concentrated ownership structure helps alleviate such a problem or exacerbates it. A natural consequence of this agency problem will be overinvestment and other operational inefficiencies which are likely to have a detrimental impact on firms' future performance. The second objective of this paper is to examine the association between FCFAP conditional on ownership concentration on future firm performance. We measure free cash flow agency problem as the product of positive free cash flows and growth opportunities proxied by Tobin's Q and find that financial institution-controlled ownership structure in New Zealand is positively associated with free cash flow agency problem. We also document that free cash flow agency problem conditional on ownership concentration negatively affects future firm performance.

Keywords: Free Cash Flow Agency Problem, Agency Theory, Over-investment, Future Firm Performance

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1. Introduction

The purpose of this paper is to investigate the (i) impact of different classes of ownership concentration on free cash flow agency problem; and (ii) the effect of such agency problem on future firm performance in New Zealand. Corporate cash holding has been a topic of increasing research interest and there is evidence that in recent years large companies have increased holding a significant fraction of corporate wealth in terms of cash and cash equivalents (Dittmar & Mahrt-Smith, 2007). Although it is necessary for firms to hold some cash to finance daily operations, excessive cash holding may have negative impact on firm value. In a seminal contribution, Jensen (1986) argues from an agency theory perspective that managers are inclined to squander free cash flow (FCF) (internally generated cash flows in excess of that required to maintain existing assets in place and finance profitable projects) when their objectives differ from those of shareholders. This is referred to as free cash flow agency problem (hereafter FCFAP). Empirical research has

provided some support for the agency cost explanation of the FCF problems (Blanchard, Lopez-di-Silanes, and Shleifer, 1994; Harford, 1999; Bates, 2005; and Richardson, 2006). The general consensus from the empirical literature seems to support the entrenchment view of FCF which argues that in the absence of effective monitoring the value-destroying managerial behavior reduces shareholder wealth. Shareholders, therefore, are expected to demand monitoring mechanisms to ensure that the FCF is not opportunistically used by managers. This paper attempts to test the proposition that corporate governance requirements, specifically ownership concentration, can fulfill such a demand.

Concentration of ownership is acknowledged as a central concept in the theory of corporate governance (Morck, 2000; Shleifer & Vishny, 1997), as the ownership structures provide a fundamental explanation for governance issues, including managerial power, shareholders' monitoring, firms' financing and investment decisions. Whether ownership concentration mitigates FCFAP, however, requires empirical

testing. On the one hand, *efficient-monitoring hypothesis* claims that large shareholders have great expertise and can monitor management at lower cost than individual shareholders. So, ownership concentration can prevent managers from expropriating company resources for their personal benefit (Berle and Means, 1932; Huddart, 1993; Maug, 1998; Shleifer and Vishny, 1986). On the other hand, *conflict-of-interest* and *strategic-alignment hypotheses* contend that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders since the former group has the opportunity and incentives to work for management (Faccio, Lang, & Young, 2001; Shleifer & Vishny, 1997).

This paper aims to directly test these competing hypotheses using data from New Zealand. Garvey (1992), in an early attempt also examines the disciplinary effect of ownership concentration on FCF problem but fail to find any evidence that the decision to pay out FCF in a sample of large U.S. corporations is related to the size of managerial, family or institutional blockholdings. This finding leads him to conclude that, "… large shareholders are of no use in resolving the free cash flow problem, or that the importance of free cash flow as a source of agency problems has been greatly exaggerated." This paper differs from Garvey in at least three respects. Firstly, we concentrate on the sample of positive FCF but low growth opportunity sub-sample. These firm-year observations suffer from the most acute FCF problem and therefore provide a stronger setting for testing the efficiency versus entrenchment hypotheses of concentrated ownership. Secondly, the interactive effect of the FCF-ownership concentration on firm performance was not investigated by Garvey (1992). Since managerial misuse of FCF is likely to adversely impact future firm performance, the omission of this test does not tell the complete picture of the FCF agency problem. Finally, we use data from a small yet developed country which is characterized by substantially concentrated ownership structure[19], and less stringent governance regulation compared to her US counterpart which provides a natural

experimental setting to examine the efficiency versus entrenchment hypothesis of the concentrated ownership structures with respect to FCF.[20]

An important consideration regarding the FCF problem relates to the managerial use of excess cash flow for firms plagued with low growth opportunities. These are the firms where the FCFAP is most acute (Jensen, 1986). Taking this argument into account, this paper measures the dependent variable, FCFAP, as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise. This methodology follows Lang & Litzenberger's (1989) argument that the mangers of a firm with a "low" Q−low growth opportunities, are more likely to overinvest or waste their excessive cash resources. The independent variable of primary interest in this study is ownership concentration proxied by the total percentage of top five shareholders. However, the aggregated nature of ownership concentration may mask the true effect of the different classes of ownership composition on FCFAP. An important consideration in analyzing the impact of large shareholders is their mixed composition as there are likely to be disparities in the motivations and constrains of information sharing by different large shareholders (Badrinath, Gay, & Kale, 1989; Del Guercio, 1996; Falkenstein, 1996). We, therefore, categorize ownership concentration in New Zealand into three mutually exclusive groups, namely: (i) financial institution-controlled; (ii) management-controlled; and (iii) other group that combines government and other company-controlled observations, and examines the impact of ownership concentration under each type of controlling ownership structure on FCFAP and associated future firm performance.

Using data for publicly listed New Zealand companies from 2000 to 2009, this study reveals that overall ownership concentration measure is positively associated with FCFAP, and this positive relation holds for both financial institutions-controlled and management controlled-ownership structures. In addition, the study shows a significant negative effect of the FCFAP on future firm

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[19] Hossain, Prevost, and Rao (2001) show that the mean proportion of stock held by the top 20 shareholders in New Zealand is 73 per cent, while Demsetz and Lehn (1985) demonstrate the equivalent percentage at only 37.66 per cent in USA. ICANZ (2003) reports that institutions are the main investors accounting for 73 per cent of investment in the share market, while private individuals account for less than a quarter of investment in the share market in 2001. New Zealand is characterized as a developed country with higher shareholder litigation costs, weaker enforcement of law, and less minority shareholder protection compared with other OECD countries (Organisation for Economic Cooperation and Development).

[20] The association between FCF and ownership concentration has also been indirectly addressed by examining the effect of different forms of ownership structures on firm's dividend payout policy (Agrawal & Jayaraman, 1994; Eckbo & Verma, 1994; Short, Zhang, & Keasey, 2002). The theoretical underpinning for such an investigation is premised on the argument that dividend payout serves as a monitoring mechanism in reducing the agency costs of FCF (Jensen, 1986). Although these studies on ownership-dividend relationship have provided insight into managerial discretion on distributing FCF *ex post*, the effect of concentrated ownership structures on managerial decision on establishing FCF *ex ante* has not been directly investigated.

performance for firms with financial-institution-controlled and management-controlled ownership structures. Both these findings support the entrenchment rather than the efficiency hypothesis of concentrated ownership regime in New Zealand. This paper contributes to the existing literature on the association between governance mechanisms and accounting performance measures. Larcker, Richardson, and Tuna (2007) provide evidence that the standard governance variables have a very little explanatory power for financial reporting quality measures and organizational performance. This is explained by the fact that majority of the studies examine the association between governance variables and organizational performance measures without giving due consideration to the contexts in which these two interact. We show that the explanatory power of governance variable for future firm performance increases significantly with the incorporation of FCFAP. We also believe that these findings will help New Zealand governance regulators to assess the efficiency of concentrated ownership structure and consider any governance reform, if required. The paper proceeds as follows. The next section reviews the relevant literature and develops testable hypotheses. Section 3 describes research design issues and explains the sample selection procedure. Section 4 provides the test results and Section 5 concludes.

2. Literature Survey and development of testable hypotheses

A strand of capital structure literature has made considerable contribution to understanding the determinants of corporate cash holdings. Three theoretical perspectives have been advanced for understanding firms' cash holding behaviours. The transaction costs theory assumes that firms with a high marginal cost of cash shortfalls are expected to hold more cash (Meltzer, 1993; Miller & Orr, 1966; Mulligan, 1997); the trade-off theory claims that firms' optimal cash holding decision is a trade-off between benefits and costs (Opler, Pinkowiytz, Stulz, & Williamson, 1999); the financing hierarchy theory suggests that firms hold cash because internally generated cash is less expensive compared to external financing (Opler et al., 1999; Shyam-Sunder & Myers, 1999). Based on these theories, a number of studies have investigated the determinants of cross-sectional difference in the level of firms' cash holdings, and have reported that firms with stronger growth opportunities, asymmetric information, volatile cash flows, more limited access to capital markets, and high profitability are likely to hold higher cash reserves (Dittmar, Mahrt-Smith, & Servaes, 2003; Kim, Mauer, & Sherman, 1998; Mikkelson & Partch, 2003; Opler et al., 1999).

Jensen (1986) provides an alternative explanation for firms' cash holdings based on the assumption of managerial self-interests. It posits that conflicts of interest between shareholders and managers over cash payouts are more severe in the presence of excessive FCF. Opportunistic managers could use such surplus cash to finance negative net present value (NPV) projects which benefits them at the cost of outside stakeholders.[21] Empirical evidence on Jensen's FCF hypothesis, however, remains inconclusive. Opler et al.(1999) report that both transaction and asymmetrical information costs are important factors in explaining firms' cash holdings, but not the agency costs of holding cash. Mikkelson & Partch (2003) argue that firms with persistent cash holdings anticipate large investment requirements and high cash reserves support such investments. They find that such cash reserves are followed by greater investment, especially R&D expenditures, and by greater growth in assets.

On the other hand, Blanchard et al. (1994) document an excessive investment and acquisition activity for eleven firms that have experienced a large cash windfall due to a legal settlement. Harford (1999) finds that cash-rich firms are more likely to attempt acquisitions, pay higher acquisition premium and perform worse than other firms with normal cash flows. Richardson (2006) reports that over-investment is concentrated in firms having large amount of FCF, which is consistent with Jensen's (1986) FCF hypothesis argument. Chung, Firth and Kim (2005) show that managers of high FCF-low-growth firms tend to use income-increasing discretionary accruals to mask such value-destroying managerial activities. Gul (2001) argues that although last-in-first-out inventory methods results in maximization of tax benefits in period of rising prices and hence preferred by the shareholders, managers with FCF and low growth opportunities are more likely to choose first-in-first-out, an income increasing inventory method, in order to receive higher compensation. Empirical studies on the market valuation of cash holdings find that market value of an additional dollar in cash holding is less than one dollar (Dittmar & Mahrt-Smith, 2007; Faulkender & Wang, 2005), suggesting investors discount the firms having large cash reserve, which is consistent with Jensen's (1986) FCF hypothesis.

Theoretically, good corporate governance is expected to constrain managerial inefficient utilisation of corporate resources including FCF (Richardson, 2006; Dittmar & Mahrt-Smith, 2007). Gul and Tsui (1998, 2001), for example, identify audit quality and managerial equity ownership as effective governance mechanisms in constraining

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[21] For example, managers could increase the size of their organization by acquiring companies which do not add value to shareholders but increases managerial remuneration.

FCFAP. Chen, Chen, & Wei (2010) find that stronger shareholder rights are associated with lower cost of equity capital particularly for firms plagued with higher FCFAP. Dittmar, Mahrt-Smith, & Servaes (2003), in a cross-country study, find that firms in countries with poor shareholder protection hold twice as much cash as firms in countries with good shareholder protection which prevents managers from the opportunistic cash usage for their personal benefits.

One of the most fundamental governance mechanisms is the ownership structures which have been found to impact managerial power, shareholders' monitoring, and firms' financing and investment decisions (Shleifer and Vishny, 1997). With reference to the effect of large shareholdings on organizational outcomes, two competing arguments exist. On the one hand, *efficient-monitoring hypothesis* claims that large shareholders have greater expertise and can monitor management at lower cost than individual shareholders. So, ownership concentration can prevent managers from expropriating company resources for their personal benefit (Berle and Means, 1932; Huddart, 1993; Maug, 1998; Shleifer and Vishny, 1986). On the other hand, *conflict-of-interest and strategic-alignment hypotheses* contend that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders if the former group finds it advantageous to work for management instead of monitoring them (Faccio, Lang, & Young, 2001; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Shleifer & Vishny, 1997). This "cooperation" could potentially cripple the large shareholders in effectively monitoring management, and result in the expropriation of minority shareholders (Pound, 1988). For instance, Shleifer and Vishny (1997) assert that insiders can expropriate corporate wealth through setting unfair terms for intra-group sales of goods and services and transferring of assets and control shares.

FCFAP are likely to have negative consequences on firm performance. For example, managerial use of excess cash to finance negative NPV projects will result in increased remuneration expenses on financial statements without a concomitant increase in revenues. Extant research, however, is mixed. Opler et al. (1999) and Harford (1999) suggest a negative impact of large cash flows on operating performance but Mikkelson and Partch (2003) reveal that firms' high cash holdings are accompanied by greater investment, and growth in assets. The studies mentioned above, however, do not directly address the agency costs associated with FCF since these studies use cash and cash equivalents rather than the FCF. The later is a better proxy to measure agency costs because the calculation of FCF controls for cash investments and surrogates managerial discretion over the use of

such cash flows. Because agency costs associated with FCF is most acute for firms with positive FCF but low growth opportunities, it is interesting to examine the effect of such FCFs on future firm performance.

Due to the conflicting evidence provided by extant empirical research on the effect of ownership concentration on FCFAP and the absence of relevant research on the determinants of cash flow in New Zealand, we have developed the first hypothesis in null form.

H_1: There is no association between the level of overall ownership concentration and FCFAP.

An important consideration in analyzing the impact of large shareholders on reporting outcomes is their mixed composition as there are likely to be disparities in the motivations and constrains of information sharing by different large shareholders (Badrinath et al., 1989; Del Guercio, 1996; Falkenstein, 1996). Previous studies employed institutional ownership, insider ownership and block ownership to represent mixed composition of large shareholdings. However, those groups of shareholders overlap, as institutional shareholders can be both insiders and block holders. Without effective separation of those groups of shareholders, it is difficult to determine which group of large shareholders drives the observed relations (Rubin, 2007). Our paper overcomes such problems by categorizing ownership concentration in New Zealand into three mutually exclusive groups, namely: (i) financial institution-controlled; (ii) management-controlled; and (iii) other group that combines government and other company-controlled observations, and examines the impact of ownership concentration under each type of controlling ownership structure on the *FCFAP* and future operating performance.

Prior research on the monitoring effectiveness of financial institutions in New Zealand provides a rather pessimistic picture. Financial institutional shareholding (i) has been found to be passive in monitoring management (Bhabra, 2007); (ii) hinders firms' voluntary disclosure at high ownership concentration level (Jiang and Habib, 2009); and (iii) is related to high information asymmetry and severe investors adverse selection problem (Jiang, Habib and Hu, 2010). With respect to financial institutions' investment in the New Zealand equity market, foreign financial institutions and corporations account for the majority of investments which leads Bhabra (2007) to conclude that geographical separation of foreign institutional investors from their invested companies is partially responsible for the ineffective institutional monitoring observed in New Zealand. These arguments could provide a strong ground to hypothesize that financial-institution-based ownership concentration may not be a suitable

governance mechanism in monitoring value-destroying investment activities. We therefore develop the following hypothesis (in alternative form):

H_{1a}: There is a positive association between financial institutions-controlled ownership structure and FCFAP.

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 DIVID_{i,t} + \gamma_4 PROFIT_{i,t} + \gamma_5 LEVERAGE_{i,t} + \gamma_6 CVCF_{i,t} + \varepsilon_{it} \quad ......(1)$$

$$i = 1,2,...,86$$

$$t = 1,2,...,10$$

The other group of shareholding structure that is likely to exert significant influence on FCFAP is the management group. In the presence of information asymmetries between corporate managers and outside minority shareholders, the former group has the incentive and opportunities to take actions that benefit them at the cost of outside shareholders. FCFAP is one such case. As has been argued before, managers may squander FCF in the absence of effective governance mechanisms leading to the following testable hypothesis (in alternative form):

H_{1b}: There is a positive association between management-controlled ownership structure and FCFAP.

In the presence of FCFAP, managers conduct investment, and other cash-related business activities in a way harmful to shareholders wealth (Jensen, 1986). Firm value may potentially deteriorate. If large shareholdings do affect firms' FCF agency problem, and there is a detrimental effect of FCFAP on firm value, we expect that this relationship between FCFAP and future firm performance will be modified by ownership structures in a systematic way. Consistent with H_{1a} and H_{1b}, we expect FCFAP in firms with financial institutions and management-controlled ownership structure is likely to have an adverse impact on future firm performance as hypothesized below:

H_{2a}: FCFAP in firms with financial institutions-controlled ownership structure will be negatively associated with future firm performance.

H_{2b}: FCFAP in firms with management-controlled ownership structure will be negatively associated with future firm performance.

3. Research Methodology

3.1 Research design

We employ Tobit regression model to examine the relationship between ownership concentration and FCFAP (see, e.g., Tobin, 1958; Amemiya, 1973). The rationale for choosing Tobit over ordinary least square (OLS) regression method is motivated because our dependent variable FCFAP, by

construction, contain zero values for a non-trivial fraction of sample observations, and being roughly continuously distributed over positive value. Tobit model is more appropriate in providing unbiased estimates as opposed to the OLS method in this setting (Wooldridge, 2006).[22] To test H_1, regression (1) is estimated on pooled data using firm-year observations from 2000-2009.[23]

Where, *FCFAP* is defined as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise.[24] *OC* represents ownership concentration, proxied by the percentage shareholdings of the top-five largest shareholders and is the variable of primary interest. Regression (1) also controls for other determinants of firms' cash holding policies suggested in extant literature. *SIZE* is the natural logarithm of market capitalization. *DIVID* is cash dividend payout. *LEVERAGE* is measured as debt to assets ratio. *DIVID*, *SIZE*, and *LEVERAGE* are expected to be negatively related to firm *FCFAP* because prior studies report that cash holdings decrease significantly with size, leverage and whether a firm pays cash dividends (Opler et al., 1999). *PROFIT* is proxied by Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets at the end of the year and is expected to have a positive effect on cash holding, because firms doing well are more likely to accumulate more cash than predicted (Opler et al., 1999). Cash flow volatility, *CVCF*, is the coefficient of variation of cash flow, calculated as firm-specific standard deviation of OCF during the sample years divided by the mean of OCF over the same time period. *CVCF* is expected to be positive since firms with volatile cash flows tend to hold more cash (Opler et al., 1999).

To investigate the impact of different classes of ownership structures on FCFAP (H_{1a} and H_{1b}), the following regression equation is estimated using the Tobit model:

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[22] A recent example of the application of Tobit model in accounting is Lanis and Richardson (2012).

[23] We manually collected data on ownership concentration and used year 2000 as the starting point to keep data collection manageable.

[24] Firms with negative FCF can only squander cash if they are able to raise 'cheap' capital. This is less likely to occur because these firms need to be able to raise financing and thereby place themselves under the scrutiny of external markets (DeAngelo, DeAngelo, & Skinner, 2004; Jensen, 1986).

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 FDUM_{i,t} + \gamma_3 MDUM_{i,t} + \gamma_4 OC_{i,t} * FDUM_{i,t} + \gamma_5 OC_{i,t} * MDUM_{i,t} + \gamma_6 SIZE_{i,t}$$

$$+\gamma_7 DIVID_{i,t} + \gamma_8 PROFIT_{i,t} + \gamma_9 LEVERAGE_{i,t} + \gamma_{10} CVCF_{i,t} + \varepsilon_{i,t} .... 1(a)$$

$$i = 1,2,...,86$$

$$t = 1,2,...,10$$

FDUM is coded one when a company has financial institutions-controlled ownership structures, and zero otherwise; *MDUM* is coded one when ownership concentration is management-controlled (directors, executives and/or companies' family founders), and zero otherwise. The default group is firm-year observations pertaining to government and other companies-controlled ownership structure. We expect the coefficients on γ_4 and γ_5 to be positive and significant.

Equation (2) will investigate the effect of FCFAP on future firm performance moderated by different classes of ownership categories (H_{2a} and H_{2b}). Since equation 1(a) strongly establishes that categories of ownership concentration matters, we use the following estimation to capture that notion in testing for the effect of FCFAP on future firm performance. Regression (2) is estimated on an un-balanced panel data using firm-year observations from 2000-2009.

Because accruals reverse over time, use of accounting discretion in the past might be correlated with the use of accounting discretion in the future, and hence with future *ROA*.

Finally, using stock returns as a measure of future performance may result in lower power in discriminating between efficient contracting and managerial opportunism because of the joint test nature. For example, even if opportunism were the true state of the world, on average, investors in an efficient stock market might anticipate such opportunism and factor it into the existing stock price. As a result, future stock returns could be unrelated to accounting discretion even in the presence of managerial opportunism. Thus, an examination of future stock returns, in isolation, cannot rule out managerial opportunism. This study uses *ROA* as the primary performance measure from an accounting perspective and Tobin's Q from a market perspective.

$$FUTPER_{i,t3} = \delta_0 + \delta_1 OC_{i,t} + \delta_2 OC_{i,t} * FDUM_{i,t} + \delta_3 OC_{i,t} * MDUM_{i,t} + \delta_4 FCFAP_{i,t} + \delta_5 FCFAP_{i,t} * OC_{i,t} * FDUM_{i,t} +$$

$$\delta_6 FCFAP_{i,t} * OC_{i,t} * MDUM_{i,t} + \delta_7 SIZE_{i,t} + \delta_8 DIVID_{i,t} + \delta_9 PROFIT_{i,t} + \delta_{10} LEVERAGE_{i,t} + e_{i,t} ....(2)$$

$$i = 1,2,...,77$$

$$t = 1,2,...,7$$

Where, *FUTPER* is firm's future performance measured as the sum of t+1 to t+3 return-on-assets (*ROA3*), and the sum of t+1 to t+3 Tobin's Q (*TQ3*). The rationale behind using a long-run profitability is premised on the ground that the effect of long term investment takes time to be incorporated into profitability. Thus, each sample firm losses three observations. So, the sample size reduces to 333 firm-year observations from 2000-2006. We acknowledge that there are a number of performance measures including *ROA*, operating cash flows (*OCF*), stock returns, return-on-equity (*ROE*), earnings per share (*EPS*), and Tobin's Q. All these measures have their merits and demerits. For example, *OCF* does not suffer from any mechanical relation between current accruals and future earnings due to accrual reversals. However, *OCF* lacks timeliness as a performance metric (Dechow, 1994). In particular, negative cash flows could be the result of investments in positive NPV projects and not the result of poor operating performance. Earnings-based performance metrics such as *ROA* (measured as income before extraordinary items scaled by lagged total assets) suffer less from the timeliness problems but more from accrual reversal problem.

We chose to use *ROA3* and *TQ3* because these performance measures have been extensively used and offer a comparison or contrast of accounting versus market measures.

The coefficients of interest in equation (2) are δ_5 and δ_6. If financial institutions- and management-controlled ownership concentration adversely impacts the FCFAP, then these two coefficients are likely to be negatively related to future firm performance consistent with the entrenchment hypothesis of FCFAP. Control variable, *PROFIT* is used to predict future performance (e.g., Nissim & Penman, 2001), so a positive association between these two variables is expected. We include *SIZE*, *DIVID*, and *LEVERAGE* as other potential determinants of firm's future operating performance. In unbalanced panel data setting, we conduct regression analysis employing the variants of the Panel Corrected Standard Error (PCSE) methodology to estimate efficient estimators robust to potential heteroskedasticity and autocorrelation in the disturbances (Beck & Katz, 1995). Industry dummy variables are used to control for industry effect because firms in industries with more dependence on external finance tend to retain more cash (Dittmar et al., 2003).

3.2 Measurement of variables

3.2.1 Measurement of FCFAP

FCFAP is measured as the interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if Tobin Q is less than the sample median and zero otherwise. Tobin's Q is proxied by market-to-book ratio (market value of equity/book value of equity). Market value of equity is defined as the product of shares outstanding and the closing stock price. Book value of equity excludes negative equities because negative market-to-book ratio is difficult to interpret. The notion of this measure of *FCFAP* is that the mangers of a firm with a 'low' Q are more likely to overinvest or waste their excessive cash resources. Lang & Litzenberger (1989) show theoretically that overinvestment firms will have a Q less than one. We employ the following FCF definition as our primary dependent variable:

FCF= Net cash provided by operating activities (OCF) – Capital expenditures (CAPEX)

3.2.2 Measurement of ownership concentration

Ownership concentration is measured as the sum of percentage shareholdings of the top five shareholders and is retrieved from the "Substantial Security Holders" section of the annual reports. Dummy variables are used to identify three different types of ownership structures. A company is categorized as having one of three mutually exclusive shareholding structures when that particular type of shareholding holds the largest proportion of the top-five shareholdings. For example, consider Telecom Corporation of New Zealand Limited. In 2009 its top-five shareholders comprised of all financial institutions accounting for 56.64% of the total outstanding shares. In this case, *FDUM* is coded 1, while *MDUM* and *OTHDUM* (government- and other companies-controlled groups) are coded zero. For a different example consider Smiths City Group Limited. The company's top-five shareholders held 38.25% of the outstanding shares in 2009 financial year with financial institutions, management and other company holding 12.31%, 14.6% and 11.34% respectively. Therefore, in the 2009 financial year, Smiths City Group Limited was categorized as having a management-controlled ownership structure, because managerial shareholding had the largest proportion among the top-five shareholdings. The same procedure is repeated for each firm-year observation to categorize its ownership structure.

3.3 Sample Selection

The sample for this study is selected from companies listed on the New Zealand Stock Exchange (NZX) and New Zealand Alternative Markets (NZAX) from 2000 to 2009. NZSX is the Main Board of NZX and its premier equity market, while NZAX is specifically created for fast-growing, small to medium sized and non-standard companies to facilitate effective capital financing. This paper includes NZAX listed companies to enlarge sample size and provide more cross-sectional variation in the data.[25] Initially, financial information of 867 firm-year observations for 107 listed companies is retrieved from NZX Deep Archive. Financial companies, overseas companies and delisted companies are excluded from the sample because of their unique regulatory characteristics that make findings generalisable across these groups. Table 1 shows the sample selection procedures and industry classification.

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[25] Because data comes from two different markets, we have incorporated a dummy variable for companies listed on NZAX market to control for any possible cross-market differences.

Table 1. Sample selection and industry composition

Panel A: Sample selection and elimination procedure	
	No. of observations
Base Sample (NZX Deep Archive, Fiscal years 2000-2009)	867 (107 firms)
Elimination:	
• Missing ownership structure information	(46)
• Missing market value of equity information	(26)
• Missing dividend information	(20)
• Negative FCF observations	(262)
• Negative BE observations	(2)
Final sample	511 (86 firms)

Panel B: Industry composition			
Industrials group	No. of firms	No. of obs.	Percentage
Healthcare	4	39	5.03%
Agriculture and Fishing	7	51	6.58%
Ports	5	50	6.45%
Transport	3	26	3.35%
Property	9	80	10.32%
NZAX	24	116	15.23%
Consumer	14	113	14.58%
Textiles and Apparel	1	7	0.90%
Energy Processing	7	58	7.48%
Food and Beverages	3	11	1.42%
Intermediate & Durables	12	93	12.00%
Building Materials and Construction	3	29	3.74%
Leisure & Tourism	4	40	5.16%
Service	1	10	1.29%
Media and Telecommunications	1	10	1.29%
Forestry & Forest Products	1	9	1.16%
Mining	4	31	4.00%
Total	86	511	100.00%

The sample size reduces to 605 firm-year observations after excluding negative FCF observations (n=262). As explained before firms with positive FCF are more vulnerable to managerial opportunism as opposed to their negative FCF counterpart. Missing ownership, market value of equity, and dividend data reduces the sample further. A final usable sample of 511 firm-year observations is used for empirical analysis. To control for industry- and equity market-specific effect, we have identified and controlled 16 industrials groups and the firms listed on NZAX using dummies. Industry classification is based on NZX industry classification provided by NZX Deep Archive. Consumer goods industry represents the largest industry group, accounting for 14.58% of sample, and NZAX also contributes large sample observations with 116 firm-year observations accounting for 15.23% of sample observations.

