

BOARD COMPOSITION, OWNERSHIP STRUCTURE AND FIRM PERFORMANCE: New Perspectives from Equity Carve-outs

Tarek MILOUD

Professor of Finance

INSEEC Research Center – INSEEC Business School

12 avenue de Lac d'Annecy, Le Bourget du Lac, FRANCE

E-mail: tmiloud@gmail.com

Tel: +33 (0)4 79 25 38 53

Abstract

Board composition and ownership structure are a vital determinants in enhancing firm performance. By highlighting the corporate governance components that normally used in the academic research, this paper tends to identify whether the corporate governance practices are truly influenced firm performance. The purpose of the study is to investigate the relationship between firms' ownership structures, corporate governance practices and firm performance. Besides, this study focuses on several corporate governance components which include board structure, CEO duality, board size, independent board of directors and ownership structure. Tobin's Q (a market based performance measure); Return on Asset and Return on Equity (an accounting based performance measures) are considered as financial performance measures. The participating firms of this study are non-financial public firms that are actively listed in the case of equity carve-out in the main market of Euronext Paris during the 20-year period (1995-2015). The paper make three important contributions to extant literature. *First*, in light of the severe econometric issues that confound earlier corporate governance studies, we present evidence supported by improved empirical techniques, in particular the instrumental variables approach (IV) and the generalized method of moments (GMM). *Second*, we present evidence that changes in board structure, and ownership structure have an impact on firm performance. *Third*, in the case of equity carve-outs, the parent firm happens to be the largest blockholder. Indeed, we argue that the parent firm being also the largest blockholder puts it in too powerful a position that the interests of the fringe minority may be compromised.

JEL classification: G32; G34

Keywords: ownership structure; insider-ownership; managerial-ownership; blockholders; Corporate Governance; Board structure; Equity carve-out

I. Introduction

Equity carve-out (ECO), also known as a split-off IPO or a partial spin-off, is a type of corporate reorganization, in which a company creates a new subsidiary and subsequently list it, while retaining management control. Only part of the shares are offered to the public, so the parent company retains an equity stake in the subsidiary. Typically, up to 20% of subsidiary shares is offered to the public. In most cases the parent company will spinoff the remaining interests to existing shareholders at a later date when the stock price is much higher.

Schipper and Smith (1986), Vijh (1999) and Thompson (2016) describes an ECO as a special case of the IPO, where there exists a parent firm owner of issuing subsidiary at pre-offering time and the parent sell the fraction of equity to public investors. Given that, the parent retains control over the listed subsidiary. Schipper and Smith (1986) argue that carve-outs are undertaken to realize gains from a number of sources including: the refinancing strategy, incentive alignment and corporate re-focusing strategy. The literature has advanced three hypotheses related to the motivation of divestitures.

First, Schipper and Smith (1986) develop the *divestiture gains hypothesis*, which states that the wealth gains from equity carve-outs are due to (i) separate financing for the subsidiary's investment projects, (ii) a more efficient set of contracts between shareholders and managers, and (iii) the creation of pure-play stocks. More recently, Bayar, Chemmanur and Liu (2011, (2015) argue that one of the reasons for firms to pursue ECO is to take advantage of the favorable industry valuation of the subsidiary. Under heterogeneous beliefs, they argument that when the subsidiary is in the same industry as the parent, it is less likely that the parent can obtain a very high valuation for the subsidiary.

Second, Nanda (1991) supports the *asymmetric information hypothesis*, according to which firms raise capital through ECOs when parent firm's assets are undervalued and subsidiary assets are overvalued by investors. By extending the Myers and Majluf (1984), the author develops an asymmetric information model in which carve-outs are viewed as a form of parent equity issuance. He offers that managers who consider the parent undervalued and a subsidiary overvalued will find it optimal to issue unseasoned equity in the subsidiary rather than seasoned equity in the parent firm.

Third, Allen and McConnell (1998) proposes a *managerial discretion hypothesis* of ECOs in which managers value control over assets and are reluctant to carve out subsidiaries. Thus, managers undertake carve-outs only when the firm is capital constrained. Consistent with this hypothesis, firms that carve out subsidiaries exhibit poor operating performance and high leverage prior to carve-outs. While restructuring transactions enhance value on average, the authors report that the gain is compromised if the proceeds from the offering are retained in the business. Powers (2003) demonstrates that the proportion of the subsidiary retained is a decreasing function of the pre-existing stock and liquid assets held by the parent. In the same line with Schipper and Smith (1986), the author argue that parent firms carve out their subsidiary because they are more profitable and have higher growth than their parent firms. Thereby the authors conclude that the carve-out transaction is used as financial source especially in the case where subsidiaries act in high growth industries.

Finally, a carve-out is costly for the manager for several reasons. As argued by Allen and McConnell (1998), although the parent often still holds significant stakes in the subsidiary after the listing, management of the parent has lost significant control rights. It should be emphasized, that the newly listed subsidiary has its own board of

directors, who is subject to disclosure requirements, and is directly subject to the market for corporate control rules. The authors provide evidence that corporate control issues affect announcement effects. Hence, carve-outs always lead to a change in the corporate governance structure, and a market evaluation of this change can be observed. Furthermore, the loss of synergy and profitability following a carve-out can adversely affect the parent firm's performance and the value of its shares, and the wealth of owner CEOs. An ECO is not without benefits, however, it enables the parent firm to raise capital when other funding choices are suboptimal. In addition, by removing assets that cause negative synergies, the divestiture enhances focus, performance, and value. The net effect, which influences the parent firm's owner-managers' perspective on an ECO, depends on the degree of relatedness between the parent and subsidiary firms.

Perotti and Rossetto (2007) develop a model where the parent firm divests a part of an undervalued subsidiary to gather information about its value from the market, but sustains a potential loss of profitability depending on the synergy between the parent and the subsidiary. The authors posit that the decrease in profitability during the ECO period is an inverse function of the fraction of the subsidiary retained, whereas the capital raised and quality of information gathered is directly related to the fraction sold. For parent and subsidiary firms in unrelated (similar) businesses, the loss of synergy and profitability is low (high), but the value of market information and divestiture gains are high (low). Hence, to maximize valuation gain from refocusing at limited loss of profitability, CEOs With large stock ownership and option based compensation prefer to sell large (small) proportion of an unaligned (related) subsidiary. Therewith, Perotti and Rossetto (2007) theoretical work infers that when the underlying motive of an ECO is to unlock the value of subsidiary, the likelihood of acquisition in this type of carve-outs increases. Desai, Klock and Mansi (2011) conjecture on the basis of Perotti and Rossetto (2007) that if unlocking value of subsidiary is the intention of the parent firm, then the parent is interested in understanding its synergy with the subsidiary, and therefore, the acquisition of such carve-out subsidiary, either by the parent or by the third party acquirer, is imminent.

The paper is organized as follows. Section 2 provides a literature review from a theoretical and empirical perspective and the formulation of the hypotheses to be tested. Section 3 describes the data and methodology. Section 4 presents the data analysis of our sample and empirical results, and in section 5 the conclusion and discussion.

II. The Effect of Corporate Governance on Firm Performance

In corporate governance, board of director and ownership structure are considered as the most important factors which affects an entire business and interest of owners. As such, the question of "what is the board of director characteristics and ownership structure and how they affect the firm performance" has attracted significant attention from academia and practitioners over the last three decades. The primary charge of the board is to take shareholder value-maximizing. ECO alleviate agency conflicts by reducing firm size and removing subsidiaries that are related to the firm's core business. If divestiture of unrelated subsidiaries enhances parent firm's performance value, independent directors ought to endorse the restructuring. Following, Hanson and Song (2000) further show that divestiture (i.e. equity carve-out) gains are increasing in the fraction of outside directors on the board and the percentage equity ownership of the management team. An independent board prefers sale of a larger stake of the subsidiary to reduce agency costs and maximize divestiture gains, and dissuades managers from using the cash proceeds for personal benefits to the detriment of shareholder wealth.

