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Biplob CHOWDHURY
University of Tasmania

Mardi DUNGEY
University of Tasmania
Centre for Applied Macroeconomic Analysis (CAMA), ANU
CFAP, University of Cambridge, UK

Thu Phuong PHAM
University of Tasmania
IPAG Business School, France

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The impact of post-IPO changes in corporate governance mechanisms on firm performance: evidence from young Australian firms*

Biplob Chowdhury+
Tasmanian School of Business and Economics, University of Tasmania, Australia

Mardi Dungey
Tasmanian School of Business and Economics, University of Tasmania; CAMA, Australian National University, Australia; CFAP, University of Cambridge, UK

Thu Phuong Pham
Tasmanian School of Business and Economics, University of Tasmania, Australia; IPAG Business School, France

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Abstract

This paper examines the potential impact of governance mechanisms (top management team structure and board composition) on post-IPO performance of young Australian firms from 2002-2007. We find that change in board of directors and TMT membership significantly affects firm performance. The higher proportion of the IPO original board remains, the better performance. An analogous relationship between the proportion of original TMT members and firm performance is also documented. Our study reveals that both original TMT and board members have a significant effect on both short-term and long-term IPO performance. We conclude that the retention of both the original directors and TMT members is favorable to young IPO firms and their post-IPO performance.

JEL classification: **G30, G32, L25**

Keywords
Corporate governance; board composition; top management teams; young firms; post-IPO performance.

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+ Corresponding author. Email: biplob.chowdhury@utas.edu.au (B.Chowdhury)

1. Introduction

This paper investigates the impact of post-IPO changes in corporate governance mechanisms on firm performance as they are transforming themselves from private domain to public domain through initial public offerings (IPO). Most of the existing empirical work addresses post-IPO performance with respect to corporate governance issues excluding young firms from the sample.[1] As a result, we know relatively little about the performance of young firms following IPO. Baker and Gompers (2003) note that evaluating the effectiveness of corporate governance structures is more important around corporate events such as an IPO rather than in calendar time, since governance structures in calendar time are as much a consequence of past performance as they are measures of good quality of corporate governance. Further, they add that the establishment of effective governance structures is crucially important at the time of IPO since it represents the first time that most firms raise capital from potential investors. Since the choice of organizational form is a central part of governance design, it is important to evaluate the impact of changes in corporate governance mechanisms on firm performance of newly public firms. Therefore, this study considers the post IPO- context for young firms.[2]

Post- IPO firms are unique because they are still at a vulnerable stage of their development process and face transitional challenges stemming from their inexperience with market mechanisms. As a consequence of going public, firms go through radical changes in their corporate governance mechanisms, many of which involve corporate governance- related processes (Burton, Helliar, & Power, 2004). Transition to the public domain is required to adjust firms' post-IPO structures and strategies, such as the separation of ownership and

[1] See, for example Coles, Daniel, and Naveen (2008); Haniffa and Hudaib (2006);Yermack (1996). Some exceptions are Kroll, Walters, and Son (2007); Walters, Kroll, and Wright (2010).

[2] IPO activities have increased significantly in recent past (i.e. 1998-2007). The US firms raised capital of over $600 billion through IPO (about 3,000 IPOs) between 1998 and 2007 (Certo, Holcomb, & Holmes, 2009). The majorities of firms are not large companies (Kroll et al., 2007). Additionally, in 2009, Australia raised capital of US$86.2 billion through the IPOs (Chancharat, Krishnamurti, & Tian, 2012).

control and the need for additional resources to compete in rapidly evolving industries and product markets (Bouresli, Davidson, & Abdulsalam, 2002). An IPO firm's success is therefore crucially dependent on the ability, motivation, skills, incentives, and risk taking ability of its original board members and top management teams (TMT) as they attempt to carry the firm toward the IPO stage successfully. After going public, signaling theory suggests that, promising companies will attract investors and those new owners may be willing to intervene in two of the most crucial corporate governance mechanisms: board composition and TMT structure. The board and executives are two important components of the strategic decision making of the firm and thus owners want to assure that these agents will act in their interests and take wealth-maximizing decisions (Certo, 2003; Sanders & Boivie, 2004).