4. Empirical Results

4.1 Descriptive analysis

In Table 2, panels A and B present the descriptive statistics and correlation matrix respectively for the dependent and independent variables. The mean and median un-deflated FCF (OCF-CAPEX) is $45,670,000 and $12,023,000 respectively with a large standard deviation. Total Assets-deflated FCF shows that FCF constitutes about 8.7% of total assets. The mean of ownership concentration measured by the total percentage of shareholdings of top five largest shareholders is 53.8%, suggesting a substantially concentrated ownership structures in New Zealand listed companies during this ten-year period. Firm growth opportunities proxied by Tobin's Q have a mean (median) of 2.24 and 1.29 respectively. Profitability proxied by *ROA* is 6.6%. Cash dividend paid on average is only 5.2% of total assets. There is some evidence of gradual decline in firms' propensities to pay out dividends. For example, the mean dividend of 6.27% in 2005 declined to 3.78% by the end of 2009. Whether this disappearing dividend (Fama and French, 2001) is a manifestation of increasing agency problem is an interesting research question. Sample firms are moderately leveraged with a mean (median) of 0.42 (0.39) respectively. Finally sample observations demonstrate large cash flow volatility (*CVCF*) with a mean of 0.80.

Table 2. Descriptive statistics

Panel A: Descriptive Statistics

	Mean	Median	S.D	25%	75%
FCF	0.087	0.061	0.093	0.033	0.116
TOBIN'S Q	2.241	1.290	3.289	0.843	2.389
OC (in %)	0.538	0.563	0.234	0.343	0.732
SIZE	11.97	11.92	1.697	10.65	13.07
DIVID	0.052	0.039	0.053	0.022	0.066
PROFIT	0.065	0.060	0.084	0.032	0.096
LEVERAGE	0.416	0.389	0.200	0.274	0.562
CVCF	0.797	0.511	0.916	0.302	0.901

Panel B: Correlation Matrix

	FCF	Tobin's Q	FCFAP	OC	SIZE	DIVID	PROFIT	LEVERAGE	CVCF
FCF	1								
TOBIN'S Q	0.19*	1							
FCFAP	0.19*	-0.28*	1						
OC	0.08***	-0.03	0.08***	1					
SIZE	-0.07***	0.17*	-0.26*	0.06	1				
DIVID	0.32*	0.17*	-0.11**	0.11**	0.15*	1			
PROFIT	0.39*	0.09*	-0.02	0.12*	0.15*	0.60*	1		
LEVERAGE	-0.18*	0.03	-0.25*	-0.25*	0.004	-0.19*	-0.17*	1	
CVCF	0.11**	0.26*	0.02	-0.13*	-0.32*	-0.28*	-0.27*	0.007	1

Panel C: Comparison of mean FCF and FCFAP for high and low ownership concentration observations

Variables	Categories	Mean deflated FCF	FCFAP
OC	High	0.0942	0.0395
	Low	0.0806	0.0271
	t-test for difference in mean (H-L)	1.66*	2.71***
	p-value	0.09	0.01

Notes:

*, **, and *** denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

Sample consists of 511 firm-year observations with positive FCF and non negative market-to-book equity ration from 2000-2009 sample period.

FCF= Difference between OCF and CAPEX deflated by lagged total assets;

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.

Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);

OC = ownership concentration, measured as the total percentage of top five largest shareholding;

SIZE= natural log of market capitalization;

DIVID = dividend paid divided by total assets;

PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;

LEVERAGE = total liability divided by total asset;

CVCF = the coefficient of variation of cash flow, calculated as firm-specific standard deviation of OCF during the sample years divided by the mean of OCF over the same time period.

Panel B of Table 2 reports correlation analysis. The pair-wise correlation between profitability and dividend is 0.60 but all other correlation coefficients are within an acceptable range and therefore rules out the possibility of multicollinearity. Our focus is on FCFAP which is positively associated with ownership concentration implying the ownership concentration accentuates FCFAP. However, FCFAP is less of a concern for larger firms (correlation coefficient of -0.26) and firms paying cash dividend (correlation coefficient -0.11). Panel C provides the results of univariate analyses. We first compare whether there is a difference in cash holding between firms with high versus low level of ownership concentration. The results show that the average asset deflated FCF is 0.094 (0.08) for firms with high (low) ownership concentration group respectively. The difference in

mean is statistically significant at 10% level (two-tailed test). This *FCF* in itself, however, does not provide any evidence on differences in FCFAP between high versus low ownership concentration group. The next column provides this evidence. For firm-year observations with a high (low) ownership concentration level, the mean FCFAP is 0.0395 (0.0271) respectively. The difference in mean in FCFAP between high and low ownership group is statistically significant at better than the 1% level (t-statistics, 2.71) providing univariate evidence that high ownership concentration may actually exacerbate the FCFAP. Since univariate result does not control for some other determinants of the FCFAP, the result can't be considered as conclusive. We, therefore, conduct multivariate regression analysis to examine the effect of ownership concentration on FCFAP.

4.2 Regression analysis

4.2.1 Ownership concentration and FCFAP

The results of the Tobit model analysis for equation (1) and 1(a) are provided in Table 3. For equation 1 analysis, the primary independent variable of interest is ownership concentration which measures ownership concentration using the sum of five largest shareholdings as the proxy. The result shows that overall measure of ownership concentration does not have significant effect on the FCFAP (coefficient estimate 0.0001, t-statistics 0.19). The first hypothesis developed in null form is supported. However, this finding on the association between ownership concentration and FCFAP is less suggestive and it does not shed light on the impact of different categories of ownership concentration because there are likely to be disparities in the motivations and constrains of managerial monitoring under different types of ownership concentration. We therefore focus on the variables

in Equation 1(a). The constant is 0.36 and statistically highly significant suggesting that firm-year observations with government and other company-controlled ownership structure exacerbate FCFAP (this group is used as our default benchmark group). The coefficients for *FDUM* (–0.06) and *MDUM* (–0.04) need to be adjusted against this intercept to infer the average FCFAP for these two ownership groups. The resulting coefficient values of 0.30 (0.36-0.06) and 0.32 (0.36-0.04) for financial institutions and management-controlled ownership structures respectively indicate that all three groups suffer from FCFAP. The coefficients on *OC*FDUM* is 0.001 (z-statistics 2.10) is statistically significant at better than the 1% level suggesting that FCFAP increases with an increase in the ownership concentration for financial institution-controlled ownership structures, which provides support to our hypothesis H_{1a}. However, the coefficient on *OC*MDUM* is 0.0050 (z-statistics -0.08) is not statistically significant as we expected, resulting in a conclusion that management-controlled ownership structure is not positively associated with *FCFAP* using our sample observations. So, the result does not support H_{1b}. One plausible explanation for this insignificance is that management-controlled ownership structure may have a non-linear effect on firm corporate governance issues at various ownership concentration levels. For example, Bhabra (2007) reports a non-linear relationship between management-controlled ownership structure and firm value in New Zealand. That is, insider ownership and firm value are positively correlated at ownership level below 14 per cent, and above 40 per cent: and inversely correlated at intermediate level. Therefore, we could not identify a linear effect of management-controlled ownership structure on FCFAP.

Table 3. Tobit regression of *fcfap* on different categories of ownership concentration and other control variables

$$FCFAP_{it} = \gamma_0 + \gamma_1 OC_{it} + \gamma_2 SIZE_{it} + \gamma_3 DIVID_{it} + \gamma_4 PROFIT_{it} + \gamma_5 LEVERAGE + \gamma_6 CVCF + \varepsilon_{it}........(1)$$

$$FCFAP_{i,t} = \gamma_0 + \gamma_1 OC_{i,t} + \gamma_2 FDUM_{i,t} + \gamma_3 MDUM_{i,t} + \gamma_4 OC_{i,t} * FDUM_{i,t} + \gamma_5 OC_{i,t} * MDUM_{i,t} + \gamma_6 SIZE_{i,t}$$
$$+ \gamma_7 DIVID_{i,t} + \gamma_8 PROFIT_{i,t} + \gamma_9 LEVERAGE_{i,t} + \gamma_{10} CVCF_{i,t} + \varepsilon_{i,t}...................1(a)$$

Variables	Equation (1)	Equation (1a)
	Coefficient (z-statistics)	Coefficient (z-statistics)
Constant	0.29*** (5.17)	0.36*** (5.70)
OC	0.0001 (0.19)	-0.0005(-1.47)
FDUM	-	-0.06** (-2.20)
MDUM	-	-0.04 (-1.08)
*OC*FDUM*	-	0.001*** (2.10)
*OC*MDUM*	-	0.0050 (0.08)
SIZE	-0.02*** (-6.13)	-0.02*** (-6.56)
DIVID	-0.35*** (-3.01)	-0.31*** (-2.66)
PROFIT	0.03(0.48)	0.02 (0.31)
LEVERAGE	-0.13*** (-5.40)	-0.12*** (-4.63)
CVCF	0.004 (1.00)	0.005 (1.21)
Industry dummies	Included	Included
Adjusted R^2	0.19	0.19
Log Likelihood	170.99	174.77
Observations	511	511

Note:
*, **, and *** denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.
Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);
OC = ownership concentration, measured as the total percentage of top five largest shareholding;
FDUM= 1when company has financial institutions-controlled ownership structures, and zero otherwise;
MDUM = 1 when ownership concentration is management controlled (directors, executives and/or   companies' family founders), and zero otherwise.
SIZE= natural log of market capitalization;
DIVID = dividend paid divided by total assets;
PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;
LEVERAGE = total liability divided by total asset;
CVCF = the coefficient of variation of cash flow calculated as firm-specific standard deviation of *OCF* during the sample years divided by the mean of *OCF* over the same time period.

The control variables report coefficients consistent with cash holdings literature. The coefficient on *SIZE* is negative and statistically significant at better than the 1% level suggesting that FCFAP is less of a concern for larger firms probably because larger firms can afford to maintain a costly governance structure to monitor managerial use of FCF. The coefficient on *LEVERAGE*, too, is negative and statistically significant at better than the 1% level in both models which supports the hypothesis that lenders monitor managerial opportunistic use of FCF. The coefficient on *DIVIDEND* is also negative confirming that firms paying more dividends suffer less from FCFAP. The findings on the effect of dividend and leverage are consistent with FCF hypothesis contending that dividend and debt serve as monitoring mechanisms because they reduce firms' cash holdings and force firms to resort to external finance and subject to market scrutiny (Jensen, 1986). The coefficient on *PROFIT* is theorized to be positive and significant because

higher profitability provides larger cash pool to play with. However, this coefficient using our sample does not provide support to this argument. Adjusted R²s are moderate and F-statistics are all significant at better than 1 per cent significant level. Therefore the general fitness of the models is satisfactory.

4.2.2. Ownership concentration, FCFAP, and future firm performance

If managers are opportunistic in their use of FCF, then future firm performance is likely to be impaired. Prior research provides evidence of managerial opportunism with respect to the use of FCF but does not provide any direct evidence whether such opportunistic behavior impacts firm performance. For example, Chung, Firth and Kim (2005) show that managers of high FCF-low-growth firms tend to use income-increasing discretionary accruals to mask such value-destroying managerial activities. Because of accrual

reversal property, this short-term income increasing action will be reversed in the future period leading to lower operating performance. Chung et al. (2005), however, did not empirically test this conjecture. We tackle this future performance issue not from earnings management perspective but rather from a governance perspective. Therefore, our primary goal is to document how ownership concentration modifies the association between FCFAP and future firm performance.

Our primary measure of future firm performance is three-years-ahead *ROA* defined as the sum of ROA_{t+1} to ROA_{t+3}. The argument for using three rather than one-year-ahead income relates to the time required for value-destroying investment to adversely impact future firm performance. Our sample size reduces to 333 firm-year observations because of this leading three-year performance requirement.

Table 4. The effect of *fcfap* on future firm performance moderated by different categories of ownership concentration

$$FUTPER_{i,t3} = \delta_0 + \delta_1 OC_{i,t} + \delta_2 OC_{i,t}*FDUM_{i,t} + \delta_3 OC_{i,t}*MDUM_{i,t} + \delta_4 FCFAP_{i,t} + \delta_5 FCFAP_{i,t}*OC_{i,t}*FDUM_{i,t} +$$

$$\delta_6 FCFAP_{i,t}*OC_{i,t}*MDUM_{i,t} + \delta_7 SIZE_{i,t} + \delta_8 DIVID_{i,t} + \delta_9 PROFIT_{i,t} + \delta_{10}LEVERAGE_{i,t} + e_{i,t}........(2)$$

Variables	FUTPER (ROA_{t3})		FUTPER (TQ_{t3})	
	Coefficient	t-statistics	Coefficient	t-statistics
Constant	0.29***	2.89	-6.48***	-5.13
OC	-0.0001	-0.68	0.01***	2.70
*OC*FDUM*	0.0002***	2.72	0.01***	6.37
*OC*MDUM*	-0.0011***	-3.65	0.04***	4.16
FCFAP	-0.40***	-5.10	-3.88**	-2.19
*FCFAP*OC*FDUM*	-0.0027***	-2.56	-0.26***	-4.50
*FCFAP*OC*MDUM*	-0.05***	-2.48	-0.88***	-5.27
SIZE	-0.014***	-3.45	0.67***	8.14
DIVID	1.14***	8.83	23.58***	10.65
PROFIT	0.55***	5.41	1.05*	1.87
LEVERAGE	-0.09***	-6.21	1.99***	7.96
Industry dummies	Included		Included	
Adjusted R^2	0.86		0.92	
F-statistics	80.32***		151.92***	
Observations	333		333	

Note:
***, ** and * denote statistical significance at 10, 5 and 1 per cent level respectively (two-tailed-test).

FUTPER: Proxied by *ROAt+3* measured as the sum of ROA from t+1 to t+3;

FCFAP = The interaction between positive FCF and Tobin's Q with the latter taking the value of 1 if the Tobin Q is less than the sample median and zero otherwise.
Tobin's Q = Market-to-book ratio (market value of equity divided by book value of equity);
TQt+3= future firm performance measured as the sum of TQ from t+1 to t+3;
OC = ownership concentration, measured as the total percentage of top five largest shareholding;
FDUM= 1when company has financial institutions-controlled ownership structures, and zero otherwise;
MDUM = 1 when ownership concentration is management controlled (directors, executives and/or companies' family founders), and zero otherwise.
SIZE= natural log of market capitalization;
DIVID = dividend paid divided by total assets;
PROFIT = Return on assets (*ROA*) defined as net income before extraordinary items divided by total assets;
LEVERAGE = total liability divided by total asset.

Table 4 reports the results of regression equation (2). The coefficients of primary interest in Table 4 are the three-way interaction terms *FCFAP*OC*FDUM* and *FCFAP*OC*MDUM*. We focus on these interaction terms because our goal is to detect the impact of *FCFAP* on future firm performance conditional on different categories of ownership concentration. We document that both these coefficients are negative and significant at better than the 1% level (coefficient estimate -0.0027, t-statistics -2.56 and coefficient estimate -0.05, t-statistics -2.48) in *ROA3* model. We use

TQ3 measured as the sum of TQ_{t+1} to TQ_{t+3} as a market measure of performance and find equally strong evidence of impaired future firm performance for firm's with financial and management-controlled ownership structures (coefficient values of -0.26 and -0.88 respectively, both are statistically significant at better than the 1% level). Also the coefficient on *FCFAP* is negative and statistically significant (coefficient value -3.88, t statistics -2.19). This finding seems to support the *conflict-of-interest* and *strategic-alignment hypotheses* associated with large

blockholders consistent with our hypotheses H_2 and H_{2a}. The independent variables in *ROA3* analysis explains about 86% of the variation in future firm performance. The corresponding figure is 92% for *TQ3* analysis.[26] With respect to the control variables, current profitability and dividend payout are significantly positively associated with future firm performance. The coefficients on firm size and leverage are sensitive to the firm performance measurements adopted.

5. Conclusion

This study examines the determinants and consequences of *FCFAP* in New Zealand listed companies. In a seminal contribution, Jensen (1986) argues that managers are inclined to squander *FCF* when their objectives differ from those of the dispersed shareholders. Whether firm-level ownership structure mitigates or exacerbates this *FCFAP* is a question of significant importance. Firm-level ownership structure provides a fundamental explanation for governance issues, including managerial power, shareholders' monitoring, firms' financing and investment decisions. We document that although overall ownership concentration is not associated with FCFAP, categorized concentrated ownership, especially financial institutions-controlled ownership structure accentuates the FCFAP. This finding seems to support the *conflict-of-interest* and *strategic-alignment hypotheses* associated with financial institutions' monitoring competence. We then investigate whether these specific FCFAP adversely affects future firm performance. We find that FCFAP impairs future firm performance for firms with both financial institution-controlled and management-controlled ownership structures. The findings of this paper are expected to benefit regulators in devising a stringent regulatory regime for vigilant monitoring of managerial abuse of FCF. Shareholders, too, could use this finding to differentiate companies with good versus bad use of FCF.

References

1. Agrawal, A., and Jayaraman, N. (1994), "The dividend policies of all-equity firms: A direct test of the free cash flow theory", *Managerial and Decision Economics,* Vol. 15 No. 2, pp. 139-148.
2. Amemiya, T., (1973). Regression analysis when the dependent variable is truncated normal. *Econometrica,*41, pp. 997–1016.
3. Badrinath, S. G., Gay, G. D., and Kale, J. R. (1989), "Patterns of institutional investment, prudence, and the managerial "safety-net" hypothesis", *The*

Journal of Risk and Insurance, Vol. 56 No. 4, pp. 605–629.
4. Bates, T. W (2005), "Asset sales, investment opportunities, and the use of proceeds", *Journal of Finance*, Vol. 60 No. 1, pp 105–135.
5. Beck, N., and Katz, J. N. (1995), "What to do (and not to do) with time-series-cross-section data in comparative politics" *American Political Science Review,* Vol. 89, pp. 634-647.
6. Berle, A. A., and Means, G. C. (1932), *The Modern Corporation and Private Property*, New York: MacMillan.
7. Bhabra, G.S. (2007), "Insider ownership and firm value in New Zealand", *Journal of Multinational Financial Management*, Vol. 17 No. 2, pp. 142-54.
8. Blanchard, O. J., Lopez-de-Silanes, F., and Shleifer, A. (1994), "What do firms do with cash windfalls?", *Journal of Financial Economics,* Vol. 36 No. 3, pp. 337-360.
9. Chen, K.C.W., Chen, Z., and Wei, J. (2010), "Agency costs of free cash flow and the effect of shareholder rights on the implied cost of equity capital" *Journal of Financial and Quantitative Analysis,* Vol. 46, pp. 171-207.
10. Chung, R., Firth, M. and Kim, Jeong-Bon. (2005), "Earnings management, surplus free cash flow, and external monitoring", *Journal of Business Research*, Vol. 58, pp. 766–776.
11. DeAngelo, H., L. DeAngelo, and D. J. Skinner (2004), "Are dividends disappearing? Dividend concentration and the consolidation of earnings" *Journal of Financial Economics*, Vol. 72, pp. 425–456.
12. Del Guercio, D. (1996), "The distorting effects of the prudent-man laws on institutional equity investments" *Journal of Financial Economics*, Vol. 40, pp. 31–62.
13. Dechow, P. (1994), "Accounting earnings and cash flows as measures of firm performance. the role of accounting accruals", *Journal of Accounting and Economics,* Vol. 18,pp. 3-42.
14. Demsetz, H., and Lehn, K. (1985), "The structure of ownership and the theory of the firm", *Journal of Political Economy,* Vol. 93, pp. 1155-1177.
15. Dittmar, A., and Mahrt-Smith, J. (2007), "Corporate governance and the value of cash holdings", *Journal of Financial Economics,* Vol. 83, pp. 599-634.
16. Dittmar, A., Mahrt-Smith, J., and Servaes, H. (2003)," International corporate governance and corporate cash holdings", *Journal of Financial and Quantitative Analysis,* Vol. 38, pp. 111–133.
17. Easterbrook, F. H. (1984), "Two agency-cost explanations of dividends", *American Economic Review,* Vol. 74 No. 4, pp. 650-659.
18. Eckbo, B. E., & Verma, S. (1994), "Managerial share ownership, voting power, and cash dividend policy", *Journal of Corporate Finance,* Vol. 1, pp. 33-62.
19. Faccio, M., Lang, L., and Young, L. (2001), "Dividends and expropriation", *American Economic Review,* Vol. 91 No. 1, pp. 54-78.
20. Falkenstein, E. (1996), "Preferences for stock characteristics as revealed by mutual fund holdings", *Journal of Finance*, Vol. 51, pp. 111–136.
21. Fama, E.G., and French, K.R. (2001), "Disappearing dividends: changing firm characteristics or lower

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[26] Further sensitivity tests are conducted using the alternative measures of FCF in the construction of FCFAP. Unreported result provides evidence similar to the results presented in the text.

propensity to pay", *Journal of Financial Economics*, Vol. 60, pp. 3-43.

22. Faulkender, M., and Wang, R. (2005), "Corporate financial policy and the value of cash", *The Journal of Finance,* Vol. 61 No. 4, pp. 1957-1990.

23. Garvey, G. (1992), "Do concentrated shareholdings mitigate the agency problem of "free cash flow"? some evidence", *International Review of Economics and Finance*, Vol. 1 No. 4, pp. 347-369.

24. Gul, F. A., and Tsui, S. L. (1998), "A test of the free cash flow and debt monitoring hypothesis: Evidence from audit pricing", *Journal of Accounting and Economics,* Vol. 24, pp. 219-237.

25. Gul, F. A., and Tsui, S. L. (2001), "Free cash flow, debt monitoring, and audit pricing: Further evidence on the role of director equity ownership", *Auditing: A Journal of Practice and Theory,* Vol. 20 No. 2, pp. 71-84.

26. Gul, F. A. (2001), "Free cash flow, debt-monitoring and managers' LIFO/FIFO policy choice", *Journal of Corporate Finance,* Vol. 7, pp. 475-492.

27. Harford, J. (1999), "Corporate cash reserves and acquisitions", *Journal of Finance,* Vol. 54 No. 6, pp. 1969–1997.

28. Hossain, M., Prevost, A.K. and Rao, R.P. (2001), "Corporate governance in New Zealand: The effect of the 1993 Companies Act on the relation between board composition and firm performance", *Pacific-Basin Finance Journal*, Vol. 9 No. 2, pp. 119-45.

29. Huddart, S. (1993), "The effect of a large shareholder on corporate value", *Management Science,* Vol. 39, pp. 1407-1421.

30. ICANZ. (2003). *Improving Corporate Reporting: A Shared Responsibility*. Wellington, New Zealand: Institute of Chartered Accountants of New Zealand.

31. Jensen, M. C. (1986), "Agency costs of free cash flow, corporate finance, and takeovers" *American Economic Review,* Vol. 76 No. 2, 323-329.

32. Jiang, H., Habib, A. and Hu, Baiding. (2010), "Ownership structure, voluntary disclosure and information asymmetry in New Zealand", *British Accounting Review*, Vol. 43 No. 1, pp. 39-53.

33. Jiang, H., and Habib, A. (2009), "The impact of different types of ownership concentration on annual report voluntary disclosures in New Zealand", *Accounting Research Journal*, Vol. 22 No. 3, pp. 275–304.

34. Kim, C., Mauer, D. C., and Sherman, A. E. (1998), "The determinants of corporate liquidity: Theory and evidence", *Journal of Financial and Quantitative Analysis,* Vol. 33, pp. 335-359.

35. Lang, L. H. P., and Litzenberger, R. H. (1989), "Dividend announcements cash flow signalling vs. free cash flow hypothesis?", *Journal of Financial Economics,* Vol. 24, pp. 181-191.

36. Lang, L. H. P., Stulz, R. M., and Walkling, R. A. (1989), "Managerial performance, Tobin's Q and the gains from successful tender offers", *Journal of Financial Economics,* Vol. 24, pp. 137-154.

37. Lang, L. H. P., Stulz, R. M., and Walkling, R. A. (1991), "A test of the free cash flow hypothesis", *Journal of Financial Economics,* Vol. 29, pp. 315-335.

38. La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (2000), "Investor protection and corporate governance", *Journal of Financial Economics,* Vol. 58, pp. 3-27.

39. Larcker, D.F., Richardson, R.A., and Tuna, I. (2007), "Corporate governance, accounting outcomes, and organizational performance", *The Accounting Review*, Vol. 82 No. 4, pp. 963-1008.

40. Linas, R., and Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: An empirical analysis. *Journal of Accounting and Policy*, 31, 86-108.

41. Maug, E. (1998), "Large shareholders as monitors: Is there a trade-off between liquidity and control?", *Journal of Finance,* Vol. 53, pp. 65-98.

42. Meltzer, A. H. (1993), "The demand for money: A cross-section study of business firms", *Quarterly Journal of Economics,* Vol. 77, pp. 405-422.

43. Mikkelson, W. H., and Partch, M. M. (2003), "Do persistent large cash reserves hinder performance?", *Journal of Financial and Quantitative Analysis,* Vol. 38 No. 2, pp. 275-294.

44. Miller, M. H., and Orr, D. (1966), "A model of the demand for money by firms", *Quarterly Journal of Economics,* Vol. 80, pp. 413-435.

45. Morck, R. (2000). *Concentrated Corporate Ownership*. Chicago: University of Chicago Press.

46. Mulligan, C. B. (1997), "Scale economies, the value of time, and the demand for money: Longitudinal evidence from firms", *Journal of Political Economy,* Vol. 105, pp. 1061-1079.

47. Nissim, D., and Penman, S. (2001), "Ratio analysis and equity valuation: From research to practice", *Review of Accounting Studies,* Vol. 6, pp. 109-154.

48. Opler, T., Pinkowiytz, L., Stulz, R., and Williamson, R. (1999), "The Determinants and implications of corporate cash holdings", *Journal of Financial Economics,* Vol. 52 No. 1, pp. 3-46.

49. Pound, J. (1988), "Proxy contests and the efficiency of shareholder oversight", *Journal of Financial Economics,* Vol. 20, pp. 237-265.

50. Richardson, S. (2006), "Over-investment of free cash flow", *Review of Accounting Studies,* Vol. 11, 159-189.

51. Rubin, A. (2007), "Ownership level, ownership concentration, and liquidity", *Journal of Financial Markets*, Vol. 10, pp. 219–248.

52. Schooley, D. K., and Barney, L. D. (1994), "Using dividend policy and managerial ownership to reduce agency costs", *Journal of Financial Research,* Vol. 17 No 3, pp. 363-373.

53. Shleifer, A., and Vishny, R. (1986), "Large shareholders and corporate control", *Journal of Political Economy,* Vol. 94, pp. 461-448.

54. Shleifer, A., and Vishny, R. (1997), "A survey of corporate governance", *Journal of Finance,* Vol. 52, 737-783.

55. Short, H., Zhang, H., & Keasey, K. (2002), "The link between dividend policy and institutional ownership", *Journal of Corporate Finance,* Vol. 8 No. 2, pp. 105-122.

56. Shyam-Sunder, L., and Myers, S.C. (1999), "Testing static trade-off against pecking order models of capital structure", *Journal of Financial Economics*, Vol. 51, pp. 219-244.

57. Tobin, J., (1958). Estimation of relationships for limited dependent variables. *Econometrica*, 26, 24–36.

58. Wooldridge, J. (2006). *Introductory econometrics: a modern approach (3rd ed.)*. Mason, USA: South-Western Cengage Learning.

59. Zeckhauser, R., and Pound, J. (1990), "Are large shareholders effective monitors? An Investigation of Share Ownership and Corporate Performance. In *Asymmetric Information, Corporate Finance, and Investment*: National Bureau of Economic Research, Inc.

A STUDY ON TAIWANESE CORPORATE SOCIAL RESPONSIBILITY AND OWNERSHIP STRUCTURES

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Abstract

This study develops several models to examine the relationship between the corporate social responsibility (CSR) and the ownership structure of Taiwanese firms. Our results suggest that firms which are controlled by professional managers, government-owned, or collectively-owned would like to undertake serious efforts to integrate the CSR into various aspects of their companies. Due to Asia firm's culture, family firms might be more reluctant to put efforts on CSR activities. We also report that there is a positive relationship between (a) the CSR and financial performance and (b) the CSR and earnings quality. This study suggests that the ownership structures are found to have effects on the CSR and the CSR could also decrease the information asymmetry between managers and investors.