A. Board Structure and Firm Performance

One strand in the corporate governance literature examines the determinants of board structure. In this area, several theories have been advanced to explain the structure of corporate boards and what constitutes an ‘optimal’ board. *First*, Fama and Jensen (1983) and more recent Coles, Daniel and Naveen (2006) support the scope of operations hypothesis. The main predictions from this hypothesis are that: (i) board size is positively related to the scope and complexity of the firm’s operations; (ii) the proportion of independent (*outside*) directors on the board is positively related to the scope and complexity of the firm’s operations. *Second*, the monitoring hypothesis sustained by Raheja (2005) and Harris and Raviv (2008). The idea here is that optimal board size will be that number at which the verification and monitoring costs of individual board members begin to rise. The overall predictions under the monitoring hypothesis are that (i) Board size and independence are positively related to managers’ private benefits, and (ii) board size and independence are negatively related to directors’ costs of monitoring. The third hypothesis, reflecting the work by Hermlin and Weisbach (1998) and Baker and Gompers (2003), implies that board composition results from a negotiation between the firm’s CEO and its outside board members. We call this the negotiation hypothesis. Baker and Gompers (2003) argue, the time surrounding the initial public offering is a particularly rich setting for studying board issues because it is a time of significant change in the firm’s governance.

As we observe, the literature on board structure is very broad and covers many different aspects. For purpose of this paper, we focus on three related aspects: *board size, independent directors and dual CEO and chairman roles in particular.*

1. Board size and firm performance

The Board size is an important attribute of board structure. However, there exists controversy in the finance literature about whether larger boards are better monitors. For example, Pearce and Zahra (1992) consider that large board size is fruitful for firms to secure its valuable resources and to reduce uncertainties, some other found potential problems with it. As Yermack (1996) found that there is an impediment on firm performance when coordination, communication and decision-making are completed among large number of directors. However, Lipton and Lorsch (1992), Jensen (1993) and Yermack (1996) argue that smaller boards are more effective. They empirically determines that there is a negative relation between board size and market valuation. In a Meta-Analysis of the relation between board size and firm performance, Dalton, Daily, Ellstrand and Johnson (1998) find an unambiguously positive relation. This relation is stronger in small firms than in big firms. In effect, the majority of existing empirical evidence relating to the impact of board size shows a negative result on firm’s performance. More recently, Loderer and Peyer (2002), Hermlin and Weisbach (1998) and Coles, Daniel and Naveen (2008) found a significantly negative impact on Tobin’s Q. In this study, we hypothesize that small boards are more effective and will have a more significant impact on firm performance.

H₁: There is a negative relationship between board size and firm performance

2. Board independence and firm performance

Board composition is an important element of board characteristic. Most corporate boards are composed by the inclusion of some top managers of the firm’s as well as directors from outside the firm, the combination of inside and outside directors. According to Farinha (2003), the inside director are the part of organization so they are more informed about organizational activities and provide valuable information, while outside directors performs controlling role in evaluating managers decisions through their skills, knowledge expertise and objectivity to

reduce the agency cost and safe the shareholders interest. Adams and Mehran (2012) argue that the presence of outside director on board improves the practicability of board and firm performance. The entrance of outside directors on board is attributed as board independence, which is considered as the significant determinants of board effectiveness. Bhagat and Black (2002) stress that the inside and outside directors have their own strengths. For the outsiders including affiliated directors, they could bring variety of skills and expertise to the board. For the insiders, they may be better in planning and making decisions. The diversity of board may lead to high performance.

The existence of outside directors on board is likely to trim down the managerial utilization of perks. Hermalin and Weisbach (1998) affirm that outside directors are more likely to join the company after its declining period when there is severe need of outside guidance and assistance for strategy modification. Hermalin and Weisbach (1991) approached instrument method to test the impact of outside and inside directors on firm performance with many control variables relating to ownership of the board. The result indicated that there is no relationship between board composition and firm performance. The study suggested that the inside and outside directors affect equally on Raheja (2005) provides a theoretical model of how promotions and incentives of senior management impact their incentive to monitor CEOs and reveal information to boards. Unlike to Klein (1998), in a research on the impact of inside and outside directors as proxies of board composition on firm performance, who support the role of inside directors in increasing stock return.

The research evidence regarding non-executive director proportion on board and firm performance is mixed. Fama and Jensen (1983), Gompers, Ishii, & Metrick (2003) and Agrawal and Chadha (2005) argue for the existence of a positive significant relationship between non-executive directors and performance. However, Hermalin and Weisbach (1991) and Bhagat and Black (2002) found no association between percentage of independent directors and performance measures. They used ROA and Tobin's Q as performance measure. In view of the largely mixed evidence, we reinvestigate the relation between firm performance and board independence. We hypothesize that independent boards are more effective monitors and hence will have a positive effect on firm performance:

H₂: There is a positive relationship between the percentage of independent directors on the board of the curved firm and its financial performance

3. CEO duality and firm performance

Brickley, Coles and Jarrell (1997) claim that the CEO-Chairman roles should always be separated. According to the "separation" hypothesis, the monitoring structure is more effective with two separate persons at the top of an organization. Pursuant to the "combination" hypothesis, this is not the case because it is believed that a single person conducting both roles is more efficient. According to Adams, Hermalin and Weisbach (2010) the empirical evidence on the separation of the CEO and chairman roles is ambiguous as well. Prior empirical studies have led to contradicting results.

Fama and Jensen (1983) theory suggests that having the CEO also play the role of board chairman compromises the independence of the board and an ineffective board is likely to cause poor performance. Based on the monitoring hypothesis, it would seem obvious that the CEO who is supposed to be monitored by the board should not be the chair of the same board. Moreover, the negotiation hypothesis which posits that board structure

is the result of bargaining between the CEO and the board, suggests that having the CEO act as chairman of the board bestows enormous bargaining advantage for the CEO over the board, invariably compromising its independence. Consistent with these views, Rechner and Dalton (1991) clarify the role of CEO duality by through longitudinal analysis. They conducted their study in two group companies having a change in board of director and how it affects corporate performance. The study pointed out that there is significant difference in return on investment (ROI), return on equity (ROE) and profit margin between CEO duality firms and those with independent directors. The direction and magnitude of duality-performance relationship are presented again in study of Boyd (1995). He used contingency model to test two theories: agency theory and stewardship theory and presented that the effect of chair directors on firm performance is very different across various environments. The kinds of environment are separated in three sectors: munificence, dynamism and complexity. The munificence which measures the available level of resources supporting to industry prevents firms from uncertain situation. Dynamism reflects changing degree of environment whereas complexity measures inequalities among competitors. Boyd (1995) suggested that there is an occurrence of incompleteness and misleading in both agency theory and stewardship theory. However, through the effect of uncertain environment, CEO duality has highly positive association with performance in low munificent and high complex environment Baliga, Moyer and Rao (1996) studying the relationship between duality and firm performance presented opposite results. *First*, in this study, there is no significant difference in performance when the change in duality status occurs. *Second*, in the long term, there is no significant difference on the impact of duality and non-duality on firm performance. This paper also indicated that although the duality does change the managerial process change, it does not create more assets and as such fails to affect firm performance. The main finding of this research is very absolutely important for increasing value of company through improving governance because complexity of determinants which affect to performance. Given this dichotomous view on CEO duality, we test the following hypothesis:

H₃: There is a negative relationship between CEO duality of the curved firm and its performance.