Research provides arguments to support the governance changes that take place following IPOs and their effect on post-IPO performance. For instance, in a study of the post-IPO performance of young entrepreneurial firms, Kroll et al. (2007) provide empirical support for the view that outside directors are less effective when firms are facing transitional challenges from private domain to public domain. In fact, they recommend that a majority of board members be insiders. Most of the existing empirical studies, however, have relied primarily on agency theory (Lynall, Golden, & Hillman, 2003), and suggest that boards should be comprised largely of independent outside directors (Daily & Dalton, 1995; Wright, Kroll, & Elenkov, 2002). Agency theorists assert that outside board members are essential, otherwise the separation of ownership and control may provide opportunities for agents (managers) to act in their own self-interest by maximizing their own wealth and power at the expense of the owners (Lynall et al., 2003). Therefore, radical changes in post-IPO corporate governance mechanisms, such as board monitoring help to reduce agency costs, increase legitimacy and thus improve firm performance. On the other hand, rapid change in post-IPO corporate

governance may hamper firm performance. Barney (1991) argues that radical change in post-IPO corporate governance may fail to influence the human and social capital of the original TMT, and diminishes their psychological commitment, resulting in lower performance. These changes in post-IPO corporate governance may have conflicting effects on firm performance.

Amongst different governance mechanisms in young firms, the board and TMT play a vital role in achieving effective governance. Young firms greatly depend on their original top managers and board members as they are less likely to attract independent board members and top management teams with sufficient experience and expertise to perform effectively when compared with mature and established firms. In addition, young firms' competitive advantages tend to come from the human and social capital of their top managers such as their entrepreneurial skills, higher ownership stakes, social connections and high level of psychological motivation and effort. Radically imposing independent corporate governance mechanisms on a firm following IPO may negatively affect its TMT motivation and stability ultimately leading to some detrimental effects for firm performance. Jain and Kini (1994) find that firms going public demonstrate a substantial decline in operating performance subsequent to the IPO; see also Daily and Dalton (1995) and Bergh (2001). In addition, Kroll et al. (2007) argue that the conventional corporate governance mechanisms may be more effective for large and well established organizations, but might not be appropriate for young firms following the IPO process because the nature and size of agency costs are different. Young firms face radical changes during the IPO-period called the 'liability of newness' (Stinchcombe, 1965) and may warrant different approaches compared with large corporations.

We focus our analysis on changes in corporate governance mechanisms that take place following IPOs and their effect on post IPO performance for firms with limited histories (i.e.

young firms). In particular, we ask the following questions. First, how the changes in top management team composition after IPO affect the firm operating performance. Second, how changes in board structure affect the firm's subsequent performance.

We consider a sample of 40 young Australian firms that followed the IPO process in 2001 and their performance between 2002- 2007. For each firm, we hand-collect board, TMT and firm characteristics information for the year of IPO and each of years 1 to 6 following the IPO. We collect the information on performance variables for the same period. After controlling for firm characteristics, and time effects, we present evidence indicating that retention of the original board and TMT leads to better performance. This result is statistically significant and quite robust in our sample. Hence, the evidence is consistent with the hypothesis that both the original directors and executives are needed for better post-IPO performance (Kor, 2003; Kroll et al., 2007). Agency theorists (M. C. Jensen & Meckling, 1976) assert that presence of board vigilance is required for better performance, however, Kroll et al. (2007) and Walters et al. (2010) provide evidence that agency prescription may not be applicable for young firms. The resource-based view states that losing executives with TMT firm-specific human capital may hurt firm performance because their human capital represents a critical source of competitive advantage. Our results support the resource-based prediction and contribute additional detail to the explanation of the effect of TMT human capital on performance (Fischer & Pollock, 2004; Kroll et al., 2007; Walters et al., 2010). In general, our result is also consistent with Easterwood, İnce, and Raheja (2012) who find evidence that the firms with no board turnover have the largest performance improvement using a sample of non-IPO firms that experienced a negative performance shock.