Keywords: Corporate Governance, Corporate Social Responsibility, Ownership, Taiwan

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1. Introduction

The corporate social responsibility (CSR) has been drawing attention on the society in recent years. More firms would like to work on the CSR mainly because stakeholders believe there is a close relationship between CSR and the concept of sustainability (e.g. Guenster et al., 2006; Galema et al., 2008). They are not only concerned about the firm's financial performance but also its non-financial performance (e.g. social relations, corporate governance, and impact on the environment) (Galema et al., 2008). It is well-documented that the CSR is a good communication tool for a firm because it could decrease the information asymmetry between managers and investors (Reverte, 2011). Goss and Roberts (2011) suggested that a firm's risk management perspective can be viewed as the value of their CSR investment. Therefore, a growing number of firms have undertaken serious efforts to integrate the CSR into various aspects of their companies (Lee and Faff, 2009; Harjoto and Jo, 2007). Prior literature has documented that the CSR and idiosyncratic risk are negatively associated (e.g. Boutin-Dufresne and Savaria, 2004; Lee and Faff, 2009). In addition, previous studies have investigated the relationship between the firms' CSR and their financial performance (e.g. Ghoul et al., 2011). Furthermore, studies have reported the ownership structures have impacts on the CSR (e.g. Ghazali (2007). However, it is possible to point out the limitations of some prior studies. First, Taiwan is an emerging market and Taiwanese firms may

focus mainly on business expansions. Second, some foreign direct investment regulations have been lifted in recent years, in order to attract large institutional investors, more and more Taiwanese firms would like to put more efforts on the CSR. Third, the cultural differences between the Western and oriental societies may have differed investors' perceptions of the CSR performance. Fourth, the Taiwan stock market structure is different from other major stock markets. More than half of the listed firms are in the electronic industry in the Taiwan stock market. Finally, the control variables employed in the previous studies focus mainly on the firms' financial risk factors (e.g. size, book to market ratio...etc). However, these factors and many others associated with the nature of firms may be inter-related (e.g. the firm's ownerships, board independence, earnings quality…etc). From the discussions above, this is our contention that the results of the relationship between the CSR and the ownership structures may be different from previous studies. Therefore, this study would explore the relationship between the CSR and the ownership structures in the emerging market.

We developed several models to examine the relationship between the CSR and the ownership structure in Taiwan. The results of this study show that (i) the CSR and unsystematic risk is negatively associated; (ii) the CSR and financial performance is positively associated; (iii) the CSR and firm's size is positively associated; (iv) family firms are reluctant to put efforts on CSR activities; (v) the CSR and earnings quality is positively associated; (vi) firms which are controlled by professional

managers, government-owned, or collectively-owned would like to undertake serious efforts to integrate the CSR into various aspects of their companies.

The remainder of the paper is structured as follows. The second section is to discuss prior literature concerning CSR. In addition, the research hypotheses to be tested regarding CSR are developed. The third section illustrates the data and research methods used in this study. The empirical results are demonstrated in the fourth section. Finally, section five summarizes our conclusions.

2. Literature review and hypothesis

There are several family business studies focused on financial performance of family firms (Mazzi 2011), the cost and benefits of the pyramid structure (Masulis et al. 2011) and the corporate social responsibility. For example, some studies showed evidence that family firms have better financial disclosure quality than non-family firms (Ali et al. 2007). In addition, Wang (2006) and Ebihara et al. (2012) both found that family firms have better earnings quality than non-family firms. Moreover, Kubota et al. (2012) investigated the cost of capital of family firms in Japan. They found that (i) family firms have lower cost of debt and market liquidity than non-family firms; (ii) family firms have lower cost of capital than non-family firms. Furthermore, Dyer and Whetten (2006) and Godfrey (2005) showed the evidence that family firms are more social responsible than non-family firms. This may be because that family firms concern about their reputations and would like to protect their assets. However, some studies argued that family firms are self-interested and are not like to engage in CSR (Morck and Yeung, 2004). Therefore, we infer that family firms may not undertake the CSR in their business in Taiwan. This may be because Taiwan is an emerging market and Taiwanese firms may focus mainly on business expansions. The hypothesis H1 is developed:

H1: *Family firms are less concerned about the CSR than non-family firms*

In addition, the influences of ownership structure on CSR have been investigated in various studies. For example, Ghazali (2007) investigated the influences of ownership structure on CSR disclosure in the annual reports of Malaysian firms. It is found that the owner-managed firms disclosed less CSR information in their annual reports. However, the government-owned firms disclosed more CSR information in their annual reports. Therefore, Ghazali (2007) suggested that the ownership structure has an impact on CSR. In addition, Oh et al. (2011) found that there is a negative relationship between the managerial ownership and the CSR disclosures. Furthermore, Haniffa and Cooke (2005) reported that there is a

positive relationship between foreign ownership and the CSR disclosures. Khan et al. (2012) also suggested that public ownership, foreign ownership, and board independence have positive impacts on the CSR, while the managerial ownership has negative impacts on the CSR. Previous studies have suggested that larger firms have more influences on the community and more environmental concerns; therefore, they would devote more efforts on their legitimating behaviour (e.g. Reverte, 2011; Ghoul et al. 2011; Knox et al. 2006; Hackston and Milen, 1996; Dowling and Pfeffer, 1975). Therefore, combining the predictions of the theoretical models and empirical findings discussed previously leads to the following hypothesis:

H2: *Firms controlled by the professional managers have positive impacts on CSR*
H3: *Government-owned firms have positive impacts on the CSR*
H4: *Collective-owned firms have positive impacts on the CSR*

The relationship between earnings quality and financial reporting has been investigated in several studies. For example, Aboody et al. (2005) investigated the relationship between the earnings quality factor and cost of capital. They concluded that the firm's high earnings quality is negatively related with its cost of capital. Francis *et al.* (2005) suggested that there is highly statistically significant difference between the earnings quality and the cost of capital. Firms with poor earnings quality have larger costs of capital than firms with high earnings quality. In addition, studies also suggested that the firm's CSR is negatively related to its cost of capital (Reverte, 2011). Kim et al. (2011) investigated the relationship between the earnings quality and the CSR. They found that there is a positive relationship between the earnings quality and the CSR. In addition, CSR firms are less likely to engage in the earnings manipulations. However, there is no study which directly investigates the relationship between the earnings quality and the CSR in Taiwan. Therefore, it is our contention that there is a positive relationship between the earnings quality and the CSR. Combining the predictions of the theoretical models and empirical findings discussed previously leads to the following hypothesis:

H5: *CSR firms have better earnings quality than non-CSR firms*

Nelling and Webb (2009) examined the causal relation between CSR and financial performance. They argued that the existing literature did not control for unobservable variables (i.e. corporate culture or managerial influence variables) in the panel data. This is because these variables may have influences on CSR activities. Therefore, in order to gain more detailed analyses, they used not only a more comprehensive data set (i.e. over 2800

firm-year observations) but also alternative statistical approaches (i.e. time series fixed effects regression model) to test the relation between the CSR and the financial performance. The results show that the CSR and lagged financial performance (lagged return on assets) are positively related. Firms with higher proportion of debt financing tend to have lower level of CSR.

Moreover, larger firms may have more resources to support their CSR activities. They also suggested that firms with stronger market performance would lead to a greater investment in CSR activities.Reverte (2011) examined the impact of CSR on the cost of capital of Spanish firms. It is suggested that better CSR could reduce the estimation risk, transaction costs, and information asymmetries in the capital markets. After controlling for Fama and French (1993) risk factors (beta, size, and market-to-book ratio), Reverte (2011) examined the relationship between the CSR and the cost of capital. It is found that larger firms have better CSR reporting practices because larger firms have bigger impacts on the community, and bigger groups of equity holders to influence the firms' decisions.

magazine, grants the CSR awards (the excellence in corporate social responsibility) of Taiwanese public listing firms annually[27] for the period of 2007 to 2009; (ii) Taiwan Economic Journal (TEJ) database during the period from 2007 to 2009. We gather these CSR awarded firms' annual financial accounting variables from TEJ database. We exclude firms in the financial and insurance sectors. In addition, the propensity score matching method is used in our data collections. After removing firms that have missing data, a total of 192 firms (controlled group) and a total of 96 CSR firms were selected as our sample.

Regression models

Several regression models are developed to test the hypotheses:

Model 1：

$$CSR = \alpha_0 + \alpha_1 DUA + \alpha_2 FAM + \alpha_3 SSDM + \alpha_4 CR + \alpha_5 \text{Financial Indicators} + \alpha_6 \text{Risk Indicators} + \alpha_7 LEV + \alpha_8 LNTA + \varepsilon_i$$

Model 2：

$$CSR = \beta_0 + \beta_1 DUA + \beta_2 FAM + \beta_3 SSDM + \beta_4 CR + \beta_5 \text{Financial Indicators} + \beta_6 \text{Risk Indicators} + \beta_7 LEV + \beta_8 DA + \beta_9 LNTA + \varepsilon_i$$

Model 3：

$$CSR = \gamma_0 + \gamma_1 DUA + \gamma_2 FAM + \gamma_3 SSDM + \gamma_4 CR + \gamma_5 \text{Financial Indicators} + \gamma_6 \text{Risk Indicators} + \gamma_7 LEV + \gamma_8 DA + \gamma_9 IND + \gamma_{10} LNTA + \varepsilon_i$$

Model 4：

$$CSR = \delta_0 + \delta_1 DUA + \delta_3 MAN + \delta_4 AG + \delta_5 GOV + \delta_6 SSDM + \delta_7 CR + \delta_8 \text{Financial Indicators} + \delta_9 \text{Risk Indicators} + \delta_{10} LEV + \delta_{11} DA + \delta_{12} LNTA + \varepsilon_i$$

In addition, it is also found that the beta is positively related to the cost of capital as the size and the market-to-book ratio are negatively related to the cost of capital. Therefore, Reverte (2011) concluded that better CSR disclosure could decrease information asymmetries between investors and managers, induce investors to maintain their investments in the firm and decrease the cost of capital. Therefore, the hypothesis H6 is developed:

H6: *the financial performance of CSR firms is better than that of non-CSR firms*

3. Research methods and data

In order to investigate the relation between the CSR and ownership in Taiwan and to test the hypotheses, few research methods are developed. In addition, data is collected from various sources.The data of this study is collected from (i) the Common Wealth Magazine, Taiwan's leading business

Where: CSR is the dummy variable (1 indicates CSR firms; 0 otherwise); DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise);SSDM is thedeviation ratio betweenthe number of board seats controlled and the percentage of shares ownedby the ultimate owner; CR is the current ratio; Financial indicators include: earnings per share (EPS), return on assets (ROA) and return on equity (ROE); Risk indicators include: market risk (BETA) and unsystematic risk (RISK); DA is thediscretionary accruals, the earnings management variable; LNTA is the natural log of total assets; LEV is the leverage; MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned

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[27]http://issue.cw.com.tw/issue/2011csr/e2011report-1.jsp

firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise).

4. Results

Descriptive statistics

Table 1 reports the descriptive statistics of the regression variables used in our analysis. In terms of the ownership structure, it is found that the majority of the family firms have no CSR activities (the variable means are significantly different from zero at the 1% significant level). In addition, the majority of the firms which are controlled by the professional managers would like to undertake the CSR activities (the variable means are significantly different from zero at the 10% significant level). Furthermore,more than half of the government-owned firms are engaged in the CSR activities. For

the financial indicators, (i) the EPS is higher for the CSR firms than non-CSR firms (significantly different at 10% the level); (ii) the return on assets is higher for the CSR firms than non-CSR firms (significantly different at 10% level). For the risks indicators, (i) CSR firms have lower market risks than non-CSR firms (significantly different at 5% level); (ii) CSR firms have lower unsystematic risks than non-CSR firms (significantly different at 10% level); (iii) CSR firms have significantly less DA and higher LNTA than non-CSR firms (both at 1% level). Finally, our descriptive statistic results indicate that firms with different ownership structures may exhibit different behaviors on CSR activities. Our preliminary results also imply that the expectations of this study are comparable to those of previous studies.

Table 1. Descriptive statistics

Variables	CSR	Mean	Std	P-value	Variables	CSR	Mean	Std	P-value
DUA	1	0.20	0.40	0.341	ROA	1	13.83	9.37	0.061[*]
	0	0.15	0.36			0	11.50	7.76	
FAM	1	0.45	0.50	0.001[***]	ROE	1	13.00	11.37	0.449
	0	0.69	0.47			0	11.74	11.75	
MAN	1	0.33	0.47	0.076[*]	BETA	1	0.92	0.28	0.016[**]
	0	0.22	0.42			0	1.01	0.24	
AG	1	0.11	0.32	0.206	RISK	1	1.22	1.05	0.065[*]
	0	0.06	0.24			0	1.56	0.48	
GOV	1	0.10	0.31	0.017[**]	LEV	1	1.39	2.39	0.196
	0	0.02	0.14			0	1.07	0.42	
SSDM	1	5.78	12.27	0.506	DA	1	0.07	0.06	0.004[***]
	0	7.24	17.51			0	0.11	0.10	
CR	1	175.31	96.24	0.425	IND	1	0.52	0.50	1.000
	0	190.11	135.66			0	0.52	0.50	
EPS	1	3.53	5.16	0.094[*]	LNTA	1	17.92	1.39	0.003[***]
	0	2.55	2.45			0	17.34	1.29	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise);SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage); IND (industry variables)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

Correlation analysis

In order to avoid the possibilities of multicollinearity causing difficulties in interpreting the results, the Pearson's correlation coefficient is used to examine the explanatory variables. The correlation coefficients among the explanatory variables are shown in Table 2. It is found that professional managers controlled firms and

government-owned firms tend to have higher CSR activities while family owned firms are less likely to devote efforts on CSR activities. Previous studies have suggested that larger firms have more influences on the community and more environmental concerns; therefore, they would devote more efforts on their legitimating behavior (e.g. Reverte, 2011; Ghoul et al. 2011; Knox et al. 2006; Hackston and Milen, 1996; Dowling and

Pfeffer, 1975). This may be the reason why few family owned firms engage on the CSR (the size is relatively smaller than government-owned firms and professional managers controlled firms). Several variables are correlated with the CSR. For example, the correlation coefficients on BETA and RISK are negative and significantly correlated to the CSR. The EPS and ROA are positive and significantly correlated to the CSR. In addition, there is no high correlation amongst these explanatory variables. Therefore, this suggests that there is no multicollinearity problem in our model.

Table 2. Correlation analysis

	CSR	MAN	AG	GOV	FAM	DUA	SSDM	CR	EPS	ROE	ROA	Beta	Risk	LEV	DA	LNTA	IND
CSR	1.000.	0.128* (0.076)	0.092 (0.206)	0.172** (0.017)	-0.242*** (0.001)	0.069 (0.341)	-0.048 (0.506)	-0.058 (0.425)	0.121* (0.094)	0.055 (0.449)	0.135* (0.061)	-0.174** (0.016)	-0.134* (0.065)	0.094 (0.195)	-0.210*** (0.004)	0.213*** (0.003)	0.000 (1.000)
MAN	0.128* (0.076)	1.000.	-0.192*** (0.007)	-0.159** (0.027)	-0.708*** (0.000)	0.151** (0.037)	0.363*** (0.000)	0.111 (0.125)	0.226*** (0.002)	0.100 (0.167)	0.086 (0.236)	0.156** (0.031)	-0.003 (0.971)	-0.062 (0.393)	-0.039 (0.596)	0.271*** (0.000)	0.476*** (0.000)
AG	0.092 (0.206)	-0.192*** (0.007)	1.000.	-0.080 (0.267)	-0.357*** (0.000)	-0.093 (0.198)	-0.047 (0.517)	-0.069 (0.339)	0.017 (0.811)	0.102 (0.161)	0.092 (0.205)	-0.260*** (0.000)	-0.069 (0.339)	-0.017 (0.814)	-0.003 (0.964)	-0.132* (0.068)	-0.178** (0.013)
GOV	0.172** (0.017)	-0.159** (0.027)	-0.080 (0.267)	1.000.	-0.296*** (0.000)	-0.061 (0.404)	-0.075 (0.301)	0.087 (0.228)	-0.100 (0.167)	-0.181** (0.012)	-0.079 (0.273)	-0.156** (0.031)	0.091 (0.212)	-0.050 (0.490)	-0.099 (0.171)	0.223*** (0.002)	-0.140* (0.053)
FAM	-0.242*** (0.001)	-0.708*** (0.000)	-0.357*** (0.000)	-0.296*** (0.000)	1.000.	-0.048 (0.506)	-0.261*** (0.000)	-0.104 (0.149)	-0.159** (0.028)	-0.052 (0.472)	-0.079 (0.276)	0.075 (0.303)	0.003 (0.972)	0.091 (0.209)	0.076 (0.295)	-0.276*** (0.000)	-0.269*** (0.000)
DUA	0.069 (0.341)	0.151** (0.037)	-0.093 (0.198)	-0.061 (0.404)	-0.048 (0.506)	1.000.	-0.009 (0.902)	0.041 (0.568)	-0.062 (0.395)	-0.080 (0.272)	-0.051 (0.482)	0.031 (0.673)	0.071 (0.328)	-0.052 (0.473)	-0.022 (0.759)	-0.069 (0.339)	-0.033 (0.651)
SSDM	-0.007 (0.925)	0.314*** (0.000)	-0.069 (0.344)	-0.110 (0.127)	-0.195*** (0.007)	0.094 (0.193)	1.000.	0.074 (0.308)	0.058 (0.423)	0.122* (0.093)	0.138* (0.056)	0.110 (0.128)	-0.076 (0.296)	-0.029 (0.693)	0.056 (0.443)	0.249*** (0.001)	0.212*** (0.003)
CR	-0.005 (0.945)	0.175** (0.015)	-0.070 (0.337)	-0.033 (0.653)	-0.108 (0.135)	0.146** (0.044)	0.092 (0.206)	1.000.	0.218*** (0.002)	0.077 (0.287)	0.210*** (0.003)	0.139* (0.054)	-0.043 (0.557)	-0.032 (0.663)	-0.027 (0.714)	-0.178** (0.013)	0.177** (0.014)
EPS	0.118 (0.103)	0.189*** (0.009)	0.088 (0.227)	-0.095 (0.192)	-0.164** (0.023)	-0.035 (0.630)	0.039 (0.587)	0.146** (0.043)	1.000.	0.690*** (0.000)	0.631*** (0.000)	-0.118 (0.102)	-0.046 (0.525)	-0.036 (0.621)	0.153** (0.034)	0.018 (0.806)	0.208*** (0.004)
ROE	0.083 (0.255)	0.114 (0.116)	0.126* (0.082)	-0.148** (0.040)	-0.092 (0.207)	-0.091 (0.209)	-0.008 (0.916)	0.111 (0.124)	0.902*** (0.000)	1.000.	0.792*** (0.000)	-0.216*** (0.003)	-0.072 (0.321)	-0.031 (0.667)	0.349*** (0.000)	-0.197*** (0.006)	0.147** (0.042)
ROA	0.130* (0.072)	0.053 (0.467)	0.128* (0.078)	-0.057 (0.433)	-0.077 (0.288)	-0.051 (0.486)	-0.028 (0.697)	0.177** (0.014)	0.709*** (0.000)	0.771*** (0.000)	1.000.	-0.262*** (0.000)	0.018 (0.800)	-0.072 (0.319)	0.223*** (0.002)	-0.059 (0.413)	0.333*** (0.000)
Beta	-0.172** (0.017)	0.114 (0.116)	-0.245*** (0.001)	-0.110 (0.130)	0.079 (0.278)	-0.028 (0.697)	0.305*** (0.000)	0.129* (0.075)	-0.281*** (0.000)	-0.232*** (0.001)	-0.233*** (0.001)	1.000.	0.080 (0.272)	0.153** (0.034)	-0.053 (0.468)	0.110 (0.129)	0.059 (0.418)
Risk	-0.103 (0.155)	0.059 (0.418)	-0.012 (0.868)	-0.063 (0.386)	-0.012 (0.868)	0.072 (0.322)	-0.048 (0.504)	0.082 (0.259)	-0.172** (0.017)	-0.114 (0.116)	0.063 (0.388)	0.088 (0.224)	1.000.	-0.067 (0.357)	0.369*** (0.000)	0.067 (0.356)	-0.074 (0.305)
LEV	-0.033 (0.649)	-0.015 (0.841)	0.064 (0.380)	-0.161** (0.025)	0.048 (0.509)	0.001 (0.985)	0.115 (0.111)	-0.084 (0.247)	-0.088 (0.225)	-0.109 (0.133)	-0.138* (0.056)	0.229*** (0.001)	0.050 (0.490)	1.000.	-0.049 (0.499)	0.143** (0.048)	-0.103 (0.156)
DA	-0.228*** (0.001)	-0.005 (0.941)	0.065 (0.370)	-0.201*** (0.005)	0.053 (0.467)	0.038 (0.599)	-0.070 (0.332)	0.100 (0.167)	0.128* (0.077)	0.233*** (0.000)	0.179** (0.013)	-0.056 (0.442)	0.246*** (0.001)	0.057 (0.436)	1.000.	-0.245*** (0.001)	-0.066 (0.364)
LNTA	0.202*** (0.005)	0.289*** (0.000)	-0.145** (0.045)	0.218*** (0.002)	-0.281*** (0.000)	-0.067 (0.358)	0.264*** (0.000)	-0.150** (0.038)	-0.035 (0.630)	-0.205*** (0.004)	-0.093 (0.198)	0.121* (0.094)	0.040 (0.580)	0.218*** (0.002)	-0.236*** (0.001)	1.000.	0.127* (0.079)
IND	0.000 (1.000)	0.476*** (0.000)	-0.178** (0.013)	-0.140* (0.053)	-0.269*** (0.000)	-0.033 (0.651)	0.148** (0.040)	0.224*** (0.002)	0.255*** (0.000)	0.210*** (0.003)	0.369*** (0.000)	0.082 (0.255)	-0.006 (0.938)	-0.168** (0.020)	0.010 (0.887)	0.158** (0.029)	1.000.

1. Pearson correlation coefficient (upper half of the table), Spearman ρ coefficient (lower half of the table)

2. CSR is the dummy variable (1 indicates CSR firms; 0 otherwise); DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise);SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage); IND (industry variables)

3. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

Empirical analyses

The results of testing hypothesis **H1** and **H6** are shown in Table 3. Panel A reports the regression results of model 1. It is found that after controlling the financial indicators and risk indicators, there is a significantly negative relationship betweenfamily firms and the CSR (significantly different from zero at 1% through model 1-1 to 1-6). The results indicate that family firms are less likely to engage in the CSR activities in Taiwan. This may be because family firms are self-interested and only concerned about the firm's financial performance. This supports the previous studies which suggested that family firms may not be socially responsible

(Morck and Yeung, 2004). Panel A also reports that the CSR firms have significantly lower market risks (Beta) than non-CSR firms (significantly different from zero at 5% (model 1-1 and 1-3) or 10% (model 1-2) level). In addition, the unsystematic risks of CSR firms are significantly lower than that of non-CSR firms (significantly different from zero at 5% level through model 1-4 to 1-6). Panel A also illustrates that CSR firms have significant higher return on assets (ROA) than non-CSR firms (significantly different from zero at 5% (model 1-5) or 10% (model 1-2) levels). This may indicate that firms with stronger market performance would lead to a greater investment in CSR activities (Nelling and Webb, 2009). In terms of the total assets

(LNTA), larger firms would like to put efforts on CSR activities (significantly different at 1% or 5% level through model 1-1 to 1-6). This may indicate that larger firms may have more resources to support their CSR activities (Nelling and Webb, 2009).

Table 3. Results of model 1 and model 2

Panel A

Variables	Model 1-1		Model 1-2		Model 1-3		Model 1-4		Model 1-5		Model 1-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
DUA	0.527	(0.202)	0.538	(0.197)	0.534	(0.198)	0.580	(0.171)	0.645	(0.139)	0.603	(0.159)
FAM	-0.908***	(0.008)	-0.957***	(0.005)	-0.932***	(0.006)	-1.006***	(0.003)	-1.054***	(0.002)	-1.034***	(0.002)
SSDM	-0.019*	(0.080)	-0.023*	(0.057)	-0.021*	(0.063)	-0.024**	(0.026)	-0.029**	(0.014)	-0.027**	(0.016)
CR	-0.001	(0.703)	-0.001	(0.604)	0.000	(0.879)	-0.001	(0.392)	-0.001	(0.289)	-0.001	(0.535)
EPS	0.058	(0.243)					0.076	(0.155)				
ROA			0.037*	(0.075)					0.054**	(0.010)		
ROE					0.015	(0.296)					0.023	(0.131)
Beta	-1.501**	(0.022)	-1.294*	(0.056)	-1.494**	(0.023)						
Risk							-0.290**	(0.030)	-0.326**	(0.017)	-0.291**	(0.027)
LEV	0.156	(0.164)	0.158	(0.156)	0.151	(0.176)	0.109	(0.326)	0.117	(0.288)	0.103	(0.350)
LnTA	0.330**	(0.013)	0.342***	(0.010)	0.365***	(0.008)	0.318**	(0.016)	0.349***	(0.009)	0.366***	(0.007)
Intercept	-4.081*	(0.087)	-4.707**	(0.054)	-4.749*	(0.060)	-4.708**	(0.049)	-5.568**	(0.023)	-5.643**	(0.024)
Nagelkerke R²	0.205		0.215		0.202		0.203		0.231		0.202	
Cox & Snell R²	0.154		0.161		0.151		0.152		0.173		0.151	
N	192		192		192		192		192		192	

Panel B

Variables	Model 2-1		Model 2-2		Model 2-3		Model 2-4		Model 2-5		Model 2-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
DUA	0.504	(0.232)	0.515	(0.228)	0.520	(0.221)	0.554	(0.197)	0.615	(0.164)	0.580	(0.182)
FAM	-0.903***	(0.009)	-0.964***	(0.006)	-0.927***	(0.008)	-0.988***	(0.004)	-1.047***	(0.003)	-1.016***	(0.003)
SSDM	-0.017	(0.152)	-0.022*	(0.091)	-0.020*	(0.094)	-0.021*	(0.065)	-0.027**	(0.033)	-0.025**	(0.036)
CR	-0.001	(0.540)	-0.001	(0.407)	0.000	(0.720)	-0.001	(0.327)	-0.002	(0.230)	-0.001	(0.474)
EPS	0.084	(0.120)					0.101*	(0.082)				
ROA			0.052**	(0.020)					0.063***	(0.004)		
ROE					0.028*	(0.084)					0.033**	(0.044)
Beta	-1.518**	(0.022)	-1.275*	(0.065)	-1.454**	(0.030)						
Risk							-0.212	(0.147)	-0.245*	(0.100)	-0.198	(0.181)
LEV	0.157	(0.171)	0.159	(0.161)	0.148	(0.194)	0.117	(0.304)	0.125	(0.266)	0.109	(0.332)
DA	-5.875**	(0.017)	-6.205**	(0.011)	-6.008**	(0.012)	-4.832*	(0.058)	-5.116**	(0.044)	-5.056**	(0.044)
LnTA	0.242*	(0.079)	0.256*	(0.064)	0.299**	(0.034)	0.240*	(0.081)	0.270*	(0.053)	0.301**	(0.031)
Intercept	-2.046	(0.419)	-2.774	(0.279)	-3.219	(0.220)	-3.119	(0.217)	-3.962	(0.124)	-4.336*	(0.095)
Nagelkerke R²	0.245		0.260		0.245		0.226		0.256		0.228	
Cox & Snell R²	0.184		0.195		0.184		0.169		0.192		0.171	
N	192		192		192		192		192		192	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

In order to investigate whether the relationship between the CSR and earnings management, we added the earnings management variable (DA) into our regression model. The results of testing hypothesis **H5** are shown in Panel B Table 3. It is found that CSR firms have significantly better earnings quality than non-CSR firms (significantly different at 5% or 10 % level through model 2-1 to 2-6). This may indicate that firms disclosed CSRs are more information transparent and will make

managers hard to manipulate earnings (Francis et al. 2005). In addition, firms with a better earnings quality, managers will be less likely to use of discretionary accruals to manipulate earnings, which making lower information asymmetry between financial report users and business managers (Aboody et al. 2005). Therefore, the results in Panel A and Panel B are consistent with the previous studies which suggest that (i) the CSR and unsystematic risk is negatively associated (e.g. Boutin-Dufresne and Savaria, 2004; Lee and Faff, 2009); (ii) the CSR and financial performance is positively associated (e.g. Orlitzky et al. 2003; Brammer et al. 2006; Jiao, 2010; Ghoul et al., 2011); (iii) the CSR and firm's size is positively associated (Nelling and Webb, 2009); (iv) family firms are reluctant to put efforts on CSR activities (Morck and Yeung, 2004); (v) the CSR and earnings quality is positively associated (Aboody et al. 2005). The results of testing hypothesis H2, H3, and H4 are shown in Table 4. It is found that there is a significantly positive relationship between the firms which are controlled by the professional managers (MAN) and the CSR (significantly different at 5% or 10% level through model 4-1 to 4-6). In addition, there is a significantly positive relationship between the collectively-owned firms (AG) and the CSR (model 4-4 to 4-6). Furthermore, there is a significantly positive relationship between

the government-owned firms (GOV) and the CSR (significant different at 5 % and 1 % level). Moreover, results also illustrate that family firms (the intercept) are less concerned about the CSR activities (family firms and CSR is negative correlated). Therefore, our results suggest that firms which are controlled by professional managers, government-owned, or collectively-owned would like to undertake serious efforts to integrate the CSR into various aspects of their companies (Lee and Faff, 2009; Harjoto and Jo, 2007). This may be because the CSR is a good communication tool for a firm and the CSR could also decrease the information asymmetry between managers and investors (Reverte, 2011). Table 4 also demonstrates that the EPS performance is positively related to CSR (significantly different at 10% level). In addition, CSR firms also have significantly positive return on asset (ROA) (significantly different at 1% level) and return on equity (ROE) (significantly different at 5% level). Furthermore, CSR firms have significantly lower systematic risk (Beta) and unsystematic risk (RISK). In terms of the earnings quality, results show that CSR firms have higher earnings quality than non-CSR firms (CSR firm's exhibit significantly lower level of earnings management at 1%, 5%, or 10% level). Finally, the total assets of CSR firms are larger than that of non-CSR firms.