B. Corporate ownership and firm performance

The corporate governance literature on the link between corporate ownership and firm performance has evolved along two main streams: the first has examined the relationship between ownership and performance and the second focuses on how the type of ownership (*insider ownership, managerial ownership, CEO ownership, institutional ownership, and corporations*) impacts firm performance. Empirical frameworks in both research streams are based on four salient hypothesis. *First*, the incentive alignment hypothesis, by Jensen and Meckling (1976), asserts that large shareholders have greater power and stronger incentives to ensure shareholder value maximization. The hypothesis predict a positive relationship between managerial ownership and firm performance. *Second*, Morck, Shleifer and Vishny (1988) support the entrenchment hypothesis. According to Farinha (2003) managers may become insulated from internal disciplining mechanisms when there is high insider ownership or weak corporate governance. The entrenchment hypothesis predicts that the value of the firm will be less when management is free from checks on their control, and suggests that firm performance will decline as management ownership increases. *Third*, the reverse causality hypothesis, by Loderer and Martin (1997), assumes a positive relation between managerial ownership and firm performance. *Finally*, Demsetz (1983) and Demsetz and Lehn (1985) sustains the economics of natural selection hypothesis which posits that ownership is an endogenously determined governance structure. To clarify the relationship between ownership structure and firm performance,

we propose in this paper to distinguish between three categories of ownership: *Insider ownership*, *outsider ownership* and *the parent ownership in the curved firm*.

1. Insider ownership and firm performance

Jensen and Meckling (1976) were one of the first to formalize and support a positive relationship between corporate value and managerial equity ownership. They divide stockholders into two groups: (i) *inside shareholder* who manages the firm and has exclusive voting rights; and (ii) *outside shareholders* who have no voting rights. Both classes of security holders are entitled to the same dividends per share of stock held. However, the inside shareholder is able to augment this stream of cash flows by consuming additional nonmarketable perquisites. In this framework, there is an incentive for the manager to adopt investment and financing policies that benefit him, but reduce the payoff to outside stockholders. Thus, the value of the firm depends on the fraction of shares owned by insiders. The greater the proportion of the shares owned by insiders, the greater the value of the firm.

In the same line, Morck *et al.* (1988) investigate the relationship between firm value as measured by Tobin's Q and managerial ownership. They suggest that managers respond to two opposing forces and that the relation between ownership and value depends on which force dominates over any particular range of managerial equity ownership. The opposing forces work in the following way. Managers' natural tendency is to allocate the firm's resources in their own best interests, which may conflict with the interests of outside shareholders. As management's equity ownership increases, however, their interests are likely to coincide more closely with those of outside shareholders. The first of these forces has a negative effect on the value of the firm, whereas, the second has a positive effect. Morck *et al.* (1988) point out that it is not possible, a priori, to predict which force will dominate at any level of managerial equity ownership. Thus, the relation between corporate value and ownership structure is an empirical issue. In contrast, Demsetz (1983) argues that the ownership structure of the firm that [p. 384]: '*emerges is an endogenous outcome of competitive selection in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm*'. Accordingly, Demsetz and Lehn (1985) present evidence that there is no relation between ownership structure and profitability. Evidence to the contrary is presented by Morck *et al.* (1988) and Hermalin and Weisbach (1991). They estimate a piece-wise linear regression in which the dependent variable is Tobin's Q and the primary independent variable is the fraction of shares owned by corporate insiders. The authors find that Q first rises as insider ownership increases up to 5%, then falls as ownership increases to 25%, then rises slightly at higher ownership levels.

Using similar methodology, McConnell and Servaes (1990) investigate the cross-sectional relation between Tobin's Q and management equity ownership for a larger sample. They find a significant curvilinear relation between Tobin's Q and the management ownership. Tobin's Q first increases, then decreases, as the shares become concentrated in the hands of managers and members of the board of directors. Their results does not corroborate neither theoretical arguments of Demsetz (1983) nor empirical findings of Demsetz and Lehn (1985). They do not offer any possible theoretical or empirical explanation for the inconsistency, though.

These three empirical results are mutually contradictory. How could these conflicting results coexist side by side? This is why Holderness (2003) surveys the literature that examines the effects of insider and blockholder¹ equity ownership on corporate decisions and on firm value. He concludes that the body of evidence on the relation

¹ Shareholder who holds at least a 5% stake in the firm. They are often able to influence the company with the voting rights awarded with their holding.

between blockholders and firm value indicates that the relation is sometimes negative, sometimes positive, and never very pronounced. The author observes that insider and outsider blockholders have disparate private benefit/shared benefit incentives. Furthermore, the corporation blockholders present a set of governance issues not found with individual blockholders. Since in the case of carve-outs the most significant blockholder is a corporation, our paper attempts to determine the set of firm governance issues that corporation blockholders present and the impact, if any, that these issues may have on firm performance. We try to determine whether ownership structure in ECOs moderates firm value. We test the following hypothesis:

H4: The subsidiary performance is negative correlated the insider ownership.

Given that, IPO is one of the most restructuring event during firm life cycle, we examine if the insider ownership significantly changes during this operation or still stable. In author words, we try to study if changes in ownership are endogenous to firm characteristics. Zhou (2001) observes that insider ownership typically changes slowly from year to year and in most years, for an individual firm, no change occurs at all; whereas, for the same firm, value can change dramatically over the course of a year for a host of reasons unrelated to insider ownership. According to Loderer and Martin (1997), the insider investment argument predicts that owner-managers may increase their equity when they expect firm value to increase. On the other hand, they decline their ownership when financial performance begins to deteriorate. They show that insider ownership decreases significantly with performance and Tobin's Q as performance measure declines insignificantly with the insider. In the case of ECOs, the dominant parent is likely to increase its stake in the subsidiary when it has favorable expectations about future performance and reduce it when the future looks bleak. We test the following hypothesize:

H5: Positive (negative) changes in a parent's ownership stake in the subsidiary precede improved (weaker) subsidiary performance.

2. Outsider ownership and performance

A considerable body of research has focused on the role of institutional investors as corporate monitors. For example, Grossman and Hart (1980) argue that only large shareholders such as institutional investors can achieve sufficient benefits to have an incentive to monitor. Therefrom, several theoretical and empirical studies have sought to examine the link between institutional owners and firm performance. However, their results are mixed and unclear.

Bushee (1998) classified institutional investors into three groups according to their investment behaviors and such that different groups would provide different incentives for both managers and board of directors: (i) *dedicated* institutions have high concentration, low turnover, and almost no trading sensitivity to current earnings; (ii) *transient* institutions tend to have the highest turnover, highest sensitivity to current earning news, and relatively high portfolio diversification; (iii) *quasi-indexers* exhibit high portfolio diversification and low turnover, and buy with the intention of capturing characteristics of a market or industry as a whole, not firms. The first institutional group is assumed to be better monitors than the two authors.

McConnell and Servaes (1990) find evidence consistent with the hypothesis that corporate monitoring by institutional investors can result in managers focusing more on corporate performance and less on opportunistic or self-serving behavior. However, Cornett, Marcus, Saunders and Tehranian (2007) present evidence of a positive relation between institutional stock ownership and firm performance. On the other hand, Agrawal and Knoeber

(1996) and Faccio and Lasfer (2000) find no significant relation. Thus, the impact of institutional investor stock ownership on firm performance is still unclear. However, studies such as those by Thomsen and Pedersen (2000) and Holderness (2003) argue that causality may be in the opposite direction under some circumstances – causality of performance for ownership structure. Holderness (2003) present evidence that the presence of an outside blockholder has a moderating effect on the actions of management and ultimately on firm performance. In the case of ECOs, where a parent firm is a dominant blockholder, we argue that the moderating effect of an outside blockholder is likely to be even more beneficial. We test the following hypothesis:

H6: The presence of outside blockholders or institutional shareholders impacts positively the performance of subsidiary firms.