Our paper contributes to the literature in finance and organizational theory in several ways. First, we provide evidence that the traditional approach adopted by shareholders to appoint

their agents may not be applicable for young firms. Second, we document the effect of changes in board structures and top management team of young firms on firm performance. To the best of our knowledge, this is the first study to investigate the impact of changes in corporate governance structure on post-IPO performance in the context of Australian young firms. Although, there is a significant amount of work in the Australian setting on post-IPO firm performance (Balatbat, Taylor, & Walter, 2004; Lee, Taylor, & Walter, 1996), there is no systematic evidence of which we are aware that examines operating performance measures following young IPO firms. Australia presents an interesting case; Australia shares the English common-law legal system with the US and UK, and has the open market policies consistent with the US. Differences in financial developments, the mechanisms and effectiveness of young firms, means that governance could be quite different in Australia, although the governance reforms in Australia borrow concepts and "best practices" from the US. In 2009, Australia raised capital of US$86.2 billion (third largest in the world in terms of investment flow) through IPOs and issuing secondary shares (Chancharat et al., 2012).

Finally, Our paper complements the recent study of Kroll et al. (2007) who study the impact of board composition on post-IPO performance of US young firms over a two year period. We extend the previous studies that focus on US young firms to an international scenario. To the best of our knowledge, the sample period in this study is considerably larger than the sample period in previous studies. In addition, we use panel data techniques, which enable us to isolate both cross-section and time-series effects and also look at firm performance for longer term rather than their short-term period (2-years post IPO-performance). We are interested in long-term performance given the fact that most of the young firms are either merged with other firms or do not survive after the initial periods of IPO. Hence, it is important to measure the long-term performance of young firms to capture the true effect of changes in corporate governance mechanisms on firm performance.

The remainder of this paper is structured as follows. Section 2 reviews the related literature on firm corporate governance and develops testable hypotheses. We discuss our sample, the variables used in the analysis and methodology in Section 3. Section 4 presents the results on the impact of changes in governance mechanisms on firm outcomes. Section 5 provides some robustness tests and Section 6 concludes.

2. Theoretical framework and hypotheses

In the context of IPO firms, the literature suggest that firms undergo changes to make the transition to public firms and as a consequence, changes in the ownership structure might be followed by changes in corporate governance mechanisms. For instance, Denis, Denis, and Sarin (1997) report that the presence of new outside blockholders leads to executive turnover. This is simply the result of combating the agency problem, that is, the conflict of interest arising in the relationship due to the divergence of managers (assumed rational but opportunistic) from the shareholder interest. The blockholders are likely to appoint their agents to the TMT or the board of directors to look after their interests, a phenomenon confirmed by Admati, Pfleiderer, and Zechner (1994) and Kahn and Winton (1998). The question we examine is how the changes in governance mechanisms affect subsequent performance.

When initiating the IPO process, firms are likely to pay special attention to the composition of their TMT to clearly signal to potential investors. The functional and educational backgrounds of the TMT are seen as critical factors which may attract a higher amount of capital during the IPO. A TMT which clearly demonstrates its strength in managing the business is a lucrative investment opportunity for investors. Moreover, for young firms, executives or members of TMT who have extensive knowledge and experience with the firm

are a potential source of competitive advantage (Kor, 2003). These TMT members are the ones who brought the firm to the IPO stage.

Young firms have organic growth until IPO stage (Kroll et al., 2007) and the original TMT members are the masterminds who make it happen. Small firms are mostly dependent on the knowledge base available within them. When new blockholders come into the scene, they want changes in the TMT structure because they want their agents to look after their interest. As a result, some of the original TMT members who have extensive firm specific knowledge will probably need to leave while their positions will be taken by the agents of the new blockholders (Fama & Jensen, 1983). We argue that by letting original members of the TMT depart, post-IPO firms lose an important competitive edge which will lead to a lower operating performance in the following years. Existing research also suggests that post-IPO success is enhanced with more cohesive management teams with the original TMT in place (Fischer & Pollock, 2004; Kroll et al., 2007).Therefore, we expect to observe a positive relationship between the proportion of original TMT members and firm performance during the post IPO stage.

The theoretical literature in corporate governance suggests that not only changes in TMT composition have an impact on post-IPO performance but also other organizational leadership, such as the directors should be considered (Certo, Holmes Jr, & Holcomb, 2007). For example, Coles et al. (2008) argue that firms, for which insider firm-specific knowledge is comparatively crucial, will be better off with a greater proportion of insiders on the board. A firm's corporate governance plays a vital part in creating value for shareholders. Firms that are about to initiate an IPO process will gain from having a proper board structure involving a mix of both inside and outside directors whose prestige adds to that of their founders. The results also underline the importance that founders' experiences and ownership position play

in appointing the board of directors (Chahine, Filatotchev, & Zahra, 2011). New investors' demands to see changes in the board structure are contradictory after their decision to invest in the firm in the first place based on being impressed by the original board of directors.