Table 4. Results of model 4

Variables	Model 4-1 coefficient	P-value	Model 4-2 coefficient	P-value	Model 4-3 coefficient	P-value	Model 4-4 coefficient	P-value	Model 4-5 coefficient	P-value	Model 4-6 coefficient	P-value
DUA	0.556	(0.196)	0.555	(0.204)	0.571	(0.189)	0.664	(0.130)	0.710	(0.117)	0.685	(0.123)
MAN	0.793*	(0.057)	0.907**	(0.027)	0.843**	(0.041)	0.758*	(0.067)	0.905**	(0.029)	0.822**	(0.046)
AG	0.829	(0.153)	0.756	(0.195)	0.790	(0.175)	1.087*	(0.056)	0.950*	(0.094)	1.042*	(0.068)
GOV	2.093**	(0.031)	2.399**	(0.022)	2.214**	(0.027)	2.533**	(0.013)	2.953***	(0.009)	2.620**	(0.011)
SSDM	-0.014	(0.232)	-0.020	(0.124)	-0.019	(0.128)	-0.017	(0.140)	-0.024*	(0.056)	-0.022*	(0.069)
CR	-0.001	(0.365)	-0.002	(0.231)	-0.001	(0.512)	-0.002	(0.193)	-0.002	(0.102)	-0.001	(0.308)
EPS	0.101*	(0.081)					0.118*	(0.051)				
ROA			0.060***	(0.010)					0.072***	(0.002)		
ROE					0.035**	(0.045)					0.040**	(0.023)
Beta	-1.417**	(0.042)	-1.208*	(0.094)	-1.356*	(0.053)						
Risk							-0.249*	(0.099)	-0.300*	(0.057)	-0.231	(0.129)
LEV	0.164	(0.162)	0.169	(0.146)	0.155	(0.185)	0.125	(0.283)	0.135	(0.242)	0.117	(0.310)
DA	-5.921**	(0.015)	-6.337***	(0.009)	-6.151***	(0.009)	-4.597*	(0.068)	-4.785*	(0.057)	-4.910**	(0.049)
LnTA	0.214	(0.135)	0.226	(0.114)	0.280*	(0.055)	0.222	(0.124)	0.249*	(0.088)	0.291**	(0.046)
Intercept	-2.569	(0.318)	-3.326	(0.199)	-3.942	(0.139)	-3.787	(0.143)	-4.654*	(0.076)	-5.210**	(0.049)
Nagelkerke R^2	0.259		0.277		0.260		0.250		0.282		0.252	
Cox & Snell R^2	0.194		0.207		0.195		0.188		0.211		0.189	
N	192		192		192		192		192		192	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise);SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

Robustness Checks

Although the work of this study has been carried out with great care and was thoroughly examined by checking each modeling steps, the removal of one of the many variables could lead to a totally different results. The endogeneity and omitted variable bias may cause difficulties in interpreting the results. In addition, the removal of factors from the regression model may lead to a different magnitude in the coefficients. Therefore, the robustness checks approaches are employed to ensure that our results are not driven by the endogeneity. We perform three additional robustness tests in Table 5-7 to examine whether our core evidence is robust to alternative assumptions and model specifications.

First, we repeat our tests using the data of firms that one year prior to receiving CSR awards. Results are shown in Table 5. Panel A illustrates that the relationship between CSR and family firms continues to load negatively at 1% level after controlling different factors (SSDM, CR, EPS, ROA, Beta, LNTA…etc.). In addition, ROA, ROE, and LNAT continue to load positively at 10% level or better. Furthermore, the risk factors (i.e. Beta, Risk) continue to load negatively at 10% level. These results are consistent with those reports in Table 3. Panel B demonstrates that the coefficients of MAN, AG, and GOV are all significant and positive. The coefficients of Beta and Risk are negative (although not significantly so). Furthermore, the DA continues to load negatively at 10% level. All the results shown in Panel B are consistent with those reports in Table 4.

Table 5. Results of robustness checks: firms that one year prior to receiving CSR awards

Panel A

Variables	Model 2-1 coefficient	P-value	Model 2-2 coefficient	P-value	Model 2-3 coefficient	P-value	Model 2-4 coefficient	P-value	Model 2-5 coefficient	P-value	Model 2-6 coefficient	P-value
DUA	-0.281	(0.491)	-0.275	(0.502)	-0.261	(0.525)	-0.314	(0.443)	-0.297	(0.471)	-0.290	(0.480)
FAM	-1.089***	(0.002)	-1.115***	(0.001)	-1.105***	(0.001)	-1.109***	(0.001)	-1.129***	(0.001)	-1.120***	(0.001)
SSDM	-0.012	(0.392)	-0.017	(0.256)	-0.015	(0.286)	-0.016	(0.235)	-0.021	(0.161)	-0.018	(0.189)
CR	0.000	(0.904)	0.000	(0.785)	0.000	(0.961)	0.000	(0.974)	0.000	(0.897)	0.000	(0.867)
EPS	0.055	(0.220)					0.045	(0.331)				
ROA			0.034**	(0.041)					0.032*	(0.063)		
ROE					0.021*	(0.091)					0.017	(0.214)
Beta	-0.994*	(0.084)	-0.988*	(0.089)	-1.016*	(0.078)						
Risk							-0.144	(0.267)	-0.138	(0.321)	-0.116	(0.397)
LEV	-0.023	(0.815)	-0.020	(0.839)	-0.026	(0.796)	-0.038	(0.698)	-0.035	(0.722)	-0.041	(0.677)
DA	-4.558**	(0.046)	-4.197*	(0.068)	-4.332*	(0.060)	-3.742*	(0.096)	-3.601	(0.110)	-3.748*	(0.097)
LnTA	0.243*	(0.060)	0.268**	(0.040)	0.280**	(0.033)	0.227*	(0.074)	0.250*	(0.052)	0.255**	(0.047)
Intercept	-2.339	(0.330)	-3.017	(0.217)	-3.115	(0.204)	-2.840	(0.230)	-3.475	(0.150)	-3.470	(0.152)
Nagelkerke R^2	0.182		0.198		0.190		0.172		0.187		0.175	
Cox & Snell R^2	0.136		0.148		0.142		0.129		0.140		0.131	
N	192		192		192		192		192		192	

Panel B

Variables	Model 4-1 coefficient	P-value	Model 4-2 coefficient	P-value	Model 4-3 coefficient	P-value	Model 4-4 coefficient	P-value	Model 4-5 coefficient	P-value	Model 4-6 coefficient	P-value
DUA	-0.287	(0.496)	-0.299	(0.479)	-0.271	(0.523)	-0.269	(0.524)	-0.272	(0.520)	-0.254	(0.548)
MAN	1.015**	(0.017)	1.076***	(0.010)	1.041**	(0.014)	0.920**	(0.028)	0.976**	(0.019)	0.949**	(0.022)
AG	1.023*	(0.071)	0.943*	(0.098)	0.982*	(0.084)	1.130**	(0.045)	1.066*	(0.058)	1.118**	(0.047)
GOV	1.591*	(0.067)	1.672*	(0.062)	1.695*	(0.059)	2.101**	(0.035)	2.147**	(0.036)	2.085**	(0.036)
SSDM	-0.011	(0.451)	-0.016	(0.289)	-0.014	(0.330)	-0.013	(0.332)	-0.018	(0.216)	-0.016	(0.260)
CR	0.000	(0.870)	0.000	(0.733)	0.000	(0.989)	0.000	(0.969)	0.000	(0.832)	0.000	(0.902)

Variables	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
EPS	0.059	(0.204)					0.050	(0.279)				
ROA			0.035**	(0.040)					0.033*	(0.064)		
ROE					0.022*	(0.081)					0.017	(0.204)
Beta	-0.928	(0.119)	-0.954	(0.111)	-0.960*	(0.100)						
Risk							-0.173	(0.173)	-0.168	(0.207)	-0.143	(0.283)
LEV	-0.021	(0.836)	-0.016	(0.872)	-0.022	(0.826)	-0.031	(0.753)	-0.028	(0.781)	-0.034	(0.729)
DA	-4.365*	(0.059)	-4.038*	(0.082)	-4.127*	(0.076)	-3.228	(0.154)	-3.085	(0.175)	-3.233	(0.156)
LnTA	0.235*	(0.077)	0.258*	(0.053)	0.271**	(0.043)	0.219*	(0.096)	0.241*	(0.069)	0.248*	(0.061)
Intercept	-3.371	(0.161)	-3.995*	(0.100)	-4.137*	(0.091)	-3.828*	(0.100)	-4.449*	(0.064)	-4.487*	(0.063)
Nagelkerke R²	0.184		0.200		0.193		0.182		0.196		0.184	
Cox & Snell R²	0.138		0.150		0.145		0.137		0.147		0.138	
N	192		192		192		192		192		192	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise);SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

Secondly, we repeat our tests using the data of firms which have been granted CSR awards at least twice. Results are shown in Table 6. Panel A reports similar results with those reports in Table 3. For example, the coefficients of family firms (FAM) are significant and negative; the coefficients of Beta and Risk are mostly significant and negative. All the results illustrate in Panel A are consistent with those reports in Table 3 andin Panel B are also consistent with those reports in Table 4.

Table 6. Results of robustness checks: firms which have been granted CSR awards at least twice

Panel A

Variables	Model 2-1		Model 2-2		Model 2-3		Model 2-4		Model 2-5		Model 2-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
DUA	0.483	(0.303)	0.493	(0.300)	0.495	(0.296)	0.461	(0.328)	0.520	(0.285)	0.487	(0.309)
FAM	-1.175***	(0.002)	-1.247***	(0.001)	-1.195***	(0.002)	-1.230***	(0.001)	-1.306***	(0.001)	-1.250***	(0.001)
SSDM	-0.010	(0.431)	-0.017	(0.258)	-0.015	(0.263)	-0.014	(0.287)	-0.021	(0.148)	-0.019	(0.160)
CR	-0.001	(0.489)	-0.001	(0.405)	-0.001	(0.708)	-0.001	(0.308)	-0.002	(0.255)	-0.001	(0.505)
EPS	0.108*	(0.080)					0.134**	(0.046)				
ROA			0.060**	(0.012)					0.070***	(0.002)		
ROE					0.038**	(0.036)					0.045**	(0.013)
Beta	-1.469**	(0.038)	-1.162	(0.117)	-1.339*	(0.062)						
Risk							-0.087	(0.581)	-0.126	(0.435)	-0.062	(0.701)
LEV	0.176	(0.136)	0.180	(0.124)	0.164	(0.162)	0.147	(0.218)	0.158	(0.183)	0.138	(0.244)
DA	-7.055**	(0.011)	-7.089***	(0.009)	-7.024***	(0.008)	-6.366**	(0.026)	-6.302**	(0.024)	-6.526**	(0.018)
LnTA	0.187	(0.213)	0.205	(0.173)	0.267*	(0.083)	0.165	(0.271)	0.200	(0.186)	0.254*	(0.098)
Intercept	-0.989	(0.723)	-1.928	(0.492)	-2.707	(0.352)	-1.839	(0.506)	-2.833	(0.313)	-3.646	(0.203)
Nagelkerke R²	0.284		0.301		0.288		0.257		0.289		0.266	
Cox & Snell R²	0.213		0.226		0.216		0.193		0.217		0.200	
N	166		166		166		166		166		166	

Panel B

Variables	Model 4-1		Model 4-2		Model 4-3		Model 4-4		Model 4-5		Model 4-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
DUA	0.480	(0.321)	0.487	(0.324)	0.495	(0.314)	0.532	(0.272)	0.579	(0.250)	0.556	(0.260)
MAN	1.268***	(0.007)	1.398***	(0.002)	1.316***	(0.005)	1.174***	(0.010)	1.353***	(0.003)	1.236***	(0.007)
AG	0.654	(0.295)	0.554	(0.379)	0.591	(0.345)	0.975*	(0.100)	0.813	(0.176)	0.892	(0.140)
GOV	2.372**	(0.021)	2.749**	(0.014)	2.570**	(0.017)	2.642**	(0.011)	3.120***	(0.008)	2.820***	(0.009)

Variables	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
SSDM	-0.009	(0.489)	-0.017	(0.269)	-0.015	(0.277)	-0.011	(0.384)	-0.020	(0.165)	-0.017	(0.199)
CR	-0.002	(0.280)	-0.002	(0.182)	-0.001	(0.415)	-0.002	(0.154)	-0.003*	(0.091)	-0.002	(0.267)
EPS	0.123*	(0.064)					0.149**	(0.033)				
ROA			0.071***	(0.006)					0.082***	(0.001)		
ROE					0.045**	(0.020)					0.052***	(0.006)
Beta	-1.555**	(0.039)	-1.293*	(0.100)	-1.432*	(0.061)						
Risk							-0.126	(0.439)	-0.183	(0.279)	-0.098	(0.556)
LEV	0.189	(0.119)	0.198	(0.101)	0.177	(0.142)	0.157	(0.201)	0.171	(0.160)	0.148	(0.224)
DA	-7.139***	(0.009)	-7.347***	(0.006)	-7.267***	(0.006)	-6.177**	(0.029)	-6.105**	(0.027)	-6.497**	(0.018)
LnTA	0.135	(0.388)	0.152	(0.335)	0.225	(0.162)	0.126	(0.424)	0.155	(0.329)	0.222	(0.167)
Intercept	-1.137	(0.689)	-2.131	(0.457)	-3.063	(0.302)	-2.330	(0.409)	-3.326	(0.244)	-4.308	(0.138)
Nagelkerke R^2	0.303		0.326		0.310		0.279		0.316		0.290	
Cox & Snell R^2	0.227		0.244		0.233		0.209		0.237		0.218	
N	166		166		166		166		166		166	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise);SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

Thirdly, we repeat our tests by controlling the industry effects. This is because that there are more than half of the listed companies are electronic based in the Taiwan stock market. It is our contentions the relationship between the CSR and the ownership in electronic industry may be differ to non-electronic industries. The results are shown in Table 7. It is found that firms in the non-electronic industries would like to undertake the CSR activities (coefficients of IND are insignificant and negative). Other results are similar with those reports in Table 3 and Table 4. Therefore, the results shown in Table 5-7 strengthen our findings and the results from these sensitivity tests are comparable to those of the primary analysis.

Table 7. Results of robustness checks: electronic and non-electronic industries

Panel A

Variables	Model 3-1		Model 3-2		Model 3-3		Model 3-4		Model 3-5		Model 3-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value
DUA	0.486	(0.250)	0.478	(0.267)	0.503	(0.238)	0.529	(0.218)	0.581	(0.194)	0.558	(0.200)
FAM	-0.962***	(0.007)	-1.111***	(0.003)	-0.994***	(0.006)	-1.056***	(0.003)	-1.212***	(0.001)	-1.096***	(0.002)
SSDM	-0.016	(0.181)	-0.022	(0.108)	-0.019	(0.108)	-0.020*	(0.086)	-0.027**	(0.046)	-0.024**	(0.046)
CR	-0.001	(0.593)	-0.001	(0.435)	0.000	(0.798)	-0.001	(0.387)	-0.001	(0.290)	-0.001	(0.573)
EPS	0.092*	(0.098)					0.111*	(0.064)				
ROA			0.067***	(0.007)					0.081***	(0.001)		
ROE					0.032*	(0.064)					0.037**	(0.029)
Beta	-1.464**	(0.027)	-1.055	(0.134)	-1.386**	(0.038)						
Risk							-0.216	(0.143)	-0.268*	(0.086)	-0.203	(0.174)
LEV	0.150	(0.196)	0.146	(0.210)	0.140	(0.226)	0.110	(0.343)	0.114	(0.331)	0.100	(0.381)
DA	-5.956**	(0.015)	-6.604***	(0.007)	-6.145***	(0.010)	-4.914*	(0.055)	-5.467**	(0.035)	-5.207**	(0.040)
IND	-0.288	(0.410)	-0.590	(0.127)	-0.309	(0.384)	-0.364	(0.292)	-0.746*	(0.052)	-0.397	(0.259)
LnTA	0.248*	(0.074)	0.272*	(0.052)	0.310**	(0.029)	0.250*	(0.071)	0.304**	(0.034)	0.318**	(0.024)
Intercept	-2.060	(0.418)	-3.028	(0.243)	-3.335	(0.206)	-3.123	(0.219)	-4.275	(0.104)	-4.454*	(0.088)
Nagelkerke R^2	0.249		0.274		0.250		0.232		0.278		0.235	
Cox & Snell R^2	0.187		0.205		0.187		0.174		0.108		0.176	
N	192		192		192		192		192		192	

Panel B

Variables	Model 4-1		Model 4-2		Model 4-3		Model 4-4		Model 4-5		Model 4-6	
	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value	coefficient	P-value

DUA	0.527	(0.225)	0.472	(0.288)	0.538	(0.221)	0.635	(0.151)	0.627	(0.175)	0.650	(0.147)
MAN	0.877*	(0.053)	1.198***	(0.010)	0.950**	(0.036)	0.837*	(0.061)	1.238***	(0.008)	0.932**	(0.038)
AG	0.800	(0.171)	0.649	(0.271)	0.751	(0.199)	1.057*	(0.065)	0.795	(0.169)	0.999*	(0.082)
GOV	2.021**	(0.039)	2.322**	(0.029)	2.141**	(0.034)	2.464**	(0.016)	2.840**	(0.014)	2.549**	(0.014)
SSDM	-0.014	(0.237)	-0.021	(0.119)	-0.018	(0.130)	-0.017	(0.144)	-0.026*	(0.056)	-0.022*	(0.070)
CR	-0.001	(0.401)	-0.002	(0.247)	-0.001	(0.565)	-0.002	(0.219)	-0.002	(0.125)	-0.001	(0.355)
EPS	0.104*	(0.078)					0.122**	(0.048)				
ROA			0.075***	(0.005)					0.089***	(0.001)		
ROE					0.037**	(0.040)					0.042**	(0.019)
Beta	-1.411**	(0.042)	-1.067	(0.142)	-1.340*	(0.055)						
Risk							-0.248*	(0.100)	-0.310*	(0.054)	-0.231	(0.130)
LEV	0.160	(0.176)	0.159	(0.185)	0.150	(0.205)	0.121	(0.302)	0.127	(0.291)	0.112	(0.337)
DA	-5.970**	(0.014)	-6.835***	(0.005)	-6.262***	(0.008)	-4.644*	(0.066)	-5.256**	(0.042)	-5.030**	(0.045)
IND	-0.183	(0.634)	-0.609	(0.158)	-0.231	(0.553)	-0.177	(0.639)	-0.707	(0.103)	-0.246	(0.523)
LnTA	0.216	(0.132)	0.231	(0.110)	0.284*	(0.053)	0.224	(0.121)	0.262*	(0.077)	0.296**	(0.044)
Intercept	-2.541	(0.325)	-3.423	(0.191)	-3.942	(0.140)	-3.764	(0.146)	-4.748*	(0.074)	-5.213**	(0.049)
Nagelkerke R^2	0.260		0.288		0.262		0.252		0.297		0.254	
Cox & Snell R^2	0.195		0.216		0.197		0.189		0.223		0.191	
N	192		192		192		192		192		192	

1. DUA is the dummy variable (1 indicates that CEO duality; 0 otherwise); FAM is the dummy variable (1 indicates that family firms; 0 otherwise); MAN is the dummy variable (1 indicates that firms are controlling by the professional managers; 0 otherwise); AG is the dummy variable (1 indicates collectively-owned firms; 0 otherwise); GOV is the dummy variable (1 indicates government-owned firms; 0 otherwise); SSDM is the deviation ratio between the number of board seats controlled and the percentage of shares owned by the ultimate owner; CR is the current ratio; Financial indicators include: EPS (earnings per share), ROA (return on assets) and ROE (return on equity); Risk indicators include: BETA (market risk) and RISK (unsystematic risk); DA (discretionary accruals); LNTA (the natural log of total assets); LEV (leverage); IND (industry variables)

2. ***significant at 1% level, ** significant at 5% level, * significant at 10% level

5. Conclusions

We used several regression models to investigate the relationship between the CSR and the ownership structure in Taiwan, an Asia emerging market. In general, our results suggest that firms which are controlled by professional managers, government-owned, or collectively-owned would like to undertake serious efforts to integrate the CSR into various aspects of their companies (Lee and Faff, 2009; Harjoto and Jo, 2007). This may be because the CSR is a good communication tool for a firm and the CSR could also decrease the information asymmetry between managers and investors (Reverte, 2011). This may suggest that firms in Taiwan tend to spend more time and efforts on their social behaviours and green investors increase the demand the stocks of the firms with better social responsibilities (Ghoul et al., 2011). In terms of the firms' common risk factors, our results indicate that CSR firms have significantly lower systematic risk (Beta) and unsystematic risk (RISK). The results of risk factors are consistent with prior studies. This study also reposts that earnings quality and the CSR is positively associated. This may suggest that CSR firms with a better quality of earnings, management will be less likely to use of discretionary accruals to manipulate earnings, which making lower information asymmetry between financial report users and

business managers (Aboody et al., 2005). The results of this study also suggest that family firms are less likely to engage in the CSR activities in Taiwan. This may be because family firms are self-interested and only concerned about the firm's financial performance (Morck and Yeung, 2004). Prior literature suggested that the cultural differences between the Western and Oriental societies may have different investors' perceptions of the CSR and the ownership structures. However, our findings show that the cultural differences do not have effects on the relationships between the CSR and the ownership structures. This may indicate that the methods used in this study provide a good proxy for firms' CSR and the ownership structure. Therefore, we strongly suggest that the Taiwanese firms should increase their CSR activities which could be a communication tool between firms and investors and could reduce the information asymmetries.

References

1. Aboody, D., J. Hughes, and J. Liu. 2005. Earnings Quality, Insider Trading, and Cost of Capital. *Journal of Accounting Research*, 43(5), pp.651-673.
2. Ali, A., T. Y. Chen, and, S. Radhakrishnan. 2007. Corporate Disclosure by Family Firms. *Journal of Accounting and Economics*, 44, pp.238-286.
3. Boutin-Dufresne, F., and, P. Savaria. 2004. Corporate social responsibility and financial risk.

Journal of Investing Spring, pp.57-66.

4. Brammer, S., C. Brooks, and S. Pavelin. 2006. Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial Management*, 35, pp. 97-116.

5. Dowling, J., and Pfeffer J. 1975. Organisational legitimacy: Social values and organisational behaviour. *Pacific Sociological Review*, 18(1), pp.122-136.

6. Dyer, W. G. Jr., and D. A. Whetten. 2006. Family Firms and Social Responsibility: Preliminary Evidence from the S&P 500. *Entrepreneurship theory and practice* November, pp.785-802.

7. Ebihara, T., K. Kubota, H. Takehara, and E. Yokota. 2012. Quality of accounting disclosure by family firms in Japan. working paper.

8. Fama, E. F., and K. R. French. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33, pp.3-56.

9. Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The Market Pricing of Accruals Quality. *Journal of Accounting and Economics*, 39(2), pp.295-327.

10. Galema, R., A. Plantinga, and B. Scholtens. 2008. The stocks at stake: return and risk in socially responsible investment. *Journal of Banking and Finance*, 32, pp.2646-2654.

11. Ghazali, N. A. M. 2007. Ownership structure and corporate social responsibility disclosure: some Malaysian evidence. *Corporate Governance*, 7 (3), pp.251 – 266.

12. Ghoul, S. E., O. Guedhami, , C. Y. Kwok, and D.R. Mishra. 2011. Does corporate social responsibility affect the cost of capital? *Journal of Banking and Finance*, 35, pp.88-2406.

13. Godfrey, P.C. *2005.* The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review,* **30***(4)pp.*777–798*.*

14. Goss, A. and G. S. Roberts. 2011. The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking and Finance*, 35, pp.1794-1810.

15. Guenster, N., R. Bauer, J. Derwall, and K. Koedijk. 2006. The economic value of corporate eco-efficiency. *European Financial Management*, 17(4), pp.679-704.

16. Hackston, D, and M. J. Milne. 1996. Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing and Accountability Journal*, 9(1), pp.77-108.

17. Haniffa, R. M. and T. E. Cooke. 2005. The Impact of Culture and Governance on Corporate Social Reporting. *Journal of Accounting and Public Policy*,24(5),pp.391–430.

18. Harjoto, M., H. Jo. 2007. Corporate Governance and Firm Value: The Impact of Corporate Social Responsibility. Working Paper, Santa Clara University.

19. Jiao, Y. 2010.Stakeholder welfare and firm value.*Journal of Banking and Finance*, 34, pp.2549-2561.

20. Khan, A., M. B. Muttakin, and J. Siddiqui. 2012. Corporate governance and corporate social responsibility disclosures: evidence from an emerging economy. Working paper.

21. Kim, Y., M. S. Park, and B. Wier. 2011. Is earning quality associated with corporate social responsibility.Working paper.

22. Knox, S., S. Maklan, and P. French. 2006. Corporate social responsibility: Exploring stakeholder relationships and programme reporting across leading FTSE companies. *Journal of Business Ethics*, 61(1), pp.7–28.

23. Kubota, K., T. Ebihara, H. Takehara, and, E. Yokota. 2012. Market liquidity, private information, and the cost of capital: microstructure studies on family firms in Japan. Working paper.

24. Lee, D., and R. Faff. 2009. Corporate sustainability performance and idiosyncratic risk: a global perspective. *Financial Review*, 44, pp.213–237.

25. Masulis,R.W., P. K. Pham, J. Zein. 2011. Family business groups around the world: costs and benefits of pyramids. *Review of Financial Studies*, 24, pp.3556-3600.

26. Mazzi, C.. 2011. Family business and financial performance: current state of knowledge and future research challenges. *Journal of Family Business Strategy*, 2, pp.166-181.

27. Morck, R.*and B.* Yeung, B. 2004.Family control and the rent-seeking society.*Entrepreneurship Theory and Practice,* **28(4), pp.**391–409.