III. Data and Research Method

A. Sample selection and data sources

The sample is based on all firms that carried out an ECO on Euronext Paris during the period 1995-2015. To be included in the sample, the firm must be incorporated in France at the offer date and be identified on the Securities Data Company (SDC Platinum) and the AMF reports. These criteria yield a sample of 138 ECOs. We then collect board and ownership data on all sample firms over a period of four years namely three years before and one year after the IPO date. Data at the IPO comes from the offering prospectuses, and data for the remaining years come from financial statements. For each year that a firm is in the sample, we gather complete data on the composition of the board, directors' relationships with the firm/senior management, and number of directors on the board. We use Weisbach (1998) methodology to classify directors as affiliated or non-affiliated.

B. Variable definitions

1. Dependent variables

According to the traditional finance literature, firm value can be measured either as stock market performance, accounting performance, or a mix of both performance measures. However, none of those measures are perfect; each measure has its own advantages and disadvantages. In this study, the dependent variables (*firm performance*), include three proxies to estimate firm performance. *First*, for the accounting measurement, we follow the studies of Bhagat and Bolton (2008) and Brown and Clayor (2004) and use the return on asset (*ROA*) and return on equity (*ROE*). We compute the ratio between net income and total asset (for *ROA*) and total stockholder's equity (for *ROE*). The total asset and total stockholder's equity are estimated by average of beginning and ending figures in a financial year. Both ratios indicate the effectiveness in using total asset and equity of firms. It means that the two ratios presents the amount of net income being generated by one unit of total asset and equity respectively. *Second*, the Tobin's Q is considered the most widely adopted financial ratio to measure firm's performance. This ratio was proposed by Brainard and Tobin (1968) with the original formula:

$$Q = \frac{\text{Market value of outstanding stock} + \text{Market value of debt}}{\text{Replacement value of all production capacity}} \quad (1)$$

This ratio has been widely used in empirical studies on corporate governance and firm performance such as Bhagat and Bolton (2008). The author suggest to modify the ratio as follow:

$$Q = \frac{\text{Total asset} + \text{market value of equity} - \text{book value of equity} - \text{deferred taxes}}{\text{Total assets}} \quad (2)$$

This approach of estimation will be used in the study because of the availability of information in financial statements and annual reports. Each firm's Tobin's Q is then adjusted by subtracting the industry median. To ascertain the significance of the potential right skew in the distribution of firm value, we follow Hirsch and Seaks (1993) who propose to use log values of Tobin's Q as a robustness test.

2. Independent Variables

The independent variables of my regression analysis can be categorized as explanatory or control variables. The explanatory variables are the variables that characterize the corporate governance framework. All mentioned corporate governance elements (*board structure and ownership structure*) have to be treated as explanatory variables since they all presumably affect firm value.

a. Explanatory variables

Our empirical analysis consist of two groups of explanatory variables. The *first* group for measuring the board structure: (1) Board size is measured as the total number of directors on the board (*BoardS*); (2) board independence is measured by the outside director ratio (*IndDR*: a percentage number representing the fraction of independent directors on the board of directors) and a dummy variable² for combined or separated CEO and chairman functions (*CeoCD*). The *second* group of variables deals with ownership structure of the subsidiary firm: (1) inside ownership is the proportion of shares owned by officers & directors, and parent firm (*InsidR*); (2) outside blockholder variable is the proportion of outstanding shares (more than 5%) detained by the outsider's shareholders in the curved out company (*OutsiderR*); and (3) ownership concentration variable is the ratio of all stocks owned by investors that hold at least 5 % of equity ownership within the curved out firm (*OwnershipC*).

b. Control Variables

We also define various control variables to be used in our regressions, namely five firm-specific control variables. The firm-specific control variables include book-to-market value (*BMV*), log of market value of equity (*Log(MV)*), and log of total assets (*Log(TA)*) used as control variables for firm size. Leverage (*LEV*) is defined as the ratio of long-term debt to total assets (*Long-Term Debt + Shareholders' Equity*).

C. Methodology

One quite big concern with board composition and ownership structure studies is endogeneity. It is not completely clear whether the independent variables influence the dependent variable and not the other way around. To address endogeneity concerns to a certain extent, we use panel data and alternate estimation techniques (fixed effects, instrumental variable (IV), GMM,³ and granger causality tests), with the goal of mitigating the major econometric issues inherent in corporate governance studies. The use of panel data also allows for more robust and dynamic modeling of firm heterogeneity.

First, to test hypothesis H_1 , H_2 and H_3 we project a performance measure (*ROA*, *ROE*, and *Tobin's Q*) on each of the proxies for board structure (*BoardS*, *IndDR*, and *CeoCD*). We start with annual univariate regressions and then successively increase the complexity of the models by implementing a fixed effects model, then the IV,

² This is important because these aspects should also be taken into consideration when discussing single and dual leadership structures. These variables take the values 1 if there is one or more directors that fall within such category and 0 otherwise. In order to avoid potential multicollinearity problems, it is important to remove the independent director ratio from the regression equation when using these dummy variables.

³ We implement GMM that does not require as stringent distributional assumptions and allows for convenient specification of heteroscedastic errors.

and lastly, the generalized method of moments (GMM). As a robustness check, we also run granger causality tests to determine the direction effect between board structure and firm performance. We include as control variables the book-to-market, the log of total assets and firm leverage. For the IV and GMM models, we use 2 lags of board structure variables as instruments. We estimate the following model:

$$Performance_{it} = \alpha + \beta_1 BoardS_{i,t-1} + \beta_2 IndDR_{i,t-1} + \beta_3 CeoCD_{i,t-1} + \beta_4 BMV_{i,t-1} + \beta_5 Log(TA)_{i,t-1} + \beta_6 LEV_{i,t-1} + \varepsilon_{it} \quad (2)$$

Second, to test hypothesis H_4 , H_5 and H_6 we use the same regression approach on each of the proxies for ownership structure (*InsidR*, *OutsiderR* and *OwnershipC*). Indeed, after performing a first regression, the variable *InsidR* as it was, was not significant. Consequently, we have integrated *InsidR* at squared (*InsidR*²) to capture the effect of the evolution of *InsidR* on the variable explained. We estimate the following model:

$$Performance_{it} = \alpha' + \beta'_1 InsidR_{i,t-1} + \beta'_2 InsidR_{i,t-1}^2 + \beta'_3 OutsiderR_{i,t-1} + \beta'_4 OwnershipC_{i,t-1} + \beta'_5 BMV_{i,t-1} + \beta'_6 Log(TA)_{i,t-1} + \beta'_7 LEV_{i,t-1} + \varepsilon'_{it} \quad (3)$$

To test hypothesis H_6 , we use *OwnershipC* as one of the explanatory variables and include a lagged variable of the dependent performance variable as the other explanatory variable. The coefficient on β''_2 , captures the effect of changes in ownership concentration on firm performance can be interpreted as a measure of the impact on performance resulting from a change in the ownership concentration. We test the following model:

$$Performance_{it} = \alpha'' + \beta''_1 OwnershipC_{i,t-1} + \beta''_2 Performance_{i,t-1} + \beta''_3 BMV_{i,t-1} + \beta''_4 Log(TA)_{i,t-1} + \beta''_5 LEV_{i,t-1} + \varepsilon''_{it} \quad (4)$$