Beatty and Zajac (1994) find that, the traditional board independence recommendation of agency theory is not as important in the IPO context. In addition to retaining the original executives, it is also important to retain directors. If the tacit knowledge and shared vision of the TMT is a source of competitive advantage, then the board that has been contributing to the firm from its inception through appropriate monitoring and participating in the strategic decision making process, is also a source of competitive advantage. Scholars already consider directors to be a reflection of the owners and suggest that, for better performance in smaller firms, strategic decision making needs to be done by the same individuals (Fama & Jensen, 1983; Walters et al., 2010). Certo et al. (2007) talk of a dominant coalition composed of the strategic leaders, and that this coalition is likely to take the firm further with a shared vision (Nelson, 2003). From the above discussion, our second hypothesis is that there is a relationship between the proportion of original board members and firm performance, which is likely to be positive, although the direction is a matter to be tested.

3. Data and methodology

3.1. Data

Our initial sample consists of an unbalanced panel of firms that went public in Australia during 2001. Data on these firms are sourced from the OSIRIS database for the period of 2001-2007. We focus on that time frame in order to avoid the impact of the exogenous event of the release of ASX Best Practice Recommendation in 2003 and also to avoid potential stock market fluctuations during the period of 2000 in the US. The observation period of our sample is six years after the date of issue. We choose the time window of six years in order to

consider the effect of changes in corporate governance mechanisms on firm performance beyond the immediate period. Following other studies, we consider young firms that are founded within the previous ten-year period and independently operated (i.e. firms that not spin-off or subsidiaries of other firms) (Daily & Dalton, 1995; Eisenhardt & Schoonhoven, 1990; Kroll et al., 2007; Walters et al., 2010). To ensure that all firms were still in their young entrepreneurial stage, IPO firms founded from 1991 onwards only are included in this study.

IPO prospectuses were obtained from the OSIRIS database. Prospectus information that contain detailed ownership and corporate governance data are collected manually through annual reports published in OSIRIS and cross-checked with annual reports and prospectus using Aspect Financial Analysis and the Morningstar DatAnalysis database. Financial data to compute Return on Assets (ROA), Tobin's Q, and measures of firm risk are obtained from the DataStream database. The governance data and performance data are merged for each company from 2001-2007. Firms which are delisted, acquired or merged within the sample period are excluded. We also exclude firms for which we could not find the relevant prospectus. These restrictions result in a final sample to 40 companies, equivalent to-240 observations.

3.2. Variable description

In this section, we discuss the data sources for performance variables, governance variables and control variables.

Table 1. Variables, descriptions, and sources.
This table provides descriptions of variables used in this paper. The sample consists of all young firms from 2002-2007. It also shows the years for which we have data available and total number of observations we have for each variable.

Variables	Definition	Years available	Sample size	Data source
Panel A. Performance Variables				
Firm Performance	Return on Assets (ROA)= Earnings before interest, taxes, depreciation and amortization/Total assets	2002-2007	240	Datastream
	Tobin 's Q = Total assets+ market value of equity- book value of equity/ Total assets	2002-2007	240	Datastream
Panel B. Governance characteristics				
Change in TMT membership	Proportion of original TMT members t = no of original TMT t / no of TMT t	2002-2007	240	Annual reports
Change in board membership	Proportion of original board members t = number of original directors t / number of directors t	2002-2007	240	Annual reports
TMT size	Top management team members are those included in the top executives list of the corporate structures as reported on the corresponding documents	2002-2007	240	Annual reports
Board size	The number of executive and non-executive directors on the board	2002-2007	240	Annual reports
% of non-executive directors	The percentage of non-executive directors on the board	2002-2007	240	Annual reports
CEO Duality	A dummy variable that equals one if the chairman of the board is also the CEO of a firm and zero otherwise	2002-2007	240	Annual reports
Director age	Average age of board members	2002-2007	154	Annual reports
Panel C. Firm characteristics				
Firm Size	Natural log of total assets	2002-2007	240	Datastream
Dividend payout ratio	The annual dividends per share divided by the Earrings per share	2002-2007	240	Datastream
Leverage Ratio	Total liabilities over total assets	2002-2007	240	Datastream
Firm risk	Standard deviation of previous 12 month stock returns.	2002-2007	235	Datastream
Year dummies	We include year dummies			