28. Nelling, E. and E. Webb. 2009. Corporate social responsibility and financial performance: the "virtuous circle" revisited. *Review of Quantitative Finance and Accounting*, 32, pp.197-209.

29. Oh, W. Y., Y. K. Chang and A. Martynov. 2011. The Effect of Ownership Structure on Corporate Social Responsibility: Empirical Evidence from Korea. *Journal of Business Ethics,* 104 (2), pp.283-297.

30. Orlitzky, M., F. Schmidt, and S. Rynes. 2003. Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24, pp.403-441.

31. Reverte, C.. 2011. The impact of better corporate social responsibility disclosure on the cost of equity capital. *Corporate Social Responsibility and Environmental Management*, doi: 10.1002/csr.273.

32. Wang, D.. 2006. Funding family ownership and earnings quality. *Journal of Accounting Research*, 44, pp.619-655.

GOVERNMENT OWNERSHIP, BUSINESS RISK, FINANCIAL LEVERAGE AND CORPORATE PERFORMANCE: EVIDENCE FROM GCC COUNTRIES

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Abstract

This study investigates the effect of government ownership structure, business risk and financial leverage among other variables (size, age and growth) on a company's performance in a panel data, using 191 companies from five GCC countries (Qatar, Saudi Arabia, Oman, Bahrain and Kuwait), during the period 1999- 2006. Our results indicate that government ownership affects the performance and value of GCC firms. Government ownership positively and significantly affects firm's performance ROA. The insignificance of a firm's leverage (LEV) indicates that the firm's performance is irrelevant to its capital structure, and that supports Modigliani and Miller (M&M) (1958) argument. Our finding is that business risk (BETA) significantly and positively affects firm's performance ROE and supports the classic risk trade-off arguments. Furthermore, age was found to have a positive and significant impact on firm's performance ROA and ROE.

Keywords: Firm Performance, Agency Theory, Ownership Structure, Government Ownership, Business Risk, Financial Leverage, GCC Countries

JEL Classification: G30; G31; G32; G34; L25

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1. Introduction

Over decades, ownership structure and its relationship with firm performance has been central to ongoing debate in the literature of corporate finance since Berle and Means (1932) early work in this field. Berle and Means (1932) suggested that an inverse correlation should be observed between the diffuseness (concentration) of shareholdings and firm performance, in which ownership structure affects firm performance. Since Berle and Means (1932) work, several studies in corporate governance have addressed this issue which is generated by the separation of ownership and control, trying to find solutions. For example, Jensen and Meckling (1976) suggested that increasing the managers ownership in the firms may decrease the conflict of interests between shareholders and managers. However, as suggested by Shleifer and Vishny (1997) governance problem may also exist between majority and minority shareholders.

Corporate governance models vary around the world, which could affect the relationship between ownership structure (mix and concentration) and corporate performance (Shleifer and Vishny, 1997). For example, in Europe, firms rely less on elaborate legal protection, but rely more on large investors (high concentration) while in the US, firms rely on legal protection. So, due to these differences, a different relationship between firm performance and ownership structure is expected. Recent studies of corporate governance suggest that geographical position and industrial development could affect ownership structure, which in turn have impacts on both the firm's performance and its health (Pedersen and Thompson, 1997). Therefore, the findings of studies from developed markets are invalid for developing countries.

GCC countries attempt to merge with global economy. Globalization provided social, cultural, legal, and financial protection to trade and investment internationally. Building corporate governance systems provides an appropriate start for the development of economy, building a competitive market, improving investment climate and to merge with global economy. According to Al-Muharrami et al. (2006) Saudi Arabia, Kuwait and UAE have moderately concentrated markets and banks that operate under conditions of perfect competition (see also Al-Muharrami, 2009). However, Qatar, Oman and Bahrain are highly concentrated Markets operating under conditions of monopolistic competition.

GCC countries concern about corporate governance is relatively new compared to other

countries around the world. Oman was the first GCC country to issue corporate governance code, followed by Saudi Arabia. The Saudi code of corporate governance was issued in 2006. In Bahrain, the work on creating a corporate governance code started in 2006, and in 2008 the code was presented. The final version of a corporate governance code in Bahrain was issued to public in 2009. Qatar is also considered one of the leading GCC countries to issue the corporate governance code in 2009 by the Qatar Financial Markets Authority (QFMA). Despite the important effect that corporate governance may have on a firm's performance and its value, and despite the importance of corporate governance around the world and in MENA region, corporate governance in Kuwait is still underdeveloped; an example of this is the governance code which was issued in Kuwait in 2010. New corporate governance code was issued in the UAE in 2011 and a corporate governance code for SMEs in UAE was also issued in 2011. Therefore, there is a great concern about the importance of corporate governance on firms' performance and value in GCC countries, and proving empirical evidence adds more value. However, foreign ownership in GCC is still quite small and insignificantly affects investment decisions. Therefore, GCC countries are expected to open their market more and encourage foreign investors by liberalizing their economy (Zeitun, 2011).

Studies on the relationship between ownership structure and firm performance in the developed countries are commonplace, and there have been relatively very few studies conducted for the GCC countries using banks data. This paper investigates the effect of government ownership fraction on firms' performance in GCC countries (Oman, Qatar, Saudi Arabia, Bahrian, and Kuwait). To the best of our knowledge, this is the first study that utilises real figures about government ownership to investigate the effect of government ownership on corporate performance for the GCC countries using panel data for 191 companies during the 1999-2006 period. Furthermore, there is no study yet that has examined or investigated the relationship between corporate governance and firm performance for companies in GCC countries. It is worth noting that government ownership data was collected manually, and that vast effort made this research possible.

This paper makes several contributions. It is the first study for the GCC countries that analyses the determinants of firm performance using two measures of performance, ROA and ROE. Also, this paper represents the first attempt to investigate the effect of government ownership on firms' performance in GCC. Furthermore, the current study attempts to investigate the effect of financial leverage and business risk on corporate

performance in GCC countries. Moreover, since this study is relevant to the GCC investment environment, results of this study could be applicable to these countries as they have similar economies.

The rest of the paper has the following structure: Section 2, presents the literature review. Section 3, explains the sample, the sources of data, and the empirical model used in the study. Section 4, reports the empirical results of the study. The final section concludes the study.

2. Literature review

Theoretical and empirical research on the relationship between ownership structure and firm performance was motivated by the agency theory (Jensen and Meckling, 1976). According to Jensen and Meckling (1976) there may be a conflict of interests between outsiders (shareholders) and insiders (managers), as managers may have self-interest to maximize rather than maximising shareholders' wealth. Increasing the managers' ownership in the firms may control the conflict of interest between insiders and outsiders, therefore encouraging managers to work more efficiently to maximise shareholders' wealth. However, it may also work in the opposite direction according to Myers and Majluf (1984), as large shareholders may use their ownership to achieve benefits at the expense of outsiders.

A study by Hill and Snell (1989) confirmed the positive relationship between ownership structure and corporate performance for US firms by taking productivity as a measure of a firm's performance. Xu and Wang (1997) provided evidence from China. They found that firms' profitability is negatively correlated with the fraction of state-owned shares. Wu and Cui (2002) examined the relationship between ownership concentration and corporate performance for a sample consisting of 909 listed companies in mainland China for the year 2000. They found that there is a positive and significant relationship between firm's performance and government (state) ownership and institution ownership. Another evidence from China provided by Wei, Xie, and Zhang (2005) for a sample of 5284 of China's privatized former state-owned firms from 1991-2001, found that both state and institutional ownership are significantly negatively related to Tobin's Q. Zeitun and Tian (2007) examined the impact of ownership structure on Jordanian firms' performance and the default risk of a matched sample of 59 publicly listed firms in Jordan for the period 1989-2002. They found that government shares have a significant and negative impact on firms' performance ROE and on firms' probability of default. They also concluded that reducing government ownership can increase a

firm's performance, but also affects some firms to go bankrupt.

Lizal (2002) finds that government ownership as well as foreign ownership reduces the corporate failure. Anderson, Mansi and Reeb (2004) used different factors to control firm performance, namely firm leverage, risk (volatility), debt liquidity, debt duration, debt credit, rating block holdings, cash flow, and firm size. They found that family firms have a lower agency cost and debt cost which could decrease the default risk.

Another stand of empirical testing has examined the endogeneity relationship between ownership structure and a firm's performance. Several studies provide evidence of the endogeneity of a firm's ownership structure (see e.g. Demestz (1983), Demestz and Lehn (1985), Himmelberg et al. (1999), Demsetz and Villalonga (2001), among others).

The conflicting results of the effect of ownership structure on a firm's health point to the possibility of a non-linear relationship between ownership concentration and the firm's health (see Morck, Shleifer and Vishny (1988), Cho (1998), Keasey (1999), Holderness, Kroszner and Sheehan (1999), Miguel and Pindado (2001), among others)

Ownership concentration effect on firms' performance is also another stand of empirical research in this field. Several studies have examined the relationship between ownership concentration and firms' performance and the findings were mixed (see Prowse (1992), Faccio and Lang (2002), Earle, Kucsera, and Telegdy (2005), among others). For example, Kaplan and Minton (1994), and Morck, Nakamura and Shivdasani (2000) results confirmed the relationship between ownership concentration and firms' performance. Opposing evidence is shown in Prowse (1992), whose results indicated that there is no relationship between ownership concentration and profitability.

Financial leverage and its relationship with firm's performance have also been central to ongoing literature in corporate finance. It's considered as an important factor in determining the firm's value. According to Modigliani and Miller (1963), the use of debt can increase the firm's value, as interest payments are tax deductible. Gordon and Kwan (1979) have shown that a firm's value is an increasing function of its leverage rate at zero leverage rate. On the other hand, Modigliani and Miller (M&M) (1958) argued that in a market free of imperfections, the firm value is unaffected by its capital structure, only the future cash flow determine firm value.

However, as a firm increases the use of debt, ownership moves from equity holders to debt holders and the firm's performance decreases and failure increases. According to Myers and Majluf (1984), a firm first relies on its own internal source of funds (firm's cash flow), then on debt, and finally, on equity according to the pecking order hypothesis. Bevan and Danbolt (2002) stated that more profitable firms should hold less debt in their capital structure, as firms with a high level of profits provide a high level of internal funds and have less default risk.

Krishnan and Moyer (1997) provided evidence from emerging market economies of some Asian countries (Hong Kong, Malaysia, Singapore and Korea) for 81 companies. They found a negative and significant impact of financial leverage on firms' performance ROE. Othere studies also found a negative relationship between earning and leverage (see Titman and Wessels (1988), Baskin (1989), Rajan and Zingales (1995), Fama and French (1999), and Zeitun (2008), among others).

Gleason et al. (2000) investigated the effect of capital structure on the firm's performance for 198 retailers in 14 European countries for 1994. They found that the firm's capital structure has a negative and significant impact on the firm's performance return on assets ROA. Zeitun (2008) found that a firm's leverage affects the firm's performance negatively and significantly.

3. Data and Estimation Method

3.1 Data

The data used in this study is derived from publicly traded companies from GCC countries (Qatar, Saudi Arabia, Oman, Bahrain and Kuwait), over the period 1999-2006. Our sample includes pooled cross-sectional and time-series data for 191 companies from five GCC countries. Furthermore, our sample contains no financial companies such as banks or insurance as they have different characteristics from industrial and service firms. The major items of interest are: financial statements (income statements and balance sheets) and ownership structure. The full balance sheets and income statements are usually available from firms as the law requires disclosure. The ownership data was collected manually, as it is not available for all firms and for all years. This vast effort made this research possible.

3.2 Proxies Variables

Two measures of performance were used in this study; return on assets (ROA) and return on equity (ROE). These two measures have been used by many researchers (e.g. Demsetz and Lehn (1985), Gorton and Rosen (1995), Mehran (1995), and Ang, Cole and Line (2000), Williams (2003), Kosmidou (2008), Siddiqui (2008) and Sufian and Habibullah (2009), among others). The explanatory variables are government ownership fraction, firm size, growth rate, financial leverage, business risk, and

business age. The first variable used is the government ownership measured by the fraction owned by government. According to the property rights theory, the private firms will outperform the state-owned if the firm operates in a competitive market (e.g. Alchian and Demsetz, 1972). In this study we argue that government ownership (GOV) to be positively related to a firm's performance as GCC economies are not fully opened to foreign investors. (see Al-Muharrami, 2006). Firm's size (SIZE)[28] is measured by the log of assets (see e.g. Morck et al. (1988), McConnell and Servaes (1990) and Zeitun (2009)). Firm size is found to be one of the primary and significant determinants of a firm's performance (e.g., Smirlock (1985), Gleason, Mathur and Mathur (2000), Pasiouras and Kosmidou (2007) and Zeitun (2009), among others). A firm's size is expected to have a positive and significant impact on firm's performance[29].

The third variable is growth opportunity (GROW), and it is measured by growth in sales. Firms with high growth rate are expected to have a better performance, as they can generate more profit from investment (e.g., Zeitun, 2009). Firm leverage is defined as total debt to total assets (LEV). According to Modigliani and Miller (M&M) (1958) in a market free of imperfections, the firm value is unaffected by its capital structure, only the future cash flow determined firm value. However, according to Modigliani and Miller (1963) debt financing may increase the firm's value, as interest expenses are tax deductible. On the other hand, increasing debt results in an increase in the probability of default or bankruptcy. Firm leverage (LEV) is expected to influence firm's performance.

The fifth variable is business risk, measured by beta (BETA). According to the classic risk-return trade-off arguments, firms with higher risk are expected to have higher returns. Thus, it is expected to have a positive and significant relationship between business risk and corporate performance. Firm's age (AGE) is the last variable used in this study. It is argued that old firms are more profitable and less risky compared to young ones as they have more experience (e.g. Stanger, (2000), among others). So, we argued that there is a positive relationship between corporate age and its profitability. Dummy variables for industrial and

service sectors were used to control the difference between the two sectors, *DUMi*. Furthermore, dummy variables were used to control for country effect (Bahrain, Saudi Arabia, Kuwait, Oman, and Qatar).

3.3 Econometrics and Empirical Model.

The regression model in this study takes the form of the random effects model (REM) for unbalanced panel data (Greene, 2003). The random effects model is more preferable in the case of our data, since we need to control for the effect of sectors and countries and the fixed effect model drops all the time-invariant variables. The Random Effects model for the unbalanced panel would be specified as:

$$y_{it} = X_{it}'\beta + \alpha_i + u_{it} \quad u_{it} \sim N(0, \sigma_u^2) \quad (1)$$
$$\text{where:}$$
$$\alpha_i = \bar{\alpha} + \mu_i \quad \mu_i \sim N(0, \sigma_\mu^2)$$

So, the model has a single intercept and an unobserved random disturbance, μ_i, that accounts for differences between individuals in the cross-section (see Wooldridge, 2002; Greene, 2003). This model can be written as

$$y_{it} = \bar{\alpha} + X_{it}'\beta + \mu_i + u_{it} \quad (2)$$

y_{it} is the dependent variable for firm i in period t, X_{it} and β are $K \times 1$ where K is the number of right hand side variables, μ_i is the random component.

To assess the determinants of corporate performance and to investigate the effect of government ownership on the firm's performance we estimate the following model:

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[28] In the previous work, the value of total assets is used to control size effect (see e.g., Morck et al., 1988 and McConnell and Servaes, 1990). Other studies used sales to control for size (see e.g. Xu and Wang, 1997). The logarithm of total sales is used in this research. It has lower explanatory power than assets, and its inclusion in regressions of ROA and ROE makes the results not significant.
[29] However, size found to have insignificant effect on firm's size (e.g., Durand and Coeuderoy, (2001) and Tzelepis and Skuras (2004), among others).

$$Y_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 SIZE_{it} + \beta_3 GROW_{it} - \beta_4 LEV_{it} - \beta_5 BETA_{it}$$
$$+ \beta_6 AGE_{it} + \mu_i + u_{it} \tag{3}$$

Where Y_{it} denotes alternatively to *ROA* or *ROE*, for firm *i* as a measure of performance at time *t*. β_0 is a constant term. ROA refers to net income to total assets; ROE refers to net income to total equity. The independent variables are: government ownership fraction (GOVE), firm's size (SIZE), growth rate (GROW), firm leverage (LEV), business risk (BETA), and firm age (AGE). μ_i is used to capture the unobserved individual effects (either Fixed Effects model or Random Effects model), and u_{it} is the error term, which represents the measurement errors in the independent variables and any explanatory variables that have been omitted.

4. Empirical Results

Table 1 reports summary statistics for the variables used in the study. The average return to assets for the sample as a whole is 5.8%, while the average return to equity is about 8.65%. The correlation matrix for the variables is reported in Table 2 in order to examine the correlation between the explanatory variables. The results show there is no multicollinearity problem among the independent variables used in the study. The estimation results of Equation (3) are presented in Tables 3 and 4 using the random-effects model.

Table 1. Description Statistics for the Dependent (s) and Independent Variables

Variable	Mean	Std. Dev.	Min	Max
ROE	8.648	12.558	-91.3	162.2
ROA	5.820	13.581	-37	301
Government ownership (GOV)	10.098	17.513	0	92
Firm Size (SIZE)	10.296	2.733	0	18.510
Growth Rate (GROW)	0.4278	2.722	-2.69	49.2
Financial Leverage (LEV)	204.875	2714.892	0	82183.3
Business Risk (BETA)	0.394	0.476	-1.84	3.8
Firm Age (AGE)	16.899	11.0224	-1	49

Note: ROA=the return on assets; ROE= return on equity; government ownership (GOV)= fraction of ownership owned by government; firm size (SIZE) = log of assets; growth (GROW)= Growth opportunities measured by growth of sales; financial leverage (LEV)= total debt to total assets; business risk (BETA)=beta; firm's age= number of years.

Table 2. Correlation Matrix for the Explanatory Variables

	Government ownership	Firm Size	Growth Rate	Financial Leverage	Business Risk	Firm Age
Government ownership	1					
Firm Size	0.2361	1				
Growth Rate	-0.0112	-0.0886	1			
Financial Leverage	-0.0308	-0.0703	0.0084	1		
Business Risk	0.0785	0.4558	-0.0616	-0.0091	1	
Firm Age	0.1785	0.3588	-0.0769	-0.0576	0.2357	1

Note: ROA=the return on assets; ROE= return on equity; government ownership (GOV)= fraction of ownership owned by government; firm size (SIZE) = log of assets; growth (GROW)= Growth opportunities measured by growth of sales; financial leverage (LEV)= total debt to total assets; business risk (BETA)=beta; firm's age= number of years.

Table 3 reports the results for estimation of Equation 3 using ROA performance measure. Table 4 reports the results using ROE performance measure. The results show that government ownership (GOV) has a positive and significant impact on ROA only. This finding is consistent with Zeitun (2009) finding that the fraction of equity owned by government has a positive and

significant impact on corporate performance ROA. The impact of corporate ownership (GOV) becomes stronger as industry dummy variables are added to the Model. It shows that government ownership in GCC countries is important determinant for firm's performance as most firms owned by government. Also, foreign ownership in GCC is still quite small and insignificantly affects investment decisions.

Our finding provides support for the agency theory by Jensen and Meckling (1976). Also, this finding of a significant impact of ownership on firm's performance is consistent with prior research including Xu and Wang (1997), Abed Shahid (2003), Wei, Xie, and Zhang (2005) and Zeitun (2009), among others.

Table 3. Estimation Results for Panel Data Model Using ROA as Dependent Variable

Explanatory Variables	Model 1 Without Dummies	Model 2 With countries Dummies	Model 3 With industry Dummy
Constant	(-4.2509)**	(-7.2963)	(-3.9657)**
Government ownership	(0.0323)***	(-0.00446)	(0.0348)***
Firm Size	(0.7831)*	(1.4019)*	(0.797)*
Growth Rate	(-0.0012)	(-0.0374)****	(-0.0015)
Financial Leverage	(-0.0012)	(-0.001)	(-0.0001)
Business Risk	(-1.2622)***	(-1.3943)***	(-1.2278)
Firm Age	(0.1044)**	(-0.0689)	-0.1022
Bahrain (reference)			
Saudi Arabia		(-6.3525)*	
Kuwait		(-1.3419)	
Oman		(-1.8565)	
Qatar		-6.2374	
Industrial sector (Refernce)			
Services Secor			-0.9315
Waled test for Random Effect Model	(89.81)*	(238.53)*	(103.95)*
Observations	929	929	929
R-squared	0.1026	0.2351	0.1061
Breusch and Pagan Lagrangian	(24.55)*	(9.3)*	(24.19)*
Hausam Test	(7.78)*	(3.92)	(4.56)*

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

In all regressions, the firm's size (SIZE) has a positive impact on firm's performance measures, ROA and ROE, and they are significant, at least at 1% level. This finding is consistent with our expectation, and with previous findings including Gleason, Mathur, and Mathur (2000), and Pasiouras and Kosmidou (2007), Zeitun (2009), among others. The significance of firm size indicates that large companies in GCC earn higher returns compared to smaller companies, as large firms can

decrease costs. It provides evidence of economies of scale.

Intresttingly, growth (GROW) is found to have a negative but insignificant impact on firm's performance measure ROA. This result is inconsistent with our expectation, that high growth rate is associated with high performance. However, the growth (GROW) is found to have a positive but insignificant effect on the performance measure ROE. Therefore, the positive sign supports our expectation partially.

Table 4. Estimation Results for Panel Data Model Using ROE as Dependent Variable

Explanatory Variables	Model 1 Without Dummies	Model 2 With countries Dummies	Model 3 With industry Dummy
Constant	(-6.784)**	(-22.112)*	(-6.1024)*
Government ownership	(0.0123)	(-0.040)	(0.018)

Firm Size	(1.1767)*	(2.9711)*	(1.208)*
Growth Rate	(0.1812)	(0.1609)	(0.180)
Financial Leverage	(-0.009)	(-0.007)	(-0.002)
Business Risk	(2.0476)**	(2.111)**	(2.0816)**
Firm Age	(0.1006)**	(0.1091)**	(0.096)***
Bahrain (reference)			
Saudi Arabia		(-12.2378)*	
Kuwait		(-4.0576)***	
Oman		(2.1217)	
Qatar		(-1.3239)	
Industrial sector (Refernce)			
Services Sector			(-2.0981)***
Wald test for Random Effect Model	(78.04)*	(158.06)*	(73.92)*
Observations	929	929	929
R-squared	0.0867	0.2867	0.0993
Random Effect vs OLS	(155.84)*	(91.69)*	(151.54)*
Hausam Test	(11.83)**	(2.76)	(12.37)**

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

Firm leverage (LEV) is found to have a negative but insignificant impact on GCC firm's performance measures ROA and ROE. The insignificance of firm's leverage (LEV) indicates that firm's performance in GCC is irrelevant to its capital structure, which supports Modigliani and Miller (M&M) (1958) argument. However, this finding does not support our expectation. Another interesting result is the significant positive coefficient of the business risk (BETA) on the ROE. This finding supports our expectation that there is a positive relationship between risk and corporate performance. Furthermore, this finding is consistent with, and provides evidence to the classic risk trade-off arguments, that firms with higher volatility in income are expected to have higher income. However, business risk (BETA) was found to have a negative and significant effect on firm's performance measure ROA.

As expected a firm's age (AGE) was found to have a positive and significant effect on ROA and ROE. The positive coefficient of firm's age indicates that firm's performance is better for firms with more age, as they have more experience than firms with less age. This result is consistent with our expectation, but inconsistent with Zeitun (2009) finding that firm's age has a negative and significant impact on firm's performance.

Analysis extended to investigate the country effect. Interestingly, the significance of some explanatory variables decreased as country specific dummy variables added to the model. For instance, government ownership (GOV) and firm age (AGE) become insignificant using ROA performance measure. However, the results show that firm's profitability varies slightly by countries. Interestingly, none of the coefficients of country dummy variables have a significant effect on firm's performance rather than Saudi Aarabia and Kuwait. Saudi Bahrain dummy variable found to hav a negative and significant impact on ROA and ROE, while Kuwait found to have a negative and significant impact on ROE only, at a low level of significance.

5. Conclusion

This study empirically investigated the effect of government ownership, business risk, financial leverage and other variables (size, growth rate firm's age) on corporate performance from five GCC countries. A cross-sectional and time-series data for 191 companies was used during the period 1999-2006.

Investigating the effect of ownership structure on a firm's performance has been central to ongoing research in corporate governance. However, evidence on the nature of the relationship between ownership structure and firm's performance has been decidedly mixed. Furthermore, most of the studies are conducted in developed countries and in some Asian countries where the characteristics of firms and ownership structure are different from Middle Eastern countries and especially GCC countries. So, implications from the theory may not be applicable to other countries. Therefore, this study provides evidence from Middle Eastern countries (GCC countries) and expands the previous studies.

The empirical evidence in this study shows that government ownership plays an important role in the performance and value of GCC firms. The results show that corporate governance is important in explaining and increasing firm's performance

ROA. The significance of government ownership increased as we control for the industry effect. However, government ownership was not found to have a significant impact on ROE. This finding is important as it shows there are other variables more important than government ownership in explaining and increasing ROE. It may also, provide evidence that companies owned by government in CGG tend to have more protection and more opportunity to make profit, since firms in Qatar, Bahrain, and Oman are operating under conditions of monopolistic competition.

Additionally, size was found to have a positive and significant effect on firm's performance ROA and ROE. It indicates that large companies have more potential to earn more income compared to smaller companies (Gleason, Mathur, and Mathur (2000), and Pasiouras and Kosmidou (2007) and Zeitun (2009), among others). Our findings manifested business risk (BETA) significantly and positively affecting firm's performance ROE, providing evidence to the classic risk trade-off arguments. However, business risk (BETA) was found to have a negative and significant effect on ROA. Firm's age has a positive significant impact on firm's performance ROA and ROE. Our evidence suggests that a firm's age participates in improving the firm's performance in GCC countries. The insignificance of firm's leverage (LEV) indicates that a firm's performance is irrelevant to its capital structure in GCC countries, which supports Modigliani and Miller (M&M) (1958) argument.