Reverse causality is one of the important econometric problems. In the case of governance structure (*board or ownership structure*) and firm performance, it is not clear whether effective governance result in better firm performance in the future or whether in fact good performance causes firms to establish effective governance. We implement Granger (1969) causality tests to test whether changes in governance structure are followed by systematic changes in firm performance or vice versa. Granger causality tests have the advantage of not requiring the use of instrumental variables. We test the following models for each of the board or ownership structure proxies (*one of the explanatory variables; ExpV*) and measures of firm performance:

$$Performance_t = \lambda_0 + \lambda_1 Performance_{t-1} + \lambda_2 Performance_{t-2} + \lambda_3 ExpV_{t-1} + \lambda_4 ExpV_{t-2} + \varepsilon_t \quad (5)$$

$$ExpV_t = \varphi_0 + \varphi_1 ExpV_{t-1} + \varphi_2 ExpV_{t-2} + \varphi_3 Performance_{t-1} + \varphi_4 Performance_{t-2} + v_t \quad (6)$$

In equation (5), the null hypothesis is that: the governance proxy does not granger cause firm performance. Rejection of the null hypothesis suggests that proxy variable granger causes firm performance. In equation (6), the null hypothesis is that: firm performance does not granger cause the governance proxy. Rejection of the null hypothesis would imply that firm performance granger causes the proxy. The *F-statistic/Wald-statistic* is used to test the following condition, for all equations: $\beta_1 = \beta_2 = 0$

IV. Data Analysis and Empirical Results

A. Data Statistics

To test the propositions made on this study, this section is devoted to present the result of the analysis conducted on collected data. The descriptive statistics of all the variables used in the study are shown in table 1. As shown in the table, under the Tobin's Q performance measure, ranges from 0.98 to 1.72 with a mean (median) of 0.98 (1.48) and a standard deviation of 1.01. Moreover, average firm performance is 13% ranging from -10% to 22% under ROA performance measure and 6 % ranging from -4% to 18% under the ROA performance measure. The results indicates that, the average board size is 9.62, ranging from a minimum of 7 directors to a maximum of 11 directors.

On the other hand, there is 21% outside director sitting on the board for selecting firms of the study. The result also indicates that the proportion of total equity owned by executive and non-executive directors is 79% ranging from 24% to 100%. The categorization of the sample revealed that approximately 20% of the sample firms have the CEO duality. It indicates that 800/0 of the sampled firms have separate persons occupying the positions of the chief executive and the board chair and 20% of those have the same person occupying the both positions. Book-to-market ranges from a minimum of 0.18 to a maximum of 0.81 with a mean (median) of 0.45 (0.35) and a standard deviation of 0.29. Leverage ranges from a minimum of 14% to a maximum of 89% with a mean (median) of 52% (55%) and a standard deviation of 25%. The skewness and Kurtosis of the variables show that the data are linear and normally distributed.

Table 1. Descriptive statistic of variables

	Mean	Standard Deviation	Median	Min	Max	Skewness	Kurtosis
Dependent variables:							
Tobin's Q (<i>TobQ</i>)	1.32	1.01	1.48	0.98	1.72	0.67	-0.03
Return on Equity (<i>ROE</i>)	0.13	0.19	0.20	-0.10	0.22	-0.23	-0.85
Return on Assets (<i>ROA</i>)	0.06	0.12	0.10	-0.04	0.18	-0.26	-0.85
Explanatory variables:							
Board size	9.62	2.67	9.70	7.00	11.00	0.71	-0.12
Board independence	0.21	0.06	0.25	0.10	0.85	0.33	-0.94
CEO	0.20	0.41	1.00	0.00	1.00	1.58	0.53
Insider ownership	0.13	0.01	0.15	0.01	0.07	0.91	-0.21
Parent ownership	0.75	0.11	0.79	0.12	0.95	0.87	-1.42
Outside blockholder	0.17	0.06	0.13	0.06	0.22	0.65	-0.48
Ownership concentration	0.79	0.15	0.72	0.24	1.00	0.93	-0.72
Control variables:							
Market Value of equity (€M)	732	290	181	52	1,189	73.32	162.51
Book-to-market value	0.45	0.29	0.35	0.18	0.81	0.78	0.92
Total assets (<i>Log(TA)</i>)	12.45	3.02	11.03	0.97	39.5	1.21	0.98
Leverage ratio	0.52	0.25	0.55	0.14	0.89	0.87	0.95

To measure the degree of multicollinearity among the variables, Pearson correlation analysis is conducted on the variables. The results between the main variables are shown in Table 2. Tobin's Q is positively related with ROE and ROA and significant respectively at the level of 1% and 5%. Moreover, similar result is also come out for insider ownership and ownership concentration at the significant level of 5%. However, Tobin's Q is negatively related with board size but not significant. On the other hand, beside a positive association with Tobin's Q, ROE and ROA are positively related with CEO duality though significant at the level of 5%.

Table 2. Correlation coefficient among variables

<i>N</i> = 138	1	2	3	4	5	6	7	8	9	10	11	12	13
1. TobQ	1.00												
2. ROE	0.89**	1.00											
3. ROA	0.04*	0.26*	1.00										
4. Board Size	-0.63	-0.33	0.73	1.00									
5. Board Ind.	0.20	0.25	0.35	0.58*	1.00								
6. CEO	0.15	-0.05*	-0.15*	0.69*	-0.52*	1.00							
7. Insider own.	-0.10*	-0.14*	0.26	0.25	0.48	0.56	1.00						
8. Parent own.	0.12	0.32*	-0.51*	0.56	0.53	0.48	0.51*	1.00					
9. Ownership conc.	-0.08*	-0.10*	0.45*	0.67	0.57	0.49*	0.62*	-0.12*	1.00				
10. BTM	0.81*	0.81*	0.71	0.56*	0.62*	-0.32	0.51*	-0.49*	-0.30	1.00			
11. Market Value	-0.22*	0.45	-0.12	0.51*	0.58*	0.35	0.26*	0.42*	0.29	0.69*	1.00		
12. Total assets	-0.13*	-0.49*	-0.14*	0.29*	0.56*	0.27	0.25*	0.36*	0.26	0.38	0.65	1.00	
13. Leverage	-0.32*	-0.14*	-0.07*	0.31*	0.12	0.15	-0.26*	0.09	0.13	-0.51*	-0.56*	-0.49*	1.00

Note. * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

B. Impact of board structure on firm performance

To ascertain what the differences are and whether the differences are statistically significant, we run separate fixed effects model, IV and GMM regressions for the three performance measures as dependent variables. Table 3 shows the results of the coefficient estimates with ROA, ROE and Tobin's Q as dependent variable. Besides, the table also shows the model summary of regression analysis with adjusted R square measure (indicating the explanatory power of the independent variables) and F-statistics value.