3.2.1. Performance variables

Both stock market-based and accounting-based performance measures are used in the literature. In this study, ROA is employed as an accounting-based performance and Tobin's Q as a stock market based performance measure. In terms of post-IPO performance, we use the ROA, obtained by the ratio of ratio of earnings before interest, taxes, depreciation, and amortization (EBITDA) on book value of assets, as used in previous corporate governance research (Coles et al., 2008). We focus on EBITDA, rather than net income, as EBITDA is

good means of comparing companies within and across industries. We use the accounting measure ROA as a primary performance measure following Bhagat and Bolton (2008), who assert that stock market based performance measures are susceptible to investor expectations. If investors anticipate the corporate governance effect on performance, long-term stock returns will not be significantly correlated with governance, even if a significant correlation between performance and governance in fact exists. Further, abnormal operating performance should be largely exogenous with respect to subsequent governance changes.[3] Moreover, Wintoki et al. (2012) emphasize that Tobin's Q is a proxy for growth opportunities and the growth opportunities are a cause rather than a consequence of governance structures.

For comparison, we also use Tobin's Q as the market based measure of performance in order to capture different aspects of firm performance and to aid the comparison our results with the extant literature (Adams & Ferreira, 2009; Demsetz & Villalonga, 2001; King & Santor, 2008). In line with Coles et al. (2008) and Adams and Ferreira (2009), we define Tobin's Q as book value of assets minus book equity plus market value of equity all divided by book value of assets.

3.2.2. Measuring Change in Governance Mechanisms

We describe our primary measures of TMT membership and board membership, as well as changes in this measure.

Change in TMT membership. In line with the existing literature, we define the top management team (TMT) as a team comprising of Chairperson of the board (COB), Vice chairperson (VC), Chief Executive Officer (CEO), President, Chief Operating Officer (COO), Senior Vice President (SVP), Executive Vice President (EVP) (Murray, 1989; Tihanyi, Ellstrand, Daily, & Dalton, 2000). Top management team members are those included in the

[3]See Wintoki, Linck, and Netter (2012) for more on endogeneity problems in corporate governance research.

top executives list of the corporate structures as reported in the corresponding documents – Company Annual Reports (Cohen & Dean, 2005). Our measure of the change in TMT membership is calculated as the number of original TMT members divided by the current year number of TMT members.

Change in board membership. We define Board Size as the number of executive and non-executive directors on the board. In line with ASX Best Practice Recommendation, the Board comprises a non-executive chairperson, at least one non-executive director and one executive director; additionally a majority of the board should be independent directors (who do not have any material relationship with the company) (Council & Exchange, 2007). If the person is listed as a director then he or she is considered as a member of the board. We determine the change in board membership by looking at the prospectus and proxy statements. Our measure of the change in board membership is calculated as the number of original directors divided by the current year number of directors. Consistent with TMT membership, these data are collected for the IPO date and the six years following the IPO date.

3.2.3. Control Variables

Our analysis includes several control variables that potentially affect firm performance. With reference to the board and TMT characteristics, we include the following control variables: TMT size, board size, director age, CEO duality and non-executive director ratio.

Following previous studies, the number of executives and directors are used to account for possible effects for TMT and board size on firm performance (Coles et al., 2008; Walters et al., 2010). Previous researchers provide evidence that demographic variables such as TMT and director age impact firm performance (Cohen & Dean, 2005; Higgins & Gulati, 2006). In line with Francis, Hasan, and Wu (2012), we include director age which may be considered as an indicator of the knowledge, experience, wisdom and established networks. Rechner and

Dalton (1991) recommend the separation of chairman and chief executive positions while some scholars support the notion that duality is beneficial for firm performance (Braun & Sharma, 2007). Findings about duality are subject to debate (Desai, Kroll, & Wright, 2003). In this study, CEO duality is adopt as a dummy variable that equals one if the chairman of the board is also the CEO of a firm and zero otherwise. We adopt the proportion of non-executive directors to the number of directors on the board as a proxy for board independence. Empirical evidence suggests that the relationship between performance and board composition is mixed (Bhagat & Black, 2001; Coles et al., 2008; Yermack, 1996).We assume that non-executive directors' play a monitoring role on top management of the firm and thus predict a negative impact of non-executive director ratio on firm value.