References

1. Abdel Shahid, S., 2003, Does Ownership Structure Affect Firm Value? Evidence from The Egyptian Stock Market, Working Paper, [online], (www.ssrn.com).
2. Ang, J., R. Cole, and J. Lin, 2000, Agency Costs and Ownership Structure, Journal of Finance. LV (1), 81-106.
3. Alchian, A., and H. Demsetz, 1972, Production information costs and economic organization. The American Economic Review, 66 (December) 777-795.
4. Al-Muharrami, S., 2009, The competition and market structure in the Saudi Arabia banking, Journal of Economic Studies (5) 446 – 460.
5. Al-Muharrami, S.; Matthews, K. and Y. Khabari, 2006, Market Structure and Competitive Conditions in the Arab GCC Banking System, *Journal of Banking and Finance*,. 30 (12), pp. 3487-3501.
6. Anderson, R. C., S. Mansi, and D. M. Reeb, 2004, Board Characteristics, Accounting Report Integrity, and the Cost of Debt, *Journal of Accounting and Economics* 37, 315-342.
7. Baskin, J., 1989, An Empirical Investigation of the Pecking Order Hypothesis, *Journal of Financial Management* 18, 26-36.
8. Berle, A., and G. Means, 1932, The Modern Corporation and Private Property, Harcourt, Brace, & World, New York.
9. Bevan, A., and J. Danbolt, 2002, Capital Structure and Its Determinants in the UK - A decompositional Analysis, *Applied Financial Economics* 12, 159-170.
10. Cho, M. H., 1998, Ownership Structure, Investment, and the Corporate Value: An Empirical Analysis, *Journal of Financial Economics* 47, 103-121.
11. Demestz, H., 1983, The Structure of Corporate Ownership and the Theory of the Firm, *Journal of Law and Economics* 26, 375-390.
12. Demestz, H., and K. Lehn, 1985, The Structure of Corporate Ownership: Causes and Consequences, *Journal of Political Economy* 93, 1155-1177.
13. Demsetz, H., and B. Villalonga, 2001, Ownership Structure and Corporate Performance, *Journal of Corporate Finance* 7, 209–233.
14. Durand, R., and R. Coeurderoy, 2001, Age, Order of Entry, Strategic Orientation, and Organizational Performance, *Journal of Business Venturing* 16, 471-94.
15. Earle, J. S., C. Kucsera, and A. Telegdy, 2005, Ownership Concentration and Corporate Performance on the Budapest Stock Exchange: Do Too Many Cooks Spoil the Goulash?, *Corporate Governance* 13, 254-264.
16. Faccio, M., and L. H. Lang, 2002, The Ultimate Ownership of Western European Corporations, *Journal of Financial Economics* 65, 365-395.
17. Fama, E. F., and K. R. French, 1999, Testing Trade-off and Pecking Order Predictions about the Dividends and Debt, Working Paper, University of Chicago.
18. Gleason, K. C., L. K. Mathur, and I. Mathur, 2000, The Interrelationship between Culture, Capital Structure, and Performance: Evidence from European Retailers. *Journal of Business Research,* 50 (2), 185-191.
19. Gordon, M. J., and C. C. Kwan, 1979, Debt Maturity, Default Risk, and Capital Structure, *Journal of Banking and Finance* 3, 313-329.
20. Gorton, G., and R. Rosen, 1995, Corporate Control, Portfolio Choice, and the Decline of Banking, *Journal of Finance* 50, 1377-420.
21. Greene, W. H., 2003. *Econometrics Analysis* (Prentice Hall, New York).
22. Hill, C., and S. Snell, 1989, Effects of Ownership Structure and Control on Corporate Productivity, *Academy of Management Journal* 32, 25-46.
23. Himmelberg, C., R. G. Hubbard, and D. Palia, 1999, Understanding the Determinants of Managerial Ownership and the Link Between Ownership and Performance, *Journal of Financial Economics* 53, 353–384.
24. Holderness, C., and D. Sheehan, 1988, The Pole of Majority Shareholders in Publicly Held Corporations: An Exploratory Analysis, *Journal of Financial Economics* 20, 317-46.
25. Jensen, M., and W. Meckling, 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics* 3, 305-360.
26. Kaplan, S., and B. Minton, 1994, Appointments of Outsiders to Japanese Boards, Determinants and Implications for Managers, *Journal of Financial Economics* 23, 225-258.

27. Kester, V., 1986, Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations, *Financial Management* 1, 5-16.
28. Kosmidou, K., 2008, The determinants of banks' profits in Greece during the period of EU financial integration, *Managerial Finance* 34 (3), 146-159.
29. Krishnan, V. S., and R. C. Moyer, 1997, Performance, Capital Structure and Home Country: An Analysis of Asian Corporations. *Global Finance Journal* 8, 129-143.
30. Lizal, L., 2002, Determinants of Financial Distress: What Drives Bankruptcy in A Transition Economy?, The Czech Republic Case, [online], (www.ssrn.com).
31. McConnell, J. J., and H. Servaes, 1990, Additional Evidence on Equity Ownership and Corporate Value, *Journal of Financial Economics* 27, 595-612.
32. Mehran, H., 1995, Executive Compensation Structure, Ownership, and Firm Performance, *Journal of Financial Economics* 38, 163-184.
33. Miguel, A., and J. Pindado, 2001, Determinants of Capital Structure: New Evidence from Spanish Panel Data, *Journal of Corporate Finance* 7, 77-99.
34. Modigliani, F., and M. Miller, 1958, The Cost of Capital, Corporation Finance and the Theory of Investment, *American Economic Review* 48, 261-297.
35. Modigliani, F., and Merton H. Miller, 1963, Corporate Income Taxes and the Cost of Capital: A Correction, *The American Economic Review* 53, 433-443.
36. Morck, R., M. Nakamura, and A. Shivdasani, 2000, Banks, Ownership Structure, and Firm Value in Japan, *Journal of Business* 73, 539-567.
37. Morck, R., A. Shleifer, and R. Vishny, 1988, Management Ownership and Market Valuation: An Empirical Analysis, *Journal of Financial Economics* 20, 293-315.
38. Myers, S., and N. Majluf, 1984, Corporate Financing and Investment Decisions When Firms have Information That Investors Do Not Have, *Journal of Financial Economics* 13, 187-221.
39. Pasiouras, F., and K. Kosmidou, 2007, Factors influencing the profitability of domestic and foreigncommercial banks in the European Union, *Research in International Business and Finance* 21 (2), 222-237.
40. Pedersen, T., and T. Thompson, 1997, European Patterns of Corporate Ownership: A Twelve Country Study, *Journal of International Business Studies* 28, 759-778.
41. Prowse, S., 1992, The Structure of Corporate Ownership In Japan, *Journal of Finance* 47, 1121-1141.
42. Rajan, R. G., and L. Zingales, 1995, What Do We Know About Capital Structure? Some Evidence from International Data, *Journal of Finance* 50, 1421-1460.
43. Shleifer, A., and R. Vishny, 1997, A Survey of Corporate Governance, *Journal of Finance,* 52, 737-783.
44. Siddiqui, A., 2008, Financial contracts, risk and performance of Islamic banking, *Managerial Finance*, 34 (10), 680-694.
45. Smirlock, M., 1985, Evidence On The (Non) Relationship Between Concentration and Bank Profitability, *Journal of Money Credit and Banking* 17 (1), 69-83.
46. Stanger, A. M., 2000, Determinants of Home-based Business Sales Performance, School of Commerce Research Paper Series No: 00-18, Adelaide, Australia: Flinders University of South Australia.
47. Sufian, F., and M. S. Habibullah, 2009, Bank Specific and Macroeconomic Determinants of Bank Profitability: Empirical Evidence from the China Banking Sector. Front. Econ. China 4 (2), 274-291.
48. Titman, S., and R. Wessels, 1988, The Determinants of Capital Structure Choice, *Journal of Finance* 43, 1-19.
49. Tzelepis, D., and D. Skuras, 2004, The Effects of Regional Capital Subsidies on Firm Performance: An Empirical Study, *Journal of Small Business and Enterprise Development* 11, 121-129.
50. Wei, Z., F. Xie, and S. Zhang, 2005, Ownership Structure and Firm Value in China's Privatized Firms: 1991-2001, *Journal of Financial and Quantitative Analysis* 40, 87-108.
51. Williams,B. 2003 , Domestic and International Determinants of Bank Profits: Foreign Banks in Australia, *Journal of Banking and Finance*, 27(6), 1185–1210.
52. Wooldridge, J. M., 2002, *Econometric Analysis of Cross Section and Panel Data* (MIT Press, Cambridge).
53. Wu, S., and H. Cui, 2002, Consequences of the Concentrated Ownership Structure in Mainland China - Evidence of Year 2000, [online], (www.ssrn.com).
54. Xu, X., and Y. Wang, 1997, Ownership Structure, Corporate Governance, and Corporate Performance: The case of Chinese Stock Companies, [online], (www.ssrn.com).
55. Zeitun, R., 2011, Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis, World Finance Conference, World Finance Conference, Greece, 26-28 June 2011.
56. Zeitun, R., 2009, Ownership Structure and Corporate Performance and Failure: Evidence from Panel Data of Emerging Market the Case of Jordan, *Corporate Ownership & Control* 6 (4).
57. Zeitun, R., and G. Tian, 2007, Capital Structure, Corporate Performance: Evidence from Jordan, *Australasian Accounting Business and Finance journal,* 1(4).
58. Zeitun, R., and G. Tian, 2008, The Determinants of Capital Structure: The case of inadequate long-term debt access and Regional Risk from Jordanian firms", *Corporate Ownership & Control* 6 (1), 22-37.

DOES SOCIAL RESPONSIBILITY MATTER FOR FIRM PERFORMANCE? EVIDENCE FROM BRAZIL

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Abstract

This paper analyses the relationship between social responsibility and financial performance of Brazilian companies. This subject has been largely studied and presents many discussions and different points of view. There are a considerably number of research that tries to link social responsibility and financial performance. However, there is not a fully established consensus about the issue. Despite a great number of empirical researches regarding this subject, there are few studies in the Brazilian market. We analyze 515 Brazilian companies listed on BM&FBovespa from 2001 to 2007 and check which companies have disclosed the IBASE social report, which proposes a standardized methodology for social reporting and allows us to compare companies in different sectors over time. Our results indicate that companies that disclose social information have a superior performance when compared with companies that do not disclose. Moreover, financial performance is positively related with social investments. Interestingly, the "voluntary" social investments, which are not mandatory by law, have a strong effect on firm value and performance.

Keywords: Social Responsibility, Firm Performance, Firm Value

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1. Introduction

After years of prosperity and progress in several areas, the world economy begins to show some serious consequences of this process. Large corporations have grown and become internationalized over time, and have been certainly the driving forces behind the progress. Besides bringing economic progress, companies also have a deep social impact in society (Mintzberg (1984)).

For a long time, perhaps because of the huge profits of companies, there has been a great myopia in relation to side effects of human actions and there has not been adequate attention to important issues such as environmental degradation and social inequality (Freeman, Martin and Parmar (2007)). Several recent events such as global warming, environmental damage and increased crime corroborate this finding.

Another undeniable evidence is the growing awareness of the general population to the dangers and threats of social and environmental impacts. Thus, customers, employees, suppliers, community, and government tend to put pressure on companies to act with social and environmental responsibility to pursue their goals.

In this scenario, a dilemma emerges for companies: does investing in social responsibility bring some kind of economic reward for the company? In other words, do firms that adopt good social practices have superior financial performance?

Among those who think that investing in social practices is detrimental to the performance of a company stands out Friedman (1970). Friedman argues strongly against social investments and that the government and individuals should care about society, but it should never be responsibility of companies. For the author, the goal and raison d'être of a company are to generate more money for their shareholders. Friedman goes further and asserts that the true social responsibility of companies is to increase their profits.

Friedman adopts a discourse that can be interpreted as too radical. However, his view is certainly shared by many academics and business executives. Responsible investments are, in most cases, costly and the return is often uncertain and long term. Therefore, companies that choose to do this kind of investment may find themselves at a competitive disadvantage, since competitors may be allocating the same resources into improvements in their product or production process.

Since the publication of the famous article by Milton Friedman, the economic landscape has changed in an increasingly dynamic. It is essential that companies monitor these changes when establishing their strategies for the future. Prahalad and Hamel (1994) attribute the collapse of some of the most powerful companies in the world to the inefficiency of its managers to anticipate and respond to new competitive realities. New forces are reshaping the landscape of industry competition and the sources of competitive advantage have also changed. The concern with social actions and changes in customer expectations are among the forces that tend to push the change of behavior of corporations in the coming years.

Freeman, Martin and Parmar (2007) presented the idea of "stakeholder capitalism", a capitalism based on ethics and morals, which sees the relationship with stakeholders as essential to creating value for the company. Unlike proposed by Friedman (1970), the company's focus should not confine itself to generate wealth for shareholders, but creating welfare for those groups that are affected by or affect the company.

Who shares this view believe that there may be rewards for practicing social responsibility, or believes that the costs incurred in implementing such actions are overcome by better results due to a possible better reputation. There are several examples where this can happen: a company that invests in recyclable packaging that pollutes less can win customers who value environmental aspects and thus generate more wealth; companies that give benefits to their employees can motivate them and achieve results better or tend to attract the most qualified professionals.

By taking measures that are beyond the rules imposed by the laws, companies are less subject to fines and dissatisfaction and may be perceived as less risky and more attractive to investors and lenders, and may even get better credit terms. On the other hand, companies that do not commit to social aspects may conflict with some of its stakeholders and be victims of boycotts, strikes and even destruction of some physical assets (Ruf et al. (2001)).

By generating much discussion and present opposing viewpoints, the subject has been widely debated by academics and by managers of companies over more than four decades. There are many studies that attempt to relate social performance with financial performance of companies. There is, however, no consensus on the issue.

Despite a huge range of empirical research on this topic, there are few studies addressing this issue in Brazil. This study examines the relationship between social responsibility and financial performance of Brazilian companies, and tries to answer the following questions: (i) do Brazilian companies that invest in socially responsible practices have higher financial performance? (ii) does higher level of transparency on social investments bring financial reward?

We analyze 515 Brazilian companies listed on BM&FBovespa from 2001 to 2007 and show that companies that disclose social indicators have

better performance than firms that do not disclose. In addition, all measures of financial performance (ROA, ROE, and P/B) are positively related with social investments, especially voluntary social investments.

The work is divided into five sections. In section 2, we present the literature review. Section 3 shows the data and methodology, and section 4 presents the results. In Section 5, we present the conclusion and final comments.

2. Literature Review

There has been a great number of works dealing with the relationship between financial performance and social responsibility of companies. Despite more than 40 years of research and discussions on the subject, the matter is far from consensus among academics and professionals.

The greatest difficulty in such studies is to determine the best way to measure social performance and define which companies actually have good social performance. According to Becchetti et al. (2008), a stricter definition of social responsibility says that it is directly related to the adoption of practices that positively affect the welfare of stakeholders of the firm. That is, companies do more than just follow the laws (McWilliams and Siegel (2000)).

The concept of social responsibility is very broad and comprises many variables. The perception of which variables is more or less important varies from individual to individual, which brings a great subjectivity to the concept. As a result, previous studies present a wide range of methodologies to get an accurate measure of the social performance of companies. Moreover, there is a huge discussion on how to relate social responsibility to financial performance. Aupperle et al. (1985) criticize the simplicity of many methodologies and argue that some studies have emotional interpretations and ideologies that tend to influence the results.

Besides the disagreements over the methods used to verify the relationship between social and financial performance, the results obtained in earlier studies are also different. Some authors find a positive relationship, others find negative relationships, and some find no significant relationship between financial and social variables. Ullmann (1985) attributes the inconsistency of the results to different methods of measuring social performance.

The way to evaluate the social performance of companies is the most critical and controversial subject of current research. In most cases, this performance is evaluated by third parties, who are subject to biases and prejudices. The methods are often subjective and often questionable.

Waddock and Graves (1997), McWilliams and Siegel (2000), Ruf et al. (2001) and Becchetti et al. (2008) use as a base for their research assessment conducted by Kinder, Lydenberg and Domini (KLD). The KLD is an independent company that assigns grades or ratings related to social and environmental practices of the 3000 largest companies listed in the U.S.

McWilliams and Siegel (2000) and Becchetti et al. (2008) used as a proxy for social performance the inclusion in the Domini 400 social index. The companies eligible for this index are those with the best ratings by the method KLD. Preston and O'Bannon (1997) and Stanwick and Stanwick (1998) use data on the reputations of companies published by Fortune magazine annually. The Fortune reputation index is based on questionnaires sent to over 8000 executives and outside experts who assess the industries giving scores from 0 to 10 for 8 social requirements.

There are lots of studies analyzing the relationship between social and financial performance. Ullmann (1985) does a summary of 14 studies conducted between 1972 and 1984, and shows that most works (8 out of 14) report a positive relationship between social and financial performance. Pava and Krausz (1996) also summarize results of previous research, with 21 studies between 1972 and 1992. The authors observe that, in most studies (12 out of 21), companies with good social practices have equal or superior financial performance.

Becchetti et al. (2008) find mixed results. Companies that are present in the Domini 400 index tend to have higher sales per employee but lower ROE. McWilliams and Siegel (2000) find a significantly positive relationship between social and economic performance, but, after controlling for R&D investment, the relationship is not statistically significant.

Waddock and Graves (1997) report a positive relationship between socio-environmental performance and financial performance. Ruf et al. (2001) show a positive relationship between social performance, sales growth and return on sales. However, Makni et al. (2009) conclude that companies with better social performance have lower market returns, and Aupperle et al. (1985) find no relationship between social and financial performance.

In Brazil, there is little research on the relation between financial performance and social practices. The number of works started to grow after the launch of the Sustainability Index (ISE) of BM&FBovespa in 2005. The ISE aims to measure the return on a theoretical portfolio composed of companies best classified in terms of social and environmental responsibility.

Cavalcante, Bruni and Costa (2009) examine the return and risk of ISE stocks and report no

statistical evidence that companies with good social and environmental practices have higher returns. Brito (2005) examines the impact of positive and negative news regarding the environmental practices of Brazilian firms and concludes that negative news have a negative impact on stock prices, while positive news have no significant effect.

Kitahara and Silveira (2008) examine the relationship between operating income and investments in social and environmental practices by Brazilian firms from 2000 to 2004. Social investments were obtained from the social reports published by the Brazilian Institute of Social and Economic Analyses (IBASE). The authors find that social investments are positively related to operating results, and that there is no relation between environmental investments and operating results.

Based on the above discussion, we test two hypotheses in this study. The first checks whether the simple fact that companies disclose their social investments provides superior financial results. If this hypothesis is confirmed, there is evidence that greater transparency of companies with regard to their social practices sends a positive message to customers and investors, leading to better performance.

The second hypothesis verifies if companies that invest more in social actions have better performance. If this hypothesis is confirmed, there are indications that investments in social practices provide companies with a return higher than the expenses incurred in such actions. The hypotheses can be summarized as follows:

H1: Companies that provide information about their investments in social practices have superior returns.
H2: Companies that invest more in social actions have superior returns.

3. Data and Methodology

We analyze 515 Brazilian companies listed on BM&FBovespa from 2001 to 2007. To measure the social performance, we verify which companies disclose the social report according to the IBASE model. IBASE created the social report in 1997, and its main goal was to develop a culture of transparency in disclosing the social practices by companies. In late 2009, IBASE decided to finish the project by considering that the main goal of the social report (to motivate the transparency of companies in their social relations) was already completed.

We use the IBASE database, since it proposes a standardized methodology for social reporting. Although many companies already disclose their own social data, there is no rule requiring such

disclosure in the Brazilian market. Thus, companies that provide social reports make them voluntarily and present them in different ways. Since the IBASE model is standardized, we can do comparisons between companies in different sectors of the economy. Moreover, we can compare the social performance of the same company over time.

The IBASE social report is divided into 5 major groups, which are composed by several items. The five main groups of indicators are: external social, internal social, environment, employees, and corporate citizenship. All expenditures incurred on each item are reported in absolute values, in percentage of total wages, and in percentage of net revenue. To facilitate comparison between companies, we use the percentage of net revenues to measure social investments in this study. The complete model of the IBASE social report can be viewed in the Appendix.

Since we wish to examine the relation between social responsibility and financial performance, we focus only on the first 2 items of the IBASE social report: internal and external social indicators. Internal social indicators are directed to firms' employees, such as social security contributions, private pension plans, food, health and safety benefits, occupational medicine, education, professional development, day care assistance and profit sharing. External social indicators benefit people outside the firm, such as investments in education, culture, health and sanitation, housing, sports, leisure and recreation, childcare, food security, and other taxes.

A point open to criticism of both social indicators is the presence of items that relate to compulsory taxes and social security contributions. As such expenditure is an obligation for the company, this should not be considered a voluntary action with social aspects. In this paper, we create new internal and external social indicators, referred to herein as "voluntary social indicators", which are the same indicators explained above except for the expenditures on compulsory taxes and social security contributions.

It is noteworthy that not all companies fulfill all items of IBASE social report. Moreover, since the IBASE social report is not audited, some companies disclose only the items that have large investments, a fact which undoubtedly brings limitations to the study.

From 2001 and 2007, 84 companies disclosed at least once the IBASE social report. The number of companies that reported varied each year, totaling 375 observations throughout the period, an average of 53.6 firms per year.

To analyze the relationship between social responsibility and financial performance, we use 3 performance measures (2 accounting indicators and 1 market variable), which come from the

Economatica database. Regarding accounting ratios, we use ROA (return on assets, measured by the ratio of operating profit to total assets) and ROE (return on equity, measured by the ratio of net income to net worth). For market indicator, we use P/B (price-to-book, measured by the ratio of market value to book value of shares).

Our first analysis aims to test hypothesis 1, that is, if companies that provide information about their social investments through the IBASE report have superior performance. For this, we split our database into two groups according to the disclosure of the IBASE report and compare the performance (ROA, ROE, and P/B) between the two groups. We use the Mann-Whitney test to examine whether there are significant differences between the performance of both groups.

Our second analysis is to run a regression model to examine the relationship between financial performance and social investments. Since our sample includes 515 companies over 7 years, we run a fixed-effects panel to examine the relationship between financial performance and disclosure of social investments in the IBASE model. We test other panel models (fixed and random effects) but the Hausmann test indicates that fixed-effects models are more appropriate. The models are estimated according to the following equation:

$$PERF_{i,t} = \beta_1 + \beta_2 SOCREP_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 GRO_{i,t} + \varepsilon_{i,t}$$

where PERF is the company's financial performance (measured by ROA, ROE and P/B), SOCREP is a dummy variable that takes the value of 1 whether the company discloses the IBASE social report, SIZE is firm size (logarithm of total assets), LEV is firm leverage (the ratio between liabilities and total assets), and GRO is the average annual growth of sales over the past three years.

To test the hypothesis 2, we run a fixed-effects panel to examine the relationship between financial performance, and social investments. For this stage of the study, we use only those companies that have disclosed the IBASE social report in the period. We included 3 variables in the model: internal, external and total social indicators (sum of internal and external social indicators). To test the robustness of our results, we also use these three social indicators without considering compulsory taxes and social security contributions ("voluntary social indicators"). The models are estimated according to the following equation:

$$PERF_{i,t} = \beta_1 + \beta_2 SOCINT_{i,t} + \beta_3 SOCEXT_{i,t} + \beta_4 SOCTOT_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 GRO_{i,t} + \varepsilon_{i,t}$$

where PERF is the company's financial performance (measured by ROA, ROE and P/B), SOCINT is the internal social indicator (sum of the following items, as a percentage of net revenue: social security contributions, private pension plans, food, health and safety benefits, occupational medicine, education, professional development, day care assistance and profit sharing), SOCEXT is the external social indicator (sum of the following items, as a percentage of net revenues: education, culture, health and sanitation, housing, sports, leisure and recreation, childcare, food security, and other taxes), SOCTOT (sum of SOCINT and SOCEXT), SIZE is firm size (logarithm of total assets), LEV is firm leverage (the ratio between liabilities and total assets), and GRO is the average annual growth of sales over the past three years. Besides the above social variables we also use the voluntary social investments: voluntary internal social (SOCINTV), voluntary external social (SOCEXTV) and total voluntary social (SOCTOTV).

4. Results

Table 1 shows the descriptive statistics of variables used in this study. On average, Brazilian firms in our sample have high profitability (ROA of 3.3% and ROE of 10.3%), P/B of 1.5, low leverage (26%) and good growth opportunities (16% of historic annual sales growth).

Table 1. Descriptive Statistics

Descriptive statistics of variables used in this study from 2001 to 2007. The definition of each variable can be seen in section 3.

	Mean	Median	Std Dev	Min	Max
ROA	3.3%	2.8%	7.7%	-30.7%	33.1%
ROE	10.3%	10.1%	19.4%	-63.0%	85.0%
P/B	1.5	1.1	1.5	-4.5	7.9
SIZE	13.6	13.7	2.0	4.3	19.6
LEV	25.9%	24.4%	20.5%	0.0%	112.5%
GRO	16.5%	15.4%	17.5%	-50.4%	89.6%

The first analysis aims to test the hypothesis 1, that is, if companies that provide information about their investments through the IBASE social report have superior financial performance. For this, we split our sample into two groups according to the disclosure of the IBASE social report and compare the results of financial variables (ROA, ROE, and P/B) between the two groups. We used the Mann-Whitney test to examine whether there is significant difference in financial performance between the two groups of companies.

Table 2 shows the results. Companies that publish IBASE social reports have higher performance (ROA, ROE and P/B) when compared to companies that do not disclose it. The ROA, ROE and P/B of IBASE-disclosing firms are 4.6%, 15.5% and 1.5, significantly higher than those of non-disclosing companies (2.3% 10.6% and 1.2, respectively). The differences are significant both in statistical and economic terms.

Table 2. Financial Performance and IBASE Social Disclosure

Measures of financial performance (ROA, ROE, and P/B) of Brazilian listed companies from 2001 to 2007, classified into two groups according to the disclosure or not of the IBASE social report. The definition of the variables can be seen in section 3. We carried out the Mann-Whitney test to verify whether the average performance of two groups of companies is different. ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

	Firms with IBASE Social Report	Firms without IBASE Social Report
ROA	4.6%***	2.3%
ROE	15.5%***	10.6%
P/B	1.5***	1.2

Table 3 shows the results of the fixed-effects panel models to examine the relation between financial performance and disclosure of social investments through the IBASE model. Similar to the results in Table 2, companies that publish IBASE social report have superior performance. The coefficients on SOCREP are positive and statistically significant at 1% for all 3 performance variables. We also can see that performance is positively related to firm size and negatively related to leverage. Even after controlling for firm size and leverage, there is a positive effect of social disclosure and performance.

Table 3. Relation Between Financial Performance and IBASE Social Disclosure

Fixed-effects panels where the dependent variable is financial performance (ROA, ROE, and P/B) of Brazilian listed companies from 2001 to 2007, and the explanatory variable is SOCREP (dummy variable indicating the disclosure of the IBASE social report). Firm size, leverage and growth are used as control variables. The p-values adjusted for autocorrelation and heteroscedasticity are in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

	ROA	ROE	P/B
SOCREP	0.03***	0.16***	0.50***
	(0.00)	(0.00)	(0.00)
SIZE	0.03***	0.04***	0.29***
	(0.00)	(0.01)	(0.00)
LEV	-0.01***	0.01*	-0.01***
	(0.00)	(0.06)	(0.01)
GRO	0.00	0.00	0.00
	(0.20)	(0.30)	(0.30)
R^2 adj	0.33	0.15	0.27

Table 4 shows the results of fixed-effects panels to examine the relationship between financial performance and social investments (internal, external and total social indicators). Companies that invest more in social actions have higher ROE and P/B. There is a significantly positive relation between ROE, external and total social indicators (at 5% and 1% levels, respectively). There is no relation between ROE and internal social indicators. For P/B, all three social indicators have positive and significant coefficients. It is interesting to note that we find no relation between social investments and ROA. Although the coefficients are positive, they are not statistically significant.

Table 4. Relation Between Financial Performance and Social Investments

Fixed-effects panels where the dependent variable is financial performance (ROA, ROE, and P/B) of Brazilian listed companies from 2001 to 2007, and the explanatory variables are social investments (internal, external and total social indicators). Firm size, leverage and growth are used as control variables. The p-values adjusted for autocorrelation and heteroscedasticity are in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

	ROA		ROE		P/B	
	I	II	III	IV	V	VI
SOCINT	0.01		0.08		0.04*	
	(0.60)		(0.25)		(0.08)	
SOCEXT	0.01		0.04**		0.08*	
	(0.28)		(0.04)		(0.03)	
SOCTOT		0.01		0.06***		0.07**
		(0.17)		(0.00)		(0.03)
SIZE	0.01***	0.01***	-0.07***	-0.08***	0.71***	
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	
LEV	-0.01***	-0.01***	0.00	0.00	-0.05***	-0.04***
	(0.00)	(0.00)	(0.94)	(0.20)	(0.00)	(0.00)
GRO	0.01**	0.01**	0.02	0.02	-0.53*	-0.62***
	(0.04)	(0.03)	(0.43)	(0.42)	(0.10)	(0.00)
R^2 adj	0.45	0.46	0.20	0.20	0.43	0.50

Table 5 shows the results of the panel models to examine the relation between financial performance and voluntary social indicators. The results indicate that all performance measures (ROA, ROE, and P/B) are positively related to voluntary social investments. In contrast to the previous analysis, we find a positive relation between ROA and all social indicators (mostly at 1% significance level). In the case of ROE, all social indicators have positive coefficients at 1% level, even the internal indicators, which were not significant in Table 4. Further, the relation of P/B and all social indicators also remains significantly positive.