Table 3. Board structure and firm performance under different performance measures

<i>Model</i> <i>Dependent Variable</i>	<i>Fixed Effects Model</i>			<i>Two-Stage Least Squares (IV)</i>			<i>GMM</i>		
	1 <i>ROA_{it}</i>	2 <i>ROE_{it}</i>	3 <i>TobQ_{it}</i>	4 <i>ROA_{it}</i>	5 <i>ROE_{it}</i>	6 <i>TobQ_{it}</i>	7 <i>ROA_{it}</i>	8 <i>ROE_{it}</i>	9 <i>TobQ_{it}</i>
Constant	0.98*** (5.36)	1.99 (0.81)	0.08** (3.01)	2.85* (1.89)	1.21 (0.80)	1.98** (2.41)	0.40 (1.20)	2.01 (1.23)	1.20** (2.10)
Board Size _(t-1)	0.21 (1.16)	-1.28*** (4.02)	-0.13*** (-9.56)	-1.21* (-1.70)	-1.98*** (-5.81)	-1.01** (-2.39)	-0.81* (-1.86)	-1.25* (-1.80)	-1.19*** (-2.90)
Board Independence _(t-1)	0.11 (1.21)	-1.54 (-1.50)	0.56** (2.40)	0.10* (1.95)	-0.11 (-0.51)	-0.41** (2.12)	1.20** (2.01)	0.34** (2.18)	0.75* (1.89)
CEO Duality _(t-1)	-0.41** (-2.59)	0.05* (1.90)	-0.34*** (-4.07)	-1.20** (-2.14)	-0.68* (-1.89)	-0.16* (-1.75)	-2.36* (-1.79)	-1.75* (-1.69)	-0.69** (-2.29)
Book-to-Market value	1.12* (1.64)	1.10* (1.68)		1.12* (1.69)	1.15* (1.73)		0.92* (1.79)	0.61** (2.25)	
Log(Total Assets)	-0.45 (-1.19)	-0.43 (-0.92)	-1.14*** (-6.23)	-2.12* (1.81)	-1.50** (-2.01)	-1.11 (-0.69)	-0.91 (-1.40)	-1.04 (-1.39)	-1.19 (-0.68)
Leverage	-0.13*** (-6.04)	0.99** (1.72)	0.11*** (7.01)	-0.71*** (-7.27)	0.91* (1.31)	0.12*** (2.98)	-1.30** (-1.85)	-1.04 (-1.20)	0.21** (2.25)
Adjusted R ²	0.26	0.21	0.30	0.24	0.19	0.33	0.23	0.14	0.19
F-statistic	10.75***	8.29***	9.24***	11.61***	9.01***	8.61***	7.40***	9.40***	10.01***
P-values	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)

For a fixed effects model, the adjusted R square value is 0.30, 0.21 and 0.26 respectively for Tobin's Q, ROE and ROA. It indicates that 30% of the variation in Tobin's Q, 21% of the variation in ROE and 26% of the variation is explained by the variation in the independent variables. Model 1 presents estimated coefficients using ROA as the dependent variable. Board size has the opposite sign from that predicted by the first hypothesis and the coefficient is statistically insignificant. The coefficient on board independence has a positive sign as predicted by the second hypothesis but is also statistically insignificant. Consistent with the third hypothesis, the coefficient on CEO duality is negative and statistically significant at the 5% level. Overall, results from the first model do not support the first and second hypotheses but are consistent with third hypothesis, which predicts a negative relation between firm performance and CEO-duality. The results on CEO duality are consistent with Fama and Jensen (1983). Model 2 (ROA as the dependent variable) indicated that the coefficient on board size is negative and significant at level of 1%. The coefficient on CEO-duality is negative and significant at level of 10%. This model support the first and third hypothesis and are with same line the empirical study of Yermack (1996). On other hand, in model 3, the coefficient on board size is negative and significant at the level of 1%. The coefficient on board independence positive with a significant level of 5%. Besides, the coefficient on CEO-duality is negative and significant at 1% level. Overall, the fixed effects results support the three hypotheses, which posit a negative relation between firm performance and board size; positive relation between firm performance and board independence, and a negative relation between CEO duality and firm performance, respectively. However, we test the appropriateness of the fixed effects and a random effects model using a Hausman endogeneity test. The results indicates that the fixed-effects coefficient estimates are more consistent. The null hypothesis that the coefficient

on the different variables residuals is zero is rejected for all models (ROA, ROE and Tobin's Q). This implies the presence of endogeneity and hence the OLS coefficient estimates are likely to be biased and inconsistent.

When using the IV regressions, the instruments for board structure variables are the 2 lags of board size, board independence, and CEO-duality. In model 4, all the coefficients on the three board structure proxies are respectively significant at 10%, 10%, and 5% levels. The signs on the coefficients are also consistent with the predictions of the three hypotheses. Consistent with extant evidence board size and CEO-duality are negatively associated with firm performance, while board independence is positively related to performance. When using ROE as the performance measure (Model 5). Board size and CEO duality have the predicted signs and are statistically significant respectively at 1% and 10%. With Tobin's Q (Model 6) as the performance measure, all coefficients on board structure proxies are statistically significant. The signs on the coefficients are also consistent with the predictions of the three hypotheses. Board size and CEO-duality are shown to be negatively associated with firm performance, while board independence is positively related to performance. Our results are consistent with Raheja (2005) in the case of board independence, and Yermack (1996) in the case of board size, and Fama and Jensen (1983) and Rechner and Dalton (1991), in the case of CEO duality.

Lastly, for the GMM estimation procedure, we use two lags of the three board structure proxies' variables as instruments. The results in model 7 (ROA) are also consistent with the predictions of our hypotheses and indicates that Board size and CEO-duality are negatively associated with firm performance, while board independence is positively related to performance. Again, results using model 8 (ROE) and model 9 (Tobin's Q) are also consistent with the predictions of our hypotheses. All three models are also shown to be significant.

C. Impact of ownership structure on firm performance

Table 3 present fixed effects model, IV and GMM regressions under different performance measures. Model 1, 2 and 3 presents estimated coefficients using respectively ROA, ROE and Tobin's Q as the dependent variables. In model 1, Insider ownership has the opposite sign from that predicted by hypothesis H_4 and is statistically significant at 5% level. However, the square of insider ownership is not significant. Indeed, the coefficient on outsider ownership is positive and significant at level of 5%, which consist with the prediction of hypothesis H_5 . On other hand, ownership concentration has a negative insignificant coefficient. Overall, the fixed effects results in model 1 do not support hypotheses H_4 but are consistent with H_5 . When using ROE as dependent variable (Model 2), the coefficient on insider ownership is suggesting a negative significant (at 10% level) relationship between insider ownership and firm performance as predicted in H_4 . The coefficient estimate on outside blockholder is positive significant (at 5% level), consistent with the prediction in hypothesis H_5 . In addition, the coefficient estimate on outside blockholder is positively significant (at 5% level) and the coefficient estimate on ownership concentration is negatively significant (at 10% level) as predicted in hypothesis H_6 . With Tobin's Q as dependent variable (Model 3), the coefficient estimate on insider ownership is negatively significant. It has the opposite sign as that predicted by H_4 . Consistent with the prediction in hypothesis H_5 , the coefficient estimate on outside blockholder is statistically significant at the 0.15 level. As predicted in hypothesis H_6 , the ownership concentration is negatively related to firm performance.

Otherwise, the coefficient estimates on inside ownership (square of insider ownership) are negative (positive) for the three models which does not support the interest alignment hypothesis at lower levels of inside ownership nor the notion of a convex relation between insider ownership and firm performance. Overall, the fixed effects

results support H_5 but do not support hypotheses H_4 and H_6 . The findings negate the findings summarized by Holderness (2003), suggesting improvements in firm performance at low levels of insider ownership and decreasing performance at higher levels of insider ownership.