With reference to firm characteristics, we include the following variables; firm size, dividend payout ratio, leverage and firm risk. Previous research suggests that firm size may be related to firm performance (Haniffa & Hudaib, 2006); we employ the natural log of assets to control for firm size (Adams & Ferreira, 2009; Bhagat & Bolton, 2008).We assume a positive association of dividend payout ratio with corporate value as we expect management to use dividends as a signal of performance to shareholders (Bøhren & Ødegaard, 2001; Lopez de Silanes, Vishny, & Shleifer, 2000). Previous researchers provide inconclusive evidence regarding the effect of debt on firm value (G. R. Jensen, Solberg, & Zorn, 1992; McConnell & Servaes, 1990; Morck, Shleifer, & Vishny, 1989). According to pecking order theory, we hypothesis a negative relationship between a firm's debt level (Leverage) and performance (Demsetz & Villalonga, 2001) where Leverage is calculated as the ratio of total liabilities to total assets. In addition, we include firm risk calculated as a standard deviation of monthly stock returns. We include year dummies in all regressions. Table 1 presents the sources and definitions of all variables.

3.3. Summary statistics

Table 2 presents the descriptive statistics about firm performance and other characteristics of sample firms in the post-IPO period. Striking differences exist in both accounting and market return performance of young firms. The performance variable in panel A of Table 2 shows that the median of ROA is -0.17 implying that firms demonstrate a substantial negative performance. However, it can be seen that the median of Tobin's Q is greater than 1 for the sample firms.

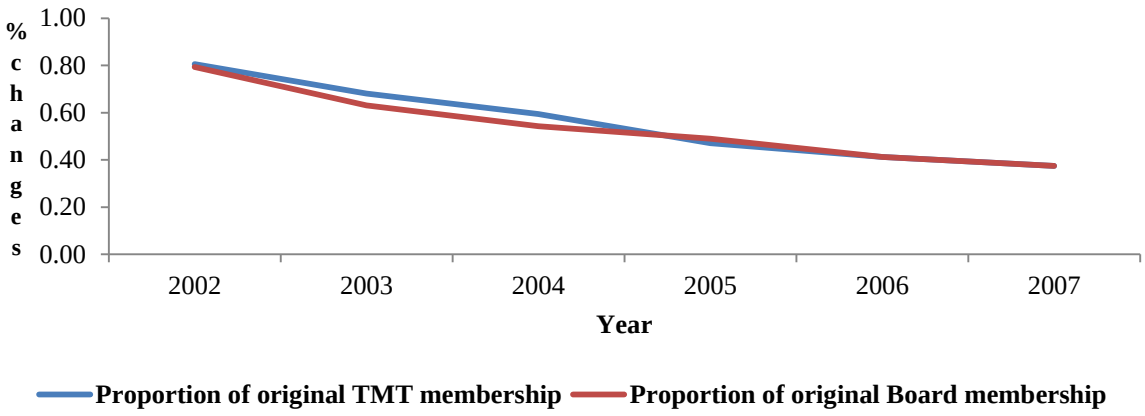
The descriptive statistics in Panel B of Table 2 reveals the governance characteristics variables. Australia represents an interesting case study in many aspects. The average rate of change in board membership and TMT membership is 56% and 54% respectively. These results suggest that over 50% of the original directors and TMT members depart the board during the post-IPO stage. The average TMT size of Australian young firms is approximately three, while Carpenter, Pollock, and Leary (2003) report that the average TMT size for young firms in USA is six executives. Similar to other jurisdictions, the average board size is 4, which is consistent with previous studies in Australia (Chancharat et al., 2012). Australia has a high proportion of outside directors (63%), while, the percentage of non-executive director in the UK and US firms ranges between 50% and 67% (De Andres, Azofra, & Lopez, 2005; Xie, Davidson, & DaDalt, 2003). On average, 26% of Australian young firms have employed a dual role for both chairperson and president of the board. On average, the director age of Australian IPO firms is 50. The mean dividend payout ratio and the mean leverage ratio is 16.47% and 39% respectively.