Table 5. Relation Between Financial Performance and Voluntary Social Investments

Fixed-effects panels where the dependent variable is financial performance (ROA, ROE, and P/B) of Brazilian listed companies from 2001 to 2007, and the explanatory variables are voluntary social investments (internal, external and total social indicators). Firm size, leverage and growth are used as control variables. The p-values adjusted for autocorrelation and heteroscedasticity are in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

	ROA		ROE		P/B	
	I	II	III	IV	V	VI
SOCINTV	0.04***		0.28***		0.40*	
	(0.00)		(0.01)		(0.05)	
SOCEXTV	0.18**		1.24***		0.92**	
	(0.02)		(0.00)		(0.04)	
SOCTOTV		0.03***		0.39***		0.60**
		(0.00)		(0.00)		(0.05)
SIZE	0.01**	0.01***	-0.13***	-0.11***	0.71***	0.75***
	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
LEV	-0.01***	-0.01***	0.00	0.01***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.25)	(0.00)	(0.00)	(0.00)
GRO	0.00	0.00	0.11***	0.11***	-0.50***	-0.44***
	(0.96)	(0.95)	(0.00)	(0.00)	(0.01)	(0.01)
R^2 adj	0.44	0.45	0.20	0.20	0.50	0.50

Comparing the results of Tables 4 and 5, we note that the statistical significance of the coefficients of voluntary social indicators is even stronger than those presented in Table 4. Overall, as expected, we can conclude that voluntary social

indicators are much more important than social practices that are mandatory due to legislation.

5. Conclusions

Social responsibility is a topic that has been widely studied by academics and executives. There are many studies that attempt to analyze the relation between social investments and with financial performance, but there is no consensus. Despite a huge empirical research on this topic, there are few studies addressing this issue in Brazil.

The objective of this study is to analyze the relationship between social investments and financial performance of companies in Brazil. As in previous research, conducted mainly in developed countries, the main limitation of this kind of study is to find a consistent database on social practices. We use the IBASE social report, since it has a standardized assessment of social practices and allows us to compare the investment in social practices of different companies over time. The paper also examines whether greater transparency of social practices brings benefit to companies.

By analyzing 515 Brazilian companies from 2001 to 2007, we provide evidence that firms that disclose IBASE social reports have higher price-to-book and profitability (ROA and ROE), suggesting that transparent companies are valued by society and the market.

We also show that companies that invest more in social practices have higher performance. The so-called "voluntary" social indicators, which do not include compulsory taxes and social security contributions, have a strong positive on firm value and profitability. Overall, our study concludes that disclosing and investing in social practices brings financial and non-financial benefits that are greater than the costs incurred to implement such actions.

References

1. Aupperle, K.; Caroll, A.; and Hatfield, J. (1985). "An Empirical Examination of the Relationship Between Corporate Social Responsibility and Profitability", Academy of Management Journal, Vol. 28, pp. 446–463.
2. Barney, J. (1991). "Firm Resources and Sustained Competitive Advantage", Journal of Management, Vol. 17, p. 99-120.
3. Becchetti, L.; Giacomo, S.; and Pinnacchio, D. (2008). "Corporate Social Responsibility and Corporate Performance: Evidence from a Panel of US Listed Companies", Applied Economics, Vol. 40, pp. 541-567.
4. Brito, B. (2005). "A Reação do Mercado Acionário Brasileiro a Eventos Ambientais", Dissertação (Mestrado em Administração) – Instituto Coppead de Administração, Universidade Federal do Rio de Janeiro, Rio de Janeiro.
5. Cavalcante, L.; Bruni, A.; and Costa, F. (2009). "Sustentabilidade Empresarial e Valor das Ações: Uma Análise na Bolsa de Valores de São Paulo", Revista de Gestão Social e Ambiental, Vol. 3, pp. 70-86.
6. Cohen, M.; Fenn, S.; and Konar, S. (1997). "Environmental and Financial Performance: Are They Related?", Investor Responsibility Research Center Working Paper.
7. Fama, E.; French, K. (1992). "Common Risk Factors in the Returns on Stocks and Bonds", Journal of Finance, Vol. 47, pp. 427-465.
8. Freedman, M.; and Jaggi, B. (1982). "An Analysis of the Impact of Corporate Pollution Disclosures Included in Annual Financial Statements on Investors' Decisions", Advances in Public Interest Accounting, Vol. 1, pp. 192–212.
9. Freeman, R.; Martin, K.; and Parmar, B. (2007). "Stakeholder Capitalism", Journal of Business Ethics, Vol. 17, pp. 303–314.
10. Friedman, M. (1970). The Social Responsibility of Business, New York Times Magazine.
11. Ingram, R.; and Frazier, K. (1983). "Environmental Performance and Corporate Disclosure", Journal of Accounting Research, Vol. 18, pp. 614–622.
12. Kitahara, J.; and Silveira, J. (2008). "Existe Relação entre os Investimentos em Responsabilidade Social e o Desempenho Financeiro das Empresas que Apresentam Lucro? Enanpad, Rio De Janeiro.
13. Mackinlay, A. (1997). "Event Studies in Economics and Finance", Journal of Economic Literature, Vol. 35, pp. 13-39.
14. Makni, R.; Francoeur, C.; and Bellavance, F. (2009). "Casuality Between Corporate Social Performance and Financial Performance: Evidence from Canadian Firms", Journal of Business Ethics, Vol. 89, pp. 409-422.
15. Mintzberg, H. (1984). "Who Control The Corporation?", California Management Review, Vol. 27, pp. 90 – 115.
16. Mcwilliams, A.; and Siegel, D. (2000). "Corporate Social Responsibility and Financial Performance: Correlation or Misspecification?", Strategic Management Journal, Vol. 21, pp. 603–609.
17. Pava, L.; and Krausz, J. (1996). "The Association Between Corporate Social Responsibility and Financial Performance", Journal of Business Ethics, Vol. 15, pp. 321– 357.
18. Prahalad, C.; and Hamel, G. (1994). "Strategy as a Field of Study: Why Search for a New Paradigm?", Strategic Management Journal, Vol. 15, pp. 5-16.
19. Preston, L.; and O'Bannon, D. (1997). "The Corporate Social-Financial Performance Relationship", Business and Society, Vol. 36, pp. 5–31.
20. Ruf, B.; Muralidhar, K.; Brown, R.; Janney, J; and Paul. K. (2001). "An Empirical Investigation of the Relationship between Change in Corporate Social Performance and Financial Performance: A Stakeholder Theory Perspective", Journal of Business Ethics, Vol. 32, pp. 143–156.
21. Stanwick, P.; and Stanwick, S. (1998). "The Relationship Between Corporate Social Performance and Organizational Size, Financial Performance, and Environmental Performance: An Empirical Examination", Journal of Business Ethics, Vol. 17, pp. 95–204.
22. Ullmann, A. (1985). "Data in Search of a Theory: A Critical Examination of the Relationships Among Social Performance, Social Disclosure, and

Economic Performance of U.S. Firms", Academy of Management Review, Vol. 10, pp. 540-557.

23. Verschoor, C. (1998). "A Study of the Link Between as Corporation's Financial Performance and its Commitment to Ethics", Journal of Business Ethics, Vol. 17, p. 1509–1516.

24. Waddock, S.; and Graves, S. (1997). "The Corporate Social Performance-Financial Performance Link", Strategic Management Journal, Vol. 18, pp. 303–319.

Appendix

IBASE Social Report

1. Basis	Value (R$)		
Net Income (NI)			
Operating Income (OI)			
Gross payroll (GP)			

2. Internal Social Indicators	Value (R$)	% GP	% NI
Food			
Compulsory social charges			
Private pension			
Health			
Safety and occupational health			
Education			
Culture			
Training and professional development			
Nurseries or day-care assistance			
Participation in profit sharing			
Other			
Total Internal Social Indicators			

3. External Social Indicators	Value (R$)	% OI	% NI
Education			
Culture			
Health and sanitation			
Housing			
Sport			
Leisure and entertainment			
Kindergarten			
Food			
Combating hunger and food security			
Other			
Total Contributions to Society			
Taxes (excluding social charges)			
Total External Social Indicators			

4. Environmental Indicators	Value (R$)	% OI	% NI
Investments related to the production/operation			
Investments in programs and/or projects			
Total Environmental Indicators			

Regarding the establishment of annual targets to minimize waste, consumption in production/operations and increase efficiency in the use of natural resources, the firm:

5. Workforce Indicators

No. of employees at the end of the period

No. of admissions during the period

No. of third party's employees

No. of trainees

No. of employees over 45 years

No. of women working in the company

% of management positions held by women

No. of black people working in the company

% of management positions held by blacks people

No. of people with disabilities or special needs

6. Relevant Information Concerning Corporate Citizenship

Ratio between highest and lowest salary
No. of accidents at work
Who defines the social and environment projects?
Who defines the health and safety standards in the workplace?
Is the firm involved concerning freedom of association, the right to collective bargaining and internal representation of employees?
Does the firm grants private pension plans to all employees?

OBSTACLES FOR THE COMPLIANCE WITH GOOD CORPORATE GOVERNANCE AND PRACTICES FOR PUBLICLY TRADED AND CLOSED BRAZILIAN COMPANIES

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Abstract

This study aims to identify the perceptions of executives from Brazilian companies traded and closed on obstacles for the adherence to good corporate governance practices. Therefore, a structured questionnaire was sent to 516 companies. We concluded that the perceptions of executives from Brazilian companies traded and closed, differ with respect to amounts allocated, being most of the obstacles (ten out of thirteen) in adhering to good corporate governance practices. What could possibly be explained, is that the fact of a group having already gone through the process or have already duly joined this practice and not the other.

Keywords: Corporate Governance, Obstacles to Good Corporate Governance, Corporate Governance Practices

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Acknowledgment

1 Introduction

In recent decades, the discussion about the need to adhere in good corporate governance practices, has been a central theme in corporate and academic environment, despite evidence that the practices of good corporate governance, can reduce the cost of capital and increase the market value of companies (Silveira, 2002; Carvalho, 2003; Srour, 2005; Rogers, 2006; Bridge, 2006; Mello, 2007) in Brazil, where the number of companies is still low, as listed on the Bovespa.

The corporate governance movement began in the United States and in the United Kingdom, during the second half of the 80s, in response to rumors of financial scandals, leading to the pressure of shareholders, investment groups, pension funds and other interest groups. In 90 years, the international repercussions of financial scandals,

culminating in the Enron and WorldCom cases, earlier in the decade, showed the need to adopt new management practices, in order to ensure greater transparency, security and credibility in the capital market.

As far as Brazil is concerned, the movement for corporate governance began in 1995 with the creation of the Brazilian Institute of Directors Administration (IBCA), which in 1999 changed its name to the Brazilian Institute of Corporate Governance (IBGC). Besides the creation of IBGC, the effectiveness of that mobilization was based on institutional and governmental initiatives, such as the creation of the Code for Best Practice in Corporate Governance IBGC, the enactment of the Law No 10.303/01, which reformed the Corporation Law (6404/76) and the launching of the primer, recommended by the Securities and Exchange Commission (CVM) on Corporate

Governance in 2002. Another factor that spurred the movement was the creation of the "Novo Mercado" and the Levels of Corporate Governance "1" and "2", as well as the Stock Exchange (Bovespa) in the year 2000.

This was also aimed at strengthening corporate governance practices and the approximation of the capital markets by a larger number of companies, closed and open, as well as the Bovespa, which as from 2008 became known as Bovespa, therefore creating the segment "Bovespa Mais" – a market segment counter to companies that commit themselves to adopt governance practices beyond those legally required, with more flexible rules from the "Novo Mercado" segment and the Level 2. Although the quoted market already existed for some time, only one company was registered there by the end of this research, even with the benefit of IPO and the change of a limited partnership to a corporation, for example, accessing financial resources (either by capital inflow of new members or by obtaining financing at lower costs), which could facilitate the expansion and modernization of industrial parks, the use of advanced technologies, the conduct of international business and the internationalization of its own companies (Oliveira et al., 2010).

In this context, where the Bovespa has encouraged more and more IPO and additional shares as a form of business financing, considering that the corporate governance and its practices are presented to companies as means of generating value, along with the return on invested capital, thus, improving the pricing of its shares, the following question has arisen: What is the perception of directors from Brazilian companies traded and closed on the obstacles to the adherence of good corporate governance practices?

Seeking an answer to this question, it was defined as an objective to research the identity of perceptions in executives of Brazilian companies traded and closed on barriers to the adherence of good corporate governance practices. Specifically, this study aims at analyzing two groups, duly studied by comparing: 1) the ranking of obstacles; 2) determining the obstacles and 3) differing obstacles.

This is therefore an analysis of obstacles to the adherence of good corporate governance practices, whose relevance can be seen as bringing to the discussion of a new gym, trying to supplement the limited informations on the obstacles, determining adherence to good practices in corporate governance, both, in the perceptions of directors in publicly traded companies and privately held companies.

2 Good Corporate Governance Practices

It is believed that corporate governance began to stir interest, initially, from 30 years, with studies of Berle and Means (1987) in U.S. companies. After five decades of neglect, the subject regained importance, but this time, due to the wave of financial scandals in the United States and Europe in the '80s and '90s, culminating in the Enron, WorldCom in 2001 and in 2002, which highlighted the need for new management practices in order to ensure greater transparency, security and credibility to the capital market. It was in this period of almost three decades has developed a more concrete struggle for the strengthening and implementation of good corporate governance practices (De Oliveira et al., 2010).

Perhaps because of its magnitude - involving a loss of $ 32 billion, with the drop in stock value, and a loss of $ 1 billion from the pension fund for employees (Bergamini, Jr., 2002, p. 82) - Enron is one of the most talked about, both in academic journals, and in the press. Junior Bergamini (2002) reports that as much evidence to the Enron case is due to several reasons, including that: a) the Enron bankruptcy was the largest capital market in the United States. Being one of the largest U.S. corporations and retain a corporate image model, its demise caused a great impact on the credibility of the U.S. capital market, and b) there was clear evidence of the involvement of Arthur Anderson (independent auditor) in accounting fraud. Addressing the issue, Byrnes et al. (2001, p. 1) explains that "the finance team of internal Enron was run by former partners of accounting firm Arthur Anderson, or the accounting practices were limited to a simple action among friends."

Other cases where there was a lack of the basic principles of good practice were cited by Lodi (2000, p. 38), for example, the disclosure of a report by research group Investor Responsibility Research Center (IRRC), the second which, in only 25% of large U.S. companies the Board of Directors is formed by a majority of independent members, while many other companies maintain directors with terms immovable for several years beyond that in the U.S., 80% of companies where there council, the chairman is still up the presidency of the organization, which is not considered a good indicator of the independence of the Board of Directors.

In Brazil, some cases that were less evident, for example, the breakdown of large banks such as National, Economic, and Bamerindus Santos - all paid for under Central Bank because of serious problems involving shareholders and Boards of Directors. Lodi (2000, p. 37) explains that "one of the serious errors encountered was the fact that the National Bank bankrupt the entire Board was composed of persons of the same surname."

McKinsey & Company (2002, p. 12) conducted a survey of 201 investors from 31 countries in Asia, Europe, Latin America, Middle East and North America, they applied an amount of about U.S. $ 2 trillion, to collect views of these investors on the importance and benefits in relation to corporate governance. The survey revealed that 83% of respondents attribute varying degrees of importance (26%, somewhat important, 34%, important, and 23% extremely important) to corporate governance, while only 11% did not see it as important part in the development process nations.

Good governance is relevant to imagine that Enron might have been avoided by simply observed that it was one of the basic principles of good corporate governance: transparency. Thus, shareholders, employees and other stakeholders access to the accounts of the company, and their problems would be detected and perhaps even solved at birth (De Oliveira et al., 2010).

Thus, the goal of corporate governance is of great strategic importance, in that it works not only in order to ensure that corporate decisions are taken with the utmost interest to investors, to ensure that suppliers of capital to obtain the maximum return of their investment (Shleifer and Vishny, 1996, p. 2), but also goes toward ensuring equal rights among shareholders, as well as a better reconciliation of interests of owners with those of other agents for their decisions made.

Among the various initiatives to stimulate and improve the model of corporate governance in Brazil, we highlight the creation of the Novo Mercado by BM & F Bovespa, the Recommendations on Corporate Governance of the CVM and the Code of Best Practices IBGC.

In addition to these documents, the following legal framework also contributed to the advancement of KM in the country: the reform of the Corporations Law, by Law No And Law No 10.303/01 11638/07; Instruction CVM n. 457 of 07.13.2007 and No CVM 527 of 07.11.2007 (Oliveira et al., 2010).

Currently, several international organizations prioritize corporate governance, and thus encourage their adoption worldwide, is worth highlighting the initiative of the UN, which since 1989 has included in its agenda the topic of discussion, resulting in studies conducted in 2004 and 2005 on the status the implementation of KM, based on documents and TD/B/COM.2/ISAR/15 TD/B/COM.2/ISAR/30, the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR), the United Nations Conference on Trade and Development (UNCTAD).

Studies have proven the positive impact of the use of good corporate governance (La Porta, 1997, 2002, Stulz, 1999; Carvalho, 2003, Rogers et al., 2005, Andrade and Rossetti, 2006; Bridger, 2006;

Rogers, 2006 ; Cicogna, 2007; IBGC, 2006; Mello, 2007; Nardi and Nakao, 2006; Quental, 2007, Oliveira et al., 2010a) and the benefits arising from these practices, for example, reducing the cost of capital; positive effects on the value of companies, improving corporate image of companies, the easier access to credit and reducing the exposure of stock returns of firms to macroeconomic factors.

For Andrade and Rossetti (2006), good corporate governance practices to promote trust and contribute to corporate earnings are less volatile, leading to maximization of value creation and harmonization of interests, encouraging the channeling of resources to the capital market and, consequently, produces a virtuous cycle of macroeconomic impacts.

Besides all this evidence, one should add the position of the Organisation for Economic Co-operation and Development (OECD), which sees the implementation of good corporate governance practices in companies as an instrument of sustainable development in social, economic and social development in nations (OECD, 2004, p. 16).

Economic theory points to three basic factors that promote economic growth of nations, stimulating and reliable institutions, good macroeconomic fundamentals and availability of competitive resources. However, to cope with recent events that have shaken the corporate world, good corporate governance practices emerge as complements to one of three economic factors, forming an entity capable of generating a healthy business climate, preventing abuses of power and corporate fraud (Andrade and Rossetti, 2006).

Thus, it becomes possible to infer that there is a strong association between development of capital markets, economic growth and good corporate governance practices.

3 Obstacles To Compliance With The Good Corporate Governance Practices

One of the most studied and accepted truth on corporate governance, is with respect to the benefits that are aggregated for companies, making good use of corporate governance practices. Studies, both, national and international, as already mentioned in previous section, demonstrated the fact of albeit empirically.

In terms of theory, there is the assumption that a good system of corporate governance strengthing companies, is a factor for value creation, making results in less volatile stocks, and increasing confidence for investors in the stock market, consequently, strengthening the capital market and economic growth (Monforte apud Andrade and Rossetti, 2006; Bovespa, 2007a).

In Brazil, despite the positive outlook, as well as institutional and governmental initiatives that contributed to the improvement of governance

practices, for instance, the creation of IBGC and its Code of Best Practice for Corporate Governance, the creation of the "Novo Mercado", Law reform 6404/76 in 2001, the enactment of Law No. 10303/01, as well as the actions of the BNDES, encouraged companies with governance practices, with a limited use of best corporate governance practices by firms (Aragon, 2008).

A survey conducted by Andrade and Rossetti (2006), proves the low uptake of traditional marketing companies in different segments. The authors of this study, found that in late 2005, most companies that migrated, were companies that went public, adhering to the "Novo Mercado", hence, for every ten companies listed in the traditional market, less than two distinct segments where adhered to.

According to research by Carvalho (2002), this poor compliance is related to factors such as the need for top secret information (low disclosure) and the high cost of maintaining a public company. Oliveira (2007) mentions that the cost of maintaining a public company may reach an annual average of one million U.S. dollars.

Mesquita and Vieira (2004) investigated the main causes that prevent companies entering the Brazilian Bovespa levels. Through a qualitative research, the authors listened to the analysts of companies listed in Bovespa's differentiated levels and capital market experts. The results revealed that the main obstacles are related to the highly restrictive rules in the Bovespa, such as the aversion to loss of control by company's proprietors, the low level of transparency and the little interest in accountability.

Fish (2003) conducted a survey seeking to identify the companies that are on a level of corporate governance effective plan to migrate to the New Market, directly or via a Level 2. Among the specific objectives mentioned and having seen which obstacles or barriers prevent companies from moving to higher levels of the market, the author identified four indicators which were considered obstacles, whereby three of which are linked to the dimension of governance, while one refers to the size of the company's control. Firstly, it stresses that the main obstacle mentioned by the respondents was to issue only common shares with 87.5%. Secondly, it pointed to the right of voting preferred shares in high-impact materials (61.9%). Thirdly, it listed the membership in the Chamber of Arbitration and taged along, both, with 52.4%.

Regarding the main obstacle mentioned by the respondents, the "issue of common shares", is an indicator that reflects the fear in the loss of control, caused by the sharing of powers. The purpose of this research result, as shown in the Fish (2003), Gorga (2004), explains that attachment to ownership and control is linked to the informal rules of Brazilian culture and its traditional ways of maintaining power, as well as status, which can

hamper the development of capital markets in several ways.

Steinberg (2003) argues the culture of centralization and the manipulation of information, still occupies much of the space in Brazilian companies, at the expense of reliability and strategic decisions. To Gorga (2004), these characteristics lead to the Brazilian controlling shareholders, feeling as sole owners of companies, with a significant share of capital in the hands of minority shareholders. Therefore, the controlling shareholders feel that there is no reason to reveal their operations or "strategic plans".

In relation to culture, studies conducted in 2003 by KPMG & the Economist (2003) in several countries, and in 2004 by KPMG (2004) in Brazil, have duly investigated the main obstacles to the implementation of a model in corporate governance for companies. The results of both studies revealed a cultural resistance to measures aimed at ensuring greater transparency.

In relation to the voting rights by preferred shareholders on matters of high impact research in the second position, Fish (2003) with 61.9%, explained by the relationship with one of the main characteristics of Brazilian companies, which is the high rate of issuance of shares without voting rights (preferred). Permitted by law, this test serves as the principal mechanism of separation of ownership and the control of companies, increasing the incentive for expropriation of minority shareholders (Leal et al., 2002, p. 8). In the point of view of the entrepreneurs, this prerogative is a barrier to adherence in good corporate governance practices.

With regard to the tag along, being third in the poll, Fish (2003) with 52.4%, presented a barrier for the great difficulty of achieving them. According to Carvalho (2003), in order to facilitate privatization and to maximize the value of control by the State, Law 9.547/97 withdrew clauses and the tag along rights for the minority recess. In the author's view, increased protection for minorities is equivalent to reducing the value of the company's control (a decrease in private benefits of controlling shareholders), as it is the source of opposition groups made up of drivers, who hold high political powers and impose severe barriers in adoption legal reforms.

It is worth mentioning about other obstacles cited in the literature that may be limiting factors for the migration to different segments of Bovespa: a) free float of 25% - maintaining a minimum portion of outstanding shares, representing 25% of the capital; b) compliance with lock-up period rules; c) Board of Directors - at least one fifth of the members must be independent and d) Board of Directors with at least five members (Fish, 2003; IBGC, 2004, Bovespa, 2007b).

Under such circunstances and considering the above estated aspects, based on a review of the

theoretical exposed, the Figure 1 lists the main obstacles that may hinder access to different segments of Bovespa. These obstacles are divided into four categories, whereby three of which (Property, the Board of Directors and Management), are in line with the recommendations of the Code of IBGC and one (culture) based on the propositions found in the literature.

De Oliveira et al. (2010) undertook research in 2008 with the aim of identifying the main barriers in adoption the best corporate governance practices by the Brazilian companies. Therefore, a questionnaire was suplied to the members of the Association of Investment Analysts and Professionals of the Capital Market (APIMEC), using the barriers presented in Figure 1. Among the thirteen main barriers mentioned in the literature, the analysts surveyed understood that all elements can be considered an effective ability to influence corporate decisions by not adopting the best corporate governance practices as for instance, the barrier "requirement of confidentiality in strategic decisions"/"tag-along", considering cultural resistance to measures aimed at ensuring greater transparency" which to the top three rankings.

Fig. 1. Obstacles to the adherence of good corporate governance

Category	Obstacle	Author
Property	Issuance of common shares only	Peixe (2003); IBGC (2004); Bovespa (2008c); De Oliveira et al. (2010)
	Right to vote on preferred shares of high relevance	Peixe (2003); Bovespa (2007c); De Oliveira et al. (2010)
	Joining a chamber arbitration for the resolution of corporate disputes	Peixe (2003); Bovespa (2007c); De Oliveira et al. (2010)
	Tag along	Peixe (2003); Bovespa (2008c); IBGC (2004); De Oliveira et al. (2010)
	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of the	Bovespa (2007a); IBGC (2004); De Oliveira et al. (2010)
	Restrictions on stock trading by managers and controlling shareholders - compliance with the rules of the lock up period	Bovespa (2007a); Peixe (2003); Andrade and Rossetti (2006); IBGC (2004); De Oliveira et al. (2010).
Board of Directors	Board of Directors - at least one fifth of the members must be independent	Bovespa (2007c); IBGC (2004); De Oliveira et al. (2010)
	Board of Directors with at least five members	Bovespa (2007c); IBGC (2004); De Oliveira et al. (2010)
Management	Rising costs	Carvalho (2002); Oliveira (2008); De Oliveira et al. (2010).
	Need for confidentiality in strategic decisions	Carvalho (2002); Gorga (2004); De Oliveira et al. (2010)
	Financial statements using international standards (*IAS/IRFS*)	Peixe (2003): Andrade and Rossetti (2006); Bovespa (2008c); De Oliveira et al. (2010)
Custure	Culture resistance to measures aimed at greater transparency	KPMG (2003); Gorga (2004); The Econimist (2004); De Oliveira et al. (2010)
	Attachment to the property control in order to maintain power and status	Gorga (2004); De Oliveira et al. (2010)

Source: the authors.

4 Research Methodology

The goal of a descriptive and design, a survey which used a questionnaire to collect data with the directors from 157 publicly traded companies, listed in the differentiated segments of the BM & F Bovespa ("Novo Mercado" and Levels 1 and 2), reference date: February, 2010 - and the 359 largest and best privately held companies in Brazil (the database provided by the Research Institute of Actuarial and Financial Accounting (Fipecafi), University of São Paulo (USP) (base date: January 2010), totaling 516 companies.

Upon having defined the companies to be effectively researched, telephone contacts were made to confirm the e-mail addresses of people who would answer the questionnaires for these companies. Initially, the respondents, as members of the executive board (president / directors) and managers, were contacted by telephone, since the call was to clarify the purpose and procedures of the said research.

We adopted the questionnaire already in use and validated in the study of Oliveira et al. (2010), which consists of a block of 13 closed questions, ie, thirteen obstacles (identified in the literature), to be evaluated according to their degrees of importance using a five-point Likert scale (0. No importance, 1. Insignificance, 2. moderate importance, 3. strong position and 4. extremely important). It is a scale used in social research, by presenting easy viewing application and analysis.

As the collection data instrument used had been pre-tested previously, and not thought to be necessary for having a new pre-test. It appears to follow the process of pre-testing in the research of De Oliveira et al.(2010). The aforesaid questionnaire was submitted to five experts and the

selection of these experts took into account the following requirements: a) a member of the Association of Analysts and Professionals of the Capital Market (APIMEC), b) having a minimum experience of five years in the capital markets and c) be acting in the area. Then, the research instrument was applied to the gathering of open and closed questions; the open questions concerning the identification of respondents indicating barriers (attempt to corroborate the barriers identified in the literature, spontaneously), the experts indicated that the instrument was ready with no need for improvement.

The questionnaire was sent via electronic mail (e-mail), along with an invitational letter, which explained the relevance of the topic and research as well as academic and managerial contributions that flows from it. Respondents had the option to respond in the same e-mail or via a website, into which they have access through the link from the invitational letter.

Aiming for a greater range of return from the questionnaires, it was not asked to identify names of the respondents and companies, however, it was possible to identify the company when it was open or closed, since they were created with two distinct links.

The collection effort was undertaken from March till November 2010. We obtained a total return of 83 questionnaires, which where sent to 157 directors of companies, invested in the relationship with different segments of the corporate governance in the BM & F Bovespa ("Novo Mercado", Level 2 and 1), equivalent to 53%. In the case of directors in the largest and best privately held companies in Brazil, we obtained a total of 74 questionnaires sent to 359, which is equivalent to 21%. Overall, we obtained a 30% return of questionnaires.