Table 3. Ownership structure and firm performance under different performance measures

Model	Fixed Effects Model			Two-Stage Least Squares (IV)			GMM		
	1 ROA_t	2 ROE_t	3 $TobQ_t$	4 ROA_t	5 ROE_t	6 $TobQ_t$	7 ROA_t	8 ROE_t	9 $TobQ_t$
Constant	4.30*** (3.88)	8.65*** (6.37)	1.99* (1.90)	0.70 (1.23)	2.28* (1.67)	1.34* (1.94)	1.30* (1.69)	2.02 (1.20)	2.61* (1.83)
Insider Ownership $_{(t-1)}$	-1.42* (-1.70)	-0.84* (-1.81)	-0.10* (-1.71)	-2.03** (-2.19)	-1.07* (-1.72)	-0.10 (-1.03)	-3.02*** (-4.03)	-2.34* (-1.75)	-1.23* (-1.71)
[Insider Ownership $_{(t-1)}$] ²	0.21 (1.40)	-0.10 (-1.20)	0.51 (1.34)	1.34* (1.69)	0.05 (1.29)	0.68* (1.79)	2.54* (1.78)	1.53 (1.19)	3.79 (1.01)
Outsider Blockholders $_{(t-1)}$	1.42* (1.71)	2.21** (2.19)	1.01* (1.80)	0.15** (2.15)	0.65** (2.34)	0.09* (2.01)	1.50*** (3.99)	2.21* (1.69)	1.30* (1.70)
Ownership Concentration $_{(t-1)}$	-0.51 (-0.61)	-0.66 (-1.11)	-0.10 (-1.30)	-1.99*** (-3.92)	-1.10* (1.70)	-2.51* (-1.91)	-2.92* (-1.92)	-2.09** (2.30)	-3.90* (-1.95)
Book-to-Market Value	1.59* (1.86)	0.89* (1.79)		1.45* (1.79)	0.81* (1.72)		1.92* (1.71)	0.82* (1.71)	
Log total assets	-0.31* (-1.68)	-0.99 (-1.43)	-0.10* (-1.70)	-1.21** (-2.01)	-0.82* (-1.82)	-0.75 (-1.20)	-0.10* (1.72)	-0.25** (-2.13)	-0.61 (-1.20)
Leverage	-1.41* (-1.91)	-0.50* (-1.76)	-0.11** (-2.10)	-0.10 (-1.39)	-0.54* (1.79)	-0.23** (-2.21)	-0.21* (-1.87)	-0.40 (1.09)	-0.55* (-1.79)
Adj. R^2	0.21	0.18	0.26	0.36	0.26	0.21	0.16	0.19	0.24
F-statistic	9.25*** (0.000)	4.70*** (0.001)	5.99*** (0.000)	7.92*** (0.000)	5.01*** (0.001)	9.07*** (0.000)	5.78*** (0.000)	4.87*** (0.000)	5.41*** (0.000)
P-value									

In Model 4, 5 and 6, we use IV estimator (*two-stage least squares*), which we correct for bias, as explained above. The instruments for corporate ownership are the 2 lags of the proxies for ownership: Insider ownership, the square of insider ownership, outside blockholders, and ownership concentration. In Model 4, consistent with the prediction in hypothesis H_4 , the coefficient estimate on insider ownership is negatively related to the firm performance at 5% level. The sign and significant level of the coefficient on outside blockholders suggests its positive relation with the dependent variable and corroborate the hypothesis H_5 . As predicted in hypothesis H_3 , the estimated coefficient of ownership concentration is negatively significant at the level of 1%. In Model 5, insider ownership is negatively related to firm performance as predicted in H_5 . The positive sign of the coefficient of outside blockholders is consistent with the prediction in hypothesis H_6 . Besides, the negative sign on coefficient estimate on ownership concentration is consistent with the prediction in hypothesis H_6 . When using the Tobin's Q as a dependent variable (Model 6), the sign and the significant level the ownership proxies are consistent with the hypothesis H_4 , H_5 and H_6 . The coefficient estimates on the square of insider ownership are positive for all three models which reject the notion of a convex relation between insider ownership and firm performance. In sum, our results from the two-stage least square estimation do not support the findings summarized in Holderness (2003), suggesting improvements in firm performance at low levels of insider ownership and decreasing performance at higher levels of insider ownership. A plausible explanation is that in the case of equity carve-outs, parent ownership in the subsidiary plays the role of insider ownership as measured in previous studies. So combining officers' and directors' ownership in the subsidiary with the existing parent ownership leads to the entrenchment effects of insider ownership to overwhelm the incentive alignment effects, thus negating the potential benefits of officers' and directors' ownership in the 0-5% ownership range that is documented in previous studies. On the other hand, our results from this approach of estimation for blockholder ownership support the findings by Holderness (2003). The presence of an outside blockholder seems to have a moderating effect on the actions of insider owners

(subsidiary management) and the parent firm and ultimately on firm performance. Consistent with Loderer and Martin (1997), the investment argument predicts that insider ownership will increase (decrease) in anticipation of positive (negative) changes in future firm performance. The negative coefficients on lags of insider ownership do not seem to support this view.

Lastly, in the case of GMM coefficient estimates (Model 7, 8 and 9), the instruments are the two lags of the ownership variables: Insider ownership, the square of insider ownership, outside blockholders, and ownership concentration. The signs on the coefficients for all the main explanatory variables are consistent with the hypothesis H_7 , H_8 , and H_9 predictions. Overall, in the case of insider ownership, GMM results do not support the findings summarized in Holderness (2003).

V. Conclusion and Discussion

Our paper investigate the relation between corporate governance and firm performance. *First*, we examine the relation between firm performance and board structure. Consistent with prior findings by Yermack (1996) and Raheja (2005), we find a negative relation between board size and firm performance for our sample. We also find that board independence is positively related to firm performance. These results are consistent with the findings by Raheja (2005). In support of the evidence presented by Fama and Jensen (1983) and Rechner and Dalton (1991), we find that CEO duality is negatively related to firm performance. In general, the results suggest that board size is largely driven by the scope of operations hypothesis and hence attempts at regulating ‘optimal’ board sizes may be misplaced.

Second, the paper investigates corporate ownership and firm performance. There were three main objectives to study this relationship: (i) with a view to reconciling extant literature, we sought to mitigate the econometric problems that have confounded previous studies to ascertain which of the largely mixed extant evidence is supported. (ii) due to the wide disparity in the definition and measurement of corporate ownership, one could argue that the mixed evidence is simply a reflection of differences in variable measurement. For robustness in this study, we implement alternative measures of ownership to ascertain what impact if any, different ownership proxies may have on firm performance. (iii) to ascertain whether measures of performance partly explain the mixed findings, we use both accounting and market based proxies for firm performance to reconcile the empirical with the extant evidence.

We find that contrary to extant evidence, insider ownership contrary to extant evidence that posits a positive relation between insider ownership and firm performance at low levels of ownership [0-5%], and a negative relation at higher levels of insider ownership is rejected in the case of ECOs. A combination of parent ownership and insider ownership in the subsidiary seem to exacerbate the entrenchment effects and overwhelm the incentive alignment effects at very low levels of insider ownership. These findings seem to suggest that dominant parent firms, at least in the case of equity carve-outs, exacerbate rather than mitigate the agency problem. As a matter of governance policy for ECOs, alternative control mechanisms may be necessary to moderate the behavior of dominant parent firms. In addition, these results raise an interesting question. Why in the majority of carve-out transactions do parent firms retain a supermajority shareholding control (from 75 to 99%) in the subsidiary, when in fact empirical evidence shows it to be sub-optimal? Assuming that the goal of management in the parent firms is value-maximization that ownership structure indeed reverts to the mean, other things being equal, one would

expect to observe a gradual reversion of parent ownership in the subsidiary towards the 51% level. We found no evidence to support this argument. Ownership decisions in the case of ECOs may be driven by other strategic considerations. Withal, we present evidence in support of the positive relation between outside blockholder ownership and firm performance. The presence of outside blockholders seems to significantly moderate the negative effects of a highly dominant parent firm. And lastly, we show that in the case of ECOs, the level of ownership concentration seems to increase (decrease) in anticipation of positive (negative) changes in firm performance.