Table 2. Descriptive statistics of the sample firms for the entire sample period of 2002-2007.
This table provides descriptive statistics for the variables used in this paper. The sample consists of 240 observations from 40 young firms in Australia, available from the OSIRIS database from 2002-2007. Prospectus information that contain ownership data and corporate governance data are collected manually through annual reports published in OSIRIS. The necessary financial data to compute Return on assets (ROA), Tobin's Q, are obtained from DataStream. Sample data are not available for all firms for all years because of missing data (primarily due to missing proxy statements). See Table 1 for variable definitions.

Variables	Mean	Median	Std dev	Min	Max	25th percentile	75th percentile
Panel A. Performance Variables							
Return on assets	-0.43	-0.17	0.96	-4.78	0.68	-0.54	0.06
Tobin's Q	4.51	2.42	6.26	0.23	35.79	1.56	4.74
Panel B. Governance characteristics							
Change in TMT membership	0.56	0.61	0.33	0.00	1.00	0.33	0.81
Change in board membership	0.54	0.50	0.25	0.03	1.00	0.38	0.74
TMT Size	2.26	2.33	0.59	1.00	3.17	2.00	2.58
Board size	4.45	4.25	0.77	3.50	6.50	3.83	5.00
% of non-executive directors on the board	0.63	0.67	0.12	0.43	0.86	0.55	0.72
CEO duality	0.26	0.00	0.36	0.00	1.00	0.00	0.50
Director age	50.28	48.29	5.17	43.00	63.00	46.76	53.33
Panel C. Firm characteristics							
Firm size (Ln assets)	9.39	9.55	1.29	6.32	12.14	8.45	10.10
Dividend payout ratio	16.47	0.00	31.78	0.00	98.66	0.00	6.11
Leverage	0.39	0.24	0.52	0.02	3.08	0.12	0.49
Firm risk	0.18	0.18	0.08	0.04	0.41	0.12	0.22

Table 3 presents the difference in corporate governance variables over time for the sample firms. The mean of the change in TMT membership has decreased from 81% to 38% and the mean of the change in board membership has decreased from 79% to 37%. Board independence has increased from 60% to 66%. This trend reflects the introduction and gradual adoption of the Australian Stock Exchange's Corporate Governance principles, which advocate the appointment of more independent directors.

Figure 1: Changes in corporate governance mechanisms during Post-IPO stage



Overall, the evidence suggests that once investors become interested in these companies, some of these investors will acquire blockholder ownership in order to have sufficient power to influence the governance of the firm. As a consequence, following an IPO, companies may expect to see changes in their TMT structure and board composition and these significant change in TMT and board structure might reflect investor demand for their own interests.

Table 3. Descriptive statistics for the sample firm in 2002 and in 2007.

	2002					2007				
Variables	**Mean**	**Med.**	**S.d.**	**Min**	**Max**	**Mean**	**Med.**	**S.d.**	**Min**	**Max**
Governance characteristics										
Change in TMT membership	0.81	1.00	0.31	0.00	1.00	0.38	0.33	0.41	0.00	1.00
Change in board membership	0.79	0.82	0.23	0.17	1.00	0.37	0.40	0.30	0.00	1.00
TMT size	2.43	2.00	0.78	1.00	4.00	2.20	2.00	0.72	1.00	4.00
Board size	4.60	4.00	1.17	3.00	8.00	4.53	4.50	1.15	3.00	8.00
Non-executive directors ratio	0.60	0.60	0.19	0.25	1.00	0.66	0.67	0.13	0.40	1.00
CEO duality	0.28	0.00	0.45	0.00	1.00	0.20	0.00	0.41	0.00	1.00
Director age	47.96	47.50	6.35	38.00	61.25	52.68	51.17	5.31	44.67	64.30

Figure 1 shows that the time trend of changes in governance mechanisms form 2002-2007. This figure illustrates the downward trend in both the average percentage of changes in TMT membership and the changes in board membership over time. This evidence suggests that, following IPO, firms face continuous changes in their TMT structure and board composition, which might be attributed to changes in shareholding compositions.