The collection and analysis of the data was structured from the subcategories, identified from the analysis of the theoretical, as shown in Figure 2.

Fig. 2. Categories and subcategories of analysis

Category		Subcategory (obstacles)
Property	B1	Issue of common shares only
	B2	Right to vote on preferred shares of high relevance
	B3	Accession to the chamber arbitration for the resolution of corporate conflicts
	B4	*Tag along*
	B5	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of capital
	B6	Restrictions on shares trading by managers and controlling shareholders - compliance with the rules of the lock up period
Board of Directors	B7	Board of Directors - at least one fifth of the members must be independent
	B8	Board of directors with at least five members
Management	B9	Rising costs
	B10	Need for confidentiality in strategic decisions
	B11	Financial statements using international standards (IAS / IFRS)
Culture	B12	Culture resistance to measures aimed at a greater transparency
	B13	Attachment to the property control in order to maintain power and status

Source: De Oliveira et al. (2010).

Techniques were used in the statistical measures of central tendency (mean) and measures of dispersion (frequency distribution and standard deviation) (Mattar, 2005), in addition to the normal distribution (Stevenson, 2001), counting on the support of SPSS software (version 16.0) and Microsoft Excel (version 2007). We also conducted tests of equality in sample means for each of the obstacles duly investigated. Thus, there were thirteen non-parametric tests, using the Mann-Whitney model, which formulated the following hypotheses for each of the obstacles properly investigated:

H0: means the amounts allocated to the obstacles by the directors of companies from different segments of the corporate governance, which are equal to those assigned by the directors of the largest and best privately held companies;

H1: The average amounts given to the obstacles by the directors of companies in different segments of corporate governance, are different from those assigned by the directors of the largest and best private companies.

5 Preparation, Results and Interpretation

After the application of descriptive statistics, we did set up a ranking of obstacles to the adoption of good corporate governance practices, as perceived by directors of listed and closed companies. Considering that there could be different perceptions among the directors, depending on the type of company, rankings were prepared by treating the two groups separately.

It should be noted that the rankings were calculated by considering the averages and had tie-

breaker as a standard deviation, which was not the case in the application.

In order to facilitate the visualization of results and comparative analysis of the perceptions of the two groups of directors, details of the investigation were in 13 obstacles arranged in a paired format (Table 1).

Table 1. Ranking of barriers to the adherence of good corporate governance practices in the perception of the directors in traded and closed Brazilian companies

	Code	Obstacle	publicly trade companies Position	closed companies Position
Property	B1	Issue of common shares only	**8ª**	**9ª**
	B2	Right to vote on preferred shares of high relevance	10ª	12ª
	B3	Accession to the chamber arbitration for the resolution of corporate conflicts	**7ª**	**7ª**
	B4	*Tag along*	**5ª**	**5ª**
	B5	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of capital	**2ª**	11ª
	B6	Restrictions on shares trading by managers and controlling shareholders - compliance with the rules of the lock up period	**4ª**	**3ª**
Board of Direct	B7	Board of Directors - at least one fifth of the members must be independent	**1ª**	**4ª**
	B8	Board of directors with at least five members	**6ª**	**6ª**
Managem ent	B9	Rising costs	11ª	8ª
	B10	Need for confidentiality in strategic decisions	**3ª**	**2ª**
	B11	Financial statements using international standards (IAS / IFRS)	**9ª**	**1ª**
Culture	B12	Culture resistance to measures aimed at a greater transparency	12ª	10ª
	B13	Attachment to the property control in order to maintain power and status	13ª	13ª

Analyzing the ranking of obstacles (Table 1), one notes that up to the seventh place obstacle, are repeated in the perceptions of two groups, although some do not present the same position, as two exceptions: the obstacle B5 - free float of 25 % - maintaining the minimum portion of shares outstanding, representing 25% of the capital, as perceived by directors of public companies, being one of the most crucial obstacles (2nd position) among the 13 surveyed, while the directors of private companies do not have the same perception, resulting in the 11th place, and the B11 - the financial statements using international standards (IAS / IFRS), which is the perception of the directors of public companies, being one of the less decisive obstacles (9th position), while the perception of directors of privately held companies is ranked in the 1st position.

The high degree of importance assigned by the directors of privately owned businesses, the obstacle B11 - financial statements using international standards (IAS / IFRS) suggests that the usage of international standards for preparing financial statements is still a difficulty in Brazilian companies. It should be noted that the country faces a new reality with respect to accounting

standards. As an example, one can mention the passing of the Law No 11,638, of 28/12/2007, which aims to promote harmonization in the Brazilian accounting standards with international standards (Papell, 2008). Its application, however, faces difficulty in adapting business, because of the lack of qualified professionals.

The position occupied by the obstacle B10 - The need for confidentiality in strategic decisions, as perceived by directors of both groups of companies (3rd and 2nd position), is in the position occupied by this obstacle in the research of De Oliveira et al.(2010), in which it had the highest degree of importance among all thirteen obstacles surveyed, 40.8% of respondents giving it the utmost importance, therefore, occupying the No. 1 spot in that ranking.

It is worth noting that the result of obstacles B12 - Cultural resistance to measures aimed at greater transparency and B13 - Clinging to the ownership and control, maintenance of power and status - in the category Culture - occupying positions 12 and 13th in the perception of the Directors of public and companies and positions 10 and 13th in the perception of the directors of private companies, respectively, will meet the studies in the

country and abroad, which reinforces the idea that culture is a factor that strongly influences most of the entrepreneurs regarding the implementation of good governance practices, creating resistance to measures, ensuring greater transparency, especially regarding the need for secrecy and centralize information (Carvalho, 2002, p. 21; Steinberg, 2003, p. 33, The Economist & Kpmg , 2003, p. 24; Kpmg, 2004, p. 10; Gorga, 2004, p. 320).

To set up among the obstacles 13, whose determinants of adherence to good corporate governance practices, were applied to the data in the technique of normal distribution. The technique is to be used in the data of the arithmetic means and the standard deviation of the obstacles, indicating a value that allows you to make cuts.

Table 2. Obstacles in the determining adherence to good corporate governance practices for the perception of the directors in Brazilian companies traded

	Obstacle	Average	Standard Deviation
B7	Board of Directors - at least one fifth of the members must be independent	3,30	1,112
B5	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of capital	3,29	1,110
B10	Need for confidentiality in strategic decisions	3,20	1,286
B6	Restrictions on shares trading by managers and controlling shareholders - compliance with the rules of the lock up period	3,17	1,248
B4	*Tag along*	3,16	1,348
B8	Board of directors with at least five members	3,11	1,344
B3	Accession to the chamber arbitration for the resolution of corporate conflicts	3,08	1,345
B1	Issue of common shares only	2,88	1,525

Adopted as cutoff values that were below the value 2.768, which was obtained by summing the average of the mean plus (+) average from one standard deviation. The process resulted in the identification of eight determinants in the perception of obstacles in the directors of investor relations with listed companies of different levels of BM & F Bovespa, as shown on Table 2.

On Table 3 - visions of directors from the largest and best privately owned businesses - were adopted as cutoff values that were below the value 3.035, which was obtained by summing the average of the mean plus (+) one standard deviation. The process resulted in the identification of four major obstacles to the adherence of good corporate governance practices by Brazilian companies.

Table 3. Obstacles for determining adherence to good corporate governance practices, as perceived by directors of privately held companies in Brazil

	Obstacle	Average	Standard Deviation
B11	Financial statements using international standards (IAS / IFRS)	3,53	0,780
B10	Need for confidentiality in strategic decisions	3,19	1,094
B6	Restrictions on shares trading by managers and controlling shareholders - compliance with the rules of the lock up period	3,14	0,849
B7	Board of Directors - at least one fifth of the members must be independent	3,04	1,039

The following are some comments in obstacles considered highly relevant by both groups of directors (Table 2 and 3). The indication of the obstacle B10 - Need for secrecy in the strategic decisions of the two groups (Table 2 and 3) corroborates the claims of Steinberg (2003), in which the culture of centralization and manipulation in information, still has plenty of room in Brazilian companies at the expense of the reliability in strategic decisions.

The obstacle B4 - Tag-along, was identified only by the directors of public companies (Table 2), as one of the most important, averaging 3.16. This

position is justified by the difficulty of their acceptance by many Brazilian entrepreneurs. It is known that the tag-along is a clever mechanism that provides a greater security to the minority shareholders (Santos Junior, 2006, p. 332). However, according to Carvalho (2002), increased protection for minorities, is equivalent to reducing the value of a company's control (a decrease in private benefits of controlling shareholders), therefore, a source of opposition groups made up of drivers who have high powers, imposed severe political and barriers to the adoption of legal reforms. It is noteworthy that

despite this obstacle, not being on the list of the most decisive in the perception of directors from privately held companies, it occupied the 5th position in the ranking, being the same position indicated by the directors of publicly traded companies.

In order to identify among the thirteen obstacles, which had conducted major discrepancies, a test was determined if the differences between the averages of the sums allocated by the groups are statistically significant. This equality test was conducted between sample means for each of the obstacles duly investigated. Thirteen obstacles were performed as non-parametric tests, using the Mann-Whitney model, being a comparison of the amounts allocated by the directors of companies in different segments from the BM & F Bovespa with the sums allocated by the directors of the largest and best privately held companies in Brazil, formulating the following hypotheses for each of the obstacles investigated:

H0: means the amounts allocated to the obstacles by the directors of companies from different segments of the corporate governance, are equal to those assigned by the directors from the biggest and best privately held companies;

H1: The average amounts given to the obstacles by the directors of companies in different segments of corporate governance, are different from those assigned by the directors of the largest and best private companies.

The results of the hypothesis tests are presented on Table 4.

Table 4. Hypothesis test Mann-Whitney U

	Obstacle	Teste Average			
		Sig	Z	Mann-Whitney U	Results
B1	Issue of common shares only	0,020	-2,327	2439,500	Reject H0
B2	Right to vote on preferred shares of high relevance	0,000	-3,658	2145,000	Reject H0
B3	Accession to the chamber arbitration for the resolution of corporate conflicts	0,008	-2,636	2365,000	Reject H0
B4	*Tag along*	0,022	-2,298	2470,500	Reject H0
B5	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of capital	0,000	-5,317	1635,000	Reject H0
B6	**Restrictions on shares trading by managers and controlling shareholders - compliance with the rules of the lock up period**	**0,116**	**-1,571**	**2659,000**	**Not reject H0**
B7	Board of Directors - at least one fifth of the members must be independent	0,022	-2,291	2481,500	Reject H0
B8	**Board of directors with at least five members**	**0,070**	**-1,813**	**2596,500**	**Not reject H0**
B9	Rising costs	0,000	-6,999	1177,000	Reject H0
B10	**Need for confidentiality in strategic decisions**	**0,291**	**-1,056**	**2807,000**	**Not reject H0**
B11	Financial statements using international standards (IAS / IFRS)	0,000	-8,296	850,000	Reject H0
B12	Culture resistance to measures aimed at a greater transparency	0,000	-6,143	1387,000	Reject H0
B13	Attachment to the property control in order to maintain power and status	0,000	-4,511	1838,000	Reject H0

Examining the data presented on Table 5, it appears that for the ten obstacles investigated, the result of the Mann-Whitney test indicates a rejection of the null hypothesis in equal average amounts allocated to the obstacles for the two groups of directors. Hence, it can be stated that for the level of significance $\alpha = 5\%$, the sample evidence favors the hypothesis that the degree of importance attributed to barriers B1, B2, B3, B4, B5, B7, B9, B11, B12 and B13 by the directors of companies in different segments of corporate governance, is different from the degree of importance attributed by the directors of the largest and best privately held companies in Brazil.

Observing in general that obstacles occupy low positions in ranking, in both groups or in another group, except the obstacles B3, B4 and B7, that had very different positions in one or in another group, such as the obstacle B5, which was in the 2nd, 11th position and B11, which was in the 9th and 1st position respectively, in public and private companies.

Table 5. Obstacles to reject the null hypothesis (H0)

Variable		Publicly trade companies			Privately held		
Code	Obstacle	Position	Average	Standard Deviation	Position	Average	Standard Deviation
B1	Issue of common shares only	8ª	2,88	1,525	9ª	2,70	1,003
B2	Right to vote on preferred shares of high relevance	10ª	2,01	0,930	12ª	2,50	0,969
B3	Accession to the chamber arbitration for the resolution of corporate conflicts	7ª	3,08	1,345	7ª	2,92	0,856
B4	*Tag along*	5ª	3,16	1,348	5ª	3,00	0,951
B5	25% free float - the maintenance of a minimum number of outstanding shares, representing 25% of capital	2ª	3,29	1,110	11ª	2,59	0,810
B7	Board of Directors - at least one fifth of the members must be independent	1ª	3,30	1,112	4ª	3,04	1,039
B9	Rising costs	11ª	1,46	0,941	8ª	2,91	1,161
B11	Financial statements using international standards (IAS / IFRS)	9ª	2,18	0,783	1ª	3,53	0,780
B12	Culture resistance to measures aimed at a greater transparency	12ª	1,29	1,153	10ª	2,64	1,223
B13	Attachment to the property control in order to maintain power and status	13ª	1,18	0,952	13ª	2,15	1,392

Different position of the obstacle B5 - Maintaining the minimum number of outstanding shares, representing 25% of the shares (free float), occupying the 2nd position in the perception of the directors in publicly traded companies and 11 th in the perceptions of directors of public closed companies, can be said that for publicly traded companies, having shares with a minimum monthly circulation, is setting up a great challenge for the privately owned businesses, is being more challenging in obstacles before they have the shares.

Different position of the obstacle B11 - Financial statements using international standards (IAS / IFRS), occupying the 9 th position in the perception of the directors of public companies and a third position in the perception of directors of privately owned businesses, can be understood that it is not as large as a challenge for the public companies to use international accounting standards, and this can not be said for privately owned businesses. Concerning this, one can still say that this result is not surprising for the novelty of this subject in the world, especially for smaller companies, given the urgent need of qualified professionals in this new reality of accounting.

Noteworthy, are the obstacle B13 - Clinging to the ownership and control in order to maintain power and status, with the lowest average in the two groups going against the thought of Gorga (2004), about the strong cultural influence of the Brazilian business community, regarding the relation in properties, whereby the concentration of control hinders the adoption of good corporate governance practices and may even hinder the development of capital markets. One can have two readings of this fact: Firstly – indeed being the commitment to ownership and control, no longer a barrier to adherence of good corporate governance practices, and secondly - respondents may be unwilling to expose themselves reviewing this type of obstacle.

6 Conclusion

This study chose as its central objective, the identification of the perceptions with directors in Brazilian companies, traded and closed on barriers to adherence for good corporate governance practices. The research included the participation of 83 directors from 157 companies, listed on the "Novo Mercado" and Levels 1 and 2 of Bovespa, as well as 74 directors out of the 359 largest and best privately held companies in Brazil.

For the development of the research, we used similar methodology to that applied by De Oliveira et al. (2010), which ranked 13 barriers to the adoption of the best corporate governance practices, according to the perceptions of 71 analysts in capital markets and the members of the Northeast Apimec.

We also prepared a ranking of 13 obstacles in the perception of the directors in two groups of companies, which provided evidence that even the

seventh position, almost repeated obstacles, although some do not present the same position. Except for the obstacles B5 - free float of 25% - maintaining a minimum portion of outstanding shares, representing 25% of the capital, as perceived by directors in public companies, is one of the most decisive (2nd place) among the 13 surveyed, while the directors of private companies do not have the same perception, due to their responses as a resulted in the classification of their 11th position, and the B11 - Financial statements using international standards (IAS / IFRS), which is in the perception of the directors with public companies, being a less decisive obstacles (9th position), while perceptions of directors in privately held companies, is the most decisive, ranked in 1st position.

To set up among the obstacles 13, whose determinants of adherence to good corporate governance practices applies to the data of technique in normal distribution. In the perception of the directors with public companies, this technique indicated the existence of eight major obstacle, listed in a descending order of importance: B7 - Board of Directors - at least one fifth of the members must be independent; B5 - free float of 25 % - maintaining a minimum portion of outstanding shares, representing 25% of the capital; B10 - The need for confidentiality in strategic decisions; B6 - Restrictions on share trading by managers and controlling shareholders - compliance with the rules of the lock up period, B4 - Tag along, B8 - Board of directors with at least five members, B3 - Accession to the chamber of arbitration for the resolution of corporate disputes, and B1 - Issuance of common shares only.

In the perception of the directors in private companies, indicates that four technical obstacles are the most determinants of non adherence to good corporate governance practices, listed below in a descending order of importance: B11 - Financial statements using international standards (IAS / IFRS) ; B10 - The need for confidentiality in strategic decisions; B6 - Restrictions on share trading by managers and controlling shareholders - compliance with the rules of the lock up period; B7 - Board of Directors - at least one fifth of the members must be independent.

To identify obstacles leading to conflicting tests of equality in samples, means that each of the obstacles were investigated. The result of the Mann-Whitney test, indicated the rejection of the null hypothesis in equal average amounts allocated to the obstacles for the two groups of directors in ten obstacles. Thus, one can conclude that for the level of significance α = 5%, the sample evidence favors only the hypothesis with the degree of importance attributed to the obstacles-B1 Issue of common shares; B2 - Voting rights to preferred shares in the field of great importance; B3-

Accession to the chamber of arbitration for the resolution of corporate disputes, tag-along B4; B5-Maintenance of a minimum number of outstanding shares, representing 25% of the shares (free float), B7-Council administration at least with one-fifth of the members; B9-Rising costs, B11-financial statements using international standards (IAS / IFRS), B12-cultural resistance to measures aimed at greater transparency, and B13-attachment to property control for the maintenance of power and status, whereby the directors of companies in different segments of corporate governance is different from the amounts allocated by the directors of the largest and best privately held companies in Brazil.

It is also worth mentioning that some results surprised. Although there is an empirical evidence that the high cost of running a public company, is because of its greater complexity. This obstacle (B9) was shown in a secondary position by privately owned businesses. It is noticed that, apart from the obstacles related to the stock market (free float, tag along rights, shareholder disputes, common shares), determining the obstacles are similar in both types of companies: publicly traded and closed with the differential (differing obstacles) of the obstacle with the Board of Directors, which opened in the capital stood at first place and the privately held in the last place, and the obstacle to international standards, which is for the privately held positioned in the first place, however it was not cited as a critical point for the publicly traded companies, which suggests the difficulty of private companies in adapting to these new rules, therefore, indicating a difficulty in the advancement of good corporate governance and the private companies having a long way to go on the road to Corporate Governance.

We concluded that the perceptions of executives in Brazilian traded and closed companies, differ in respect to the amounts allocated in most of the obstacles (ten of thirteen), adhering to good corporate governance practices. It can be explained by the fact that a group has already gone through this process, and /or have already joined the practice, as well as not suggesting to a complement in this study by research companies in other countries.

References

1. Andrade, A. and Rossetti, J. P. (2006). Governança corporativa: fundamentos, desenvolvimento e tendências. São Paulo: Atlas.
2. Aragão, Lindenberg A. (2008). O Processo de Implementação de Melhores Práticas de Governança Corporativa: estudo de caso em uma empresa cearense. Dissertação (Mestrado em Administração). Universidade de Fortaleza – Unifor. Fortaleza: Ceará.

3. Bergamini Júnior, S. (2002). A crise da credibilidade corporativa. Revista BNDES. Rio de Janeiro, 9(18), 33-84.

4. Berle, A. A., & Means, G. C. (1987). A moderna sociedade anônima e a propriedade privada. (Os economistas). São Paulo: Abril Cultural.

5. Byrnes, N. et al. (2001). Auditoria em crise. The full title of the work it is part of http://www7.rio.rj.gov.br/cgm/comunicacao/clipping/ver/?fc=10&1415=&p=1. Acessed 8 September 2010.

6. Bovespa. (2007a). 100 companhias nos níveis diferenciados de governança corporativa. The full title of the work it is part of http://bovespa.com.br/Noticias/070301NotA.asp.companhias. Acessed 14 September 2010.

7. Bovespa. (2007b). Como e por que tornar-se uma companhia aberta. The full title of the work it is part of http://www.bovespa.com.br/pdfguiaaber.pdf. Acessed 15 September 2010.

8. Bridger, G. V. (2006). Governança corporativa e os efeitos da adesão aos níveis diferenciados de governança sobre o valor no mercado de capitais brasileiro. Dissertação (Mestrado em Finanças) – Fundação Getúlio Vargas, FGV/EPGE. Rio de Janeiro.

9. Carvalho, A. G. de. (2002). Governança corporativa no Brasil em perspectiva. Revista de Administração, São Paulo 37(3), 19-32.

10. Carvalho, A. G. de. (2003). Efeitos da migração para os níveis de governança da Bovespa. Trabalho preparado para Bovespa. The full title of the work it is part of http://www.novomercadobovespa.com.br. Acessed 1 October 2010.

11. Cicogna, M. P. V. (2007). Governança corporativa como sinalização: benefícios para o financiamento das empresas do mercado de capitais. Dissertação (Mestrado em Administração)–Universidade de São Paulo. Ribeiro Preto.

12. De Oliveira, Oderlene V., Aragão, Lindenberg A., Ponte, Vera M. R. and Oliveira, Marcelle C. (2010). Barreiras da Adoção de Melhores Práticas de Governança Corporativa: a visão dos analistas do mercado de capitais. III Elbe/Slade Brasil. Anais... Fortaleza – Ceará.

13. De Oliveira, Oderlene V., Aragão, Lindenberg A., Ponte, Vera M. R., Oliveira, Marcelle C., & Sena, Augusto M. C. de. (2010). Motivating Factors in The Adoption of Better Corporate Governance Practices by Brazilian Companies. Corporate Ownership & Control, 8(1) continued 5.

14. Gorga, E. (2004). A cultura brasileira como fator determinante na governança corporativa e no desenvolvimento do mercado de capitais. Revista de Administração. São Paulo 39(4), 309-326.

15. Ibgc. (2004). Instituto Brasileiro de Governança Corporativa. Código das melhores práticas de governança corporativa. 3. versão. The full title of the work it is part of http://www.ibgc.org.br. Acessed 12 September 2007.

16. Ibgc. (2006). Uma década de governança corporativa. São Paulo: Saraiva.

17. kpmg. (2004). Resultado da pesquisa 2004 sobre gerenciamento de riscos e governança corporativa. The full title of the work it is part of http://kpmg.com.br/publicacoes/advisory/ras/iarcs/IAS_site.pdf. Acessed 10 September 2010.

18. La Porta, R. et al. (1997). Legal determinants of extrernal finance. National Bureau of Econimics Research. Working Paper, 5.879. The full title of the work it is part of http://www.nber.org/papers/w5879.pdf. Acessed 16 August 2010.

19. La Porta, R. et al. (2002). Investor protection and corporate valuation. Journal of Finance, Oxford 57(3).

20. Leal, R. P. C., Carvalhal-da-Silva, A. L., & Valadares, S. M. (2002). Estrutura de controle das companhias brasileiras de capital aberto. Revista de Administração Contemporânea, 6(1), 7-18.

21. Lodi, J. B. 2000. Governança corporativa: o governo da empresa e o conselho de administração. Rio de Janeiro: Campus.

22. Mattar, F. N. (2005). Pesquisa de marketing: metodologia e planejamento. 6. ed. São Paulo: Atlas.

23. Mckinsey & Companhy. (2002). Emerging market policymaker opinion survey: key findings. The full title of the work it is part of

24. http://mckinsey.com/clientservice/organizationleadership/service/corpgovernance/pdf/2002_Emerging_Market_Policymaker_Opinion_Survey_Corp_Gov.pdf. Acessed 25 August 2010.

25. Mello, J. S. (2007). O Impacto da governança corporativa no valor de mercado das companhias de capital aberto no Brasil: uma reaplicação. 2007. Dissertação (Mestrado em Administração)– Universidade Federal de Minas Gerais. Belo Horizonte: UFMG.

26. Nardi, P. C. C., & Nakao, S. H. (2006). Impacto da entrada nos níveis diferenciados de governança corporativa sobre a imagem institucional da empresa. In: CONGRESSO USP DE CONTROLADORIA E CONTABILIDADE, 6., São Paulo. Anais... São Paulo: USP.

27. OECD. (2004). Principles of corporate governance. The full title of the work it is part of http://www.oecd.org/dataoecd/32/18/31557724.pdf. Acessed 6 September 2010.

28. Oliveira, F. A. (2007). Abertura de capital: vantagens e desvantagens. Revista Relações com investidores, (112), 26-27.

29. Oliveira, Marcelle C., Ponte, Vera M. R., De Luca, Márcia M. M., Aragão, Lindenberg A., Oliveira, Oderlene V., & Geleilate, José M. G. (2010). Práticas de Governança Corporativa Adotadas por Companhias Fechadas Brasileiras e Alinhamento às Demandas do Mercado de Capitais. III Elbe/Slade Brasil. Anais... Fortaleza – Ceará.

30. Papellás, F. 2008. Convergência de normas acena com maior transparência. Revista da ABRAPP, Ano XVVII, (337).

31. Peixe, F. C. D. (2003). Novo mercado: obstáculos e atrativos para as empresas do nível 1 de governança corporativa. São Paulo, 2003. Dissertação (Mestrado em Administração) – Programa de Pós-Graduação em Administração, Departamento de Administração, Faculdade de Economia, Administração e Contabilidade da USP.

32. Quental, G. A. J. (2007). A investigação dos impactos da adesão de empresas brasileiras aos segmentos diferenciados de governança corporativa da Bolsa de Valores de São Paulo. Rio de Janeiro: Instituto Coppead de Administração da UFRJ.

33. Rogers, P., Ribeiro, K. C. S., & Sousa, A. F. (2005). Determinantes macroeconômicos da governança corporativa no Brasil. In: ENCONTRO ANUAL DA ASSOCIAÇÃO NACIONAL DOS PROGRAMAS DE PÓS-GRADUAÇÃO EM ADMINISTRAÇÃO – ENANPAD, 29., 2005, Brasília. Anais... Brasília: ANPAD.

34. Rogers, P. (2006). Governança corporativa, mercado de capitais e crescimento econômico no Brasil. 2006. 147 f. Dissertação (Mestrado em Administração) – Universidade Federal de Uberlândia–Faculdade de Gestão e Negócios (UFU/FAGEN), Uberlândia.

35. Santos Júnior, R. dos. (2004). Tag along: mecanismo de proteção aos acionistas minoritários e de sustentação do mercado de capitais. Revista de Informação Legislativa, 41(164), 331-346.

36. Shleifer, A., & Vishny, R. (1996). A survey of corporate governance. National Bureau of economics research. 1050 Massachusetts Avenue, Cambridge, MA 02138. Working Paper, 5554.

37. Silveira, Alexandre Di Miceli da. (2002). Governança corporativa: desempenho e valor da empresa no Brasil. Dissertação (Mestrado em Administração)-Faculdade de Economia, Administração e Contabilidade da USP, São Paulo.

38. Srour, G. (2005). Práticas diferenciadas de governança corporativa: um estudo sobre a conduta e a performance das firmas brasileiras. Revista Brasileira de Economia, 59(4), 635-674.

39. Steinberg, H. (2003). A dimensão humana da governança corporativa: pessoas criam as melhores e piores práticas. São Paulo: Gente.

40. Stevenson, W. J. (2001). Estatística aplicada à administração. São Paulo: Habra.

41. Stulz, R. M. (1999). Globalization of equity markets and the cost of capital. SBF/NYSE CONFERENCE OF GLOBAL EQUITY MARKETS, pp. 1-68. The full title of the work it is part of http://papers.ssrn.com/ sol3/papers.cfm?abstract_id=153669#. Acessed 7 September 2010.

42. The Economist and Kpmg. (2003). Corporate governance: business under scrutiny. London: The economist Intelligence Unit. The full title of the work it is part of http://www.kpmg.com.cn/en/virtual_library/. Acessed 7 September 2010.

43. Vieira, M. S. and Mesquita, J. M. C. (2004). Os níveis de governança da Bovespa e a participação de empresas brasileiras. The full title of the work it is part of http://www.faculdadebatista.com.br/main/images/stories/publicacoes/artigo %202.pdf. Acessed 20 September 2010.

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