REFERENCES

- Adams, B., B. Hermalin, and M. Weisbach, 2010, The role of boards of directors in corporate governance: A conceptual framework and survey, *Journal of Economic Literature* 48(1), 58-107.
- Adams, R., and H. Mehran, 2012, Bank board structure and performance: Evidence for large bank holding companies, *Journal of Financial Intermediation* 21(2), 243-267.
- Agrawal, A., and S. Chadha, 2005, Corporate governance and accounting scandals, *The Journal of Law & Economics* 48(2), 371-406.
- Agrawal, A., and R. Knoeber, 1996, Firm performance and mechanisms to control agency problems between managers and shareholders, *Journal of Financial and Quantitative Analysis* 31(3), 377-397.
- Allen, J.W., and J.J. McConnell, 1998, Equity carve-outs and managerial decisions, *The Journal of Finance* 53(1), 163-186.
- Baker, M., and P. Gompers, 2003, The determinants of board structure at the initial public offering, *Journal of Law and Economics* 46(2), 569-98.
- Baliga, B., R. Moyer, and S. Rao, 1996, Ceo duality and firm performance: What's the fuss?, *Strategic Management Journal* 17(1), 41-53.
- Bayar, O., Th. Chemmanur, and M.H. Liu, 2011, A theory of equity carve-outs and negative stub values under heterogeneous beliefs, *Journal of Financial Economics* 100(3), 616-638.
- Bayar, O., Th. Chemmanur, and M.H. Liu, 2015, A theory of capital structure, price impact, and long-run stock returns under heterogeneous beliefs, *Review of Corporate Finance Studies* 4(2), 258-320.
- Bhagat, S., and B. Black, 2002, Board independence and long-term firm performance, *Journal of Corporation Law* 27(2), 231-273 Pages.
- Boyd, B., 1995, Ceo duality and firm performance: A contingency model, *Strategic Management Journal* 16(4), 301-312.
- Brickley, J., J. Coles, and J. Jarrell, 1997, Leadership structure: Separating the ceo and chairman of the board, *Journal of Corporate Finance* 3(3), 189-220.
- Bushee, B., 1998, The influence of institutional investors on myopic r&d investment behavior, *The Accounting Review* 73(3), 305-333.
- Coles, J., N. Daniel, and D. Naveen, 2008, Boards: Does one size fit all?, *Journal of Financial Economics* 87(2), 329-356.
- Coles, J., N. Daniel, and L. Naveen, 2006, Managerial incentives and risk-taking, *Journal of Financial Economics* 79(2), 431-468.
- Cornett, M., A. Marcus, A. Saunders, and H. Tehranian, 2007, The impact of institutional ownership on corporate operating performance, *Journal of Banking & Finance* 31(6), 1771-1794.
- Dalton, D., C. Daily, A. Ellstrand, and J. Johnson, 1998, Meta-analytic reviews of board composition, leadership structure, and financial performance, *Strategic Management Journal* 19(3), 269-290.
- Demsetz, H., 1983, The structure of ownership and the theory of the firm, *Journal of Law and Economics* 26(2), 375-394.
- Demsetz, H., and K. Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 93(6), 1155-1177.
- Desai, C., M. Klock, and S. Mansi, 2011, On the acquisition of equity carve-outs, *Journal of Banking & Finance* 35(12), 3432-3449.
- Faccio, M., and M.A. Lasfer, 2000, Do occupational pension funds monitor companies in which they hold large stakes?, *Journal of Corporate Finance* 6(1), 71-110.
- Fama, E., and M. Jensen, 1983, Separation of ownership and control, *Journal of Law and Economics* 26(2), 301-325.

- Farinha, J., 2003, Dividend policy, corporate governance and the managerial entrenchment hypothesis: An empirical analysis, *Journal of Business Finance and Accounting* 30(9-10), 1173-1209.
- Grossman, S., and O. Hart, 1980, Takeover bids, the free-rider problem, and the theory of the corporation, *The Bell Journal of Economics* 11(1), 42-64.
- Hanson, R., and M. Song, 2000, Managerial ownership, board structure, and the division of gains, *Journal of Corporate Finance* 6(1), 55-70.
- Harris, M., and A. Raviv, 2008, A theory of board control and size, *The Review of Financial Studies* 21(4), 1797-1832.
- Hermalin, B., and M. Weisbach, 1991, The effects of board composition and direct incentives on firm performance., *Financial Management* 20(4), 101-112.
- Hermalin, B., and M. Weisbach, 1998, Endogenously chosen boards of directors and their monitoring of the ceo, *The American Economic Review* 88(1), 96-118.
- Holderness, C., 2003, A survey of blockholders and corporate control, *Economic Policy Review* 9(1), 51-64.
- Jensen, M., 1993, The modern industrial revolution, exit, and the failure of internal control systems, *The Journal of Finance* 48(3), 831-880.
- Jensen, M., and W. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3(4), 305-360.
- Klein, A., 1998, Firm performance and board committee structure, *Journal of Law and Economics* 41(1), 275-799.
- Lipton, M., and J. Lorsch, 1992, A modest proposal for improved corporate governance, *Business Lawyer* 48(1), 59-77.
- Loderer, C., and K. Martin, 1997, Executive stock ownership and performance tracking faint traces, *Journal of Financial Economics* 45(2), 223-255.
- Loderer, C., and U. Peyer, 2002, Board overlap, seat accumulation and share prices, *European Financial Management* 8(2), 165-192.
- McConnell, J. J., and H. Servaes, 1990, Additional evidence on equity ownership and corporate value, *Journal of Financial Economics* 27(2), 595-612.
- Morck, R., A. Shleifer, and R. Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20(1-2), 293-315.
- Myers, S.C., and N.S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13(2), 187-221.
- Nanda, V., 1991, On the good news in equity carve-outs, *The Journal of Finance* 46(5), 1717-1737.
- Pearce, J., and Sh. Zahra, 1992, Board composition from a strategic contingency perspective, *Journal of Management Studies* 29(4), 411-438.
- Perotti, E., and S. Rossetto, 2007, Unlocking value: Equity carve outs as strategic real options, *Journal of Corporate Finance* 13(5), 771-792.
- Powers, E., 2003, Deciphering the motives for equity carve-outs, *Journal of Financial Research* 26(1), 31-50.
- Raheja, C., 2005, Determinants of board size and composition: A theory of corporate boards, *Journal of Financial and Quantitative Analysis* 40(2), 283-306.
- Rechner, P., and D. Dalton, 1991, Ceo duality and organizational performance: A longitudinal analysis, *Strategic Management Journal* 12(2), 155-160.
- Schipper, K., and A. Smith, 1986, A comparison of equity carve-outs and seasoned equity offerings, *Journal of Financial Economics* 15(1-2), 153-186.
- Thompson, T.H., 2016, Underpricing, partial price adjustments, and equity carve-outs, *Journal of Economics and Finance* 40(2), 345-366.
- Thomsen, S., and T. Pedersen, 2000, Ownership structure and economic performance in the largest european companies, *Strategic Management Journal* 21(6), 689-705.
- Vijh, A.M., 1999, Long-term returns from equity carveouts, *Journal of Financial Economics* 51(2), 273-308.
- Yermack, D., 1996, Higher market valuation of companies with a small board of directors, *Journal of Financial Economics* 40(2), 185-211.
- Zhou, X., 2001, Understanding the determination of managerial ownership and its relationship to firm performance: Comment, *Journal of Financial Economics* 62(3), 559-571.