3.4. Methodology

We examine the impact of changes in corporate governance mechanisms on firm performance subsequent to the IPO. In particular, we focus on how the changes in board composition and top management team structure affects the performance of young firms. We use the following model to examine the potential impact of corporate governance mechanisms on firm performance.

$$Firm\ Performance_{i,t}$$

$$= \alpha_0 + \sum_j \beta_j\ governance\ variables_{i,t}^{j} + \sum_j \gamma_j\ controls_{i,t}^{j} + \varepsilon_{i,t} \quad (1)$$

where $Firm\ Performance_{i,t}$ is either Return on assets ($ROA_{i,t}$) or Tobin's Q for company *i*, at time *t*; the β parameters capture the potential impacts of various governance mechanisms on firm performance; $controls_{i,t}$ comprises of size of top management team, board size, firm size, directors age, proportion of the non-executive director on the board, CEO duality, dividend pay ratio, leverage, firm risk and and ε_{it} are independent error terms.

We examine the relationship between performance and corporate governance variables using ordinary least squares (OLS). As we have panel data, the OLS result can be biased, through ignoring the panel structure of the data (Gujarati & Porter, 2009).We address this issue by controlling for unobserved firm heterogeneity or omitted variable bias and employ the panel regression techniques with a random-effects regression model (King & Santor, 2008). Fixed effects are not appropriate in our case because most of the sample variation arises in the cross section instead of time series. In the random effects model, the variation across entities is assumed to be random and uncorrelated with the independent variables include in the model (Wooldridge, 2012). A Hausman test, confirms that a random effects model is better than the fixed effects model in dealing with the data. We address the possibility of bias in standard

errors issue by using clustered standard errors to account for residual dependence of the firm effect (Petersen, 2009).[4] We use random effects panel regression for estimation and capture time effects with year dummies.

4. Empirical results

4.1. Effect of changes in corporate governance mechanisms on operating performance

Table 4 presents OLS regression estimates of the relationship between governance mechanisms and firm performance. The first three columns of results consider the role of changes in the original TMT and the final three columns include the role of changes in the original board. In columns I and IV, we present the basic regression using only governance controls excluding director age. The specification used in columns II and V, includes the director age, and year dummies as well as other governance controls. In column III and VI, we include governance controls as well as firm specific controls in order to control the firm level-characteristics. This serves as a robustness check that our choice of control is not driving the results.

An interesting related research question that arises is whether the unique aspects of top management team are particularly beneficial for young firms at the post-IPO stage. In the context of IPO, the corporate governance literature argues that TMT firm-specific human capital is an important source of competitive advantage because it is often tacit, context-specific, and path-dependent, and thus valuable and inimitable.

[4]Due to small sample size, we do not have enough observations to construct 2-way cluster standard errors to account for both time-series and cross-sectional dependences. Therefore, we run OLS using the firm level clustered standard errors.

Table 4. Panel regression-Random effects of firm performance (ROA) on governance mechanisms plus controls.

This table presents the results from Panel regression-Random effects between firm performance (ROA) and governance variables. The number of observations varies across the regressions due to data limitations (see Table 1). The sample consists of 240 observations from 40 young firms in Australia, available OSIRIS database from 2002-2007. See Table 1 for variable definitions. **Robust Standard errors** are displayed in parentheses below the **coefficients**. Year dummies are included but not shown. The asterisks *, **, and *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Dependent variable= ROA					
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Proportion of original TMT members	0.570*	0.398**	0.220*			
	(0.320)	(0.172)	(0.140)			
Proportion of original board members				0.256	0.449*	0.368*
				(0.263)	(0.313)	(0.204)
TMT size	0.257	0.010	0.032	0.217	0.002	0.043
	(0.158)	(0.129)	(0.104)	(0.158)	(0.144)	(0.112)
Board size	0.190**	0.083	-0.013	0.177*	0.044	-0.053
	(0.088)	(0.059)	(0.045)	(0.093)	(0.069)	(0.050)
Non-exc. directors ratio	0.251	-0.604	-0.332	0.085	-0.557	-0.255
	(0.592)	(0.489)	(0.425)	(0.571)	(0.537)	(0.430)
CEO duality	-0.044	0.256**	0.484***	-0.023	0.278**	0.511***
	(0.185)	(0.111)	(0.152)	(0.183)	(0.134)	(0.149)
Director age		-0.002	-0.021*		0.004	-0.019*
		(0.013)	(0.011)		(0.012)	(0.011)
Firm size (Ln assets)			0.281***			0.283***
			(0.058)			(0.058)
Dividend payout ratio			0.002			0.001
			(0.001)			(0.002)
Leverage			-0.340			-0.331
			(0.295)			(0.277)
Firm risk			0.307			0.141
			(0.534)			(0.578)
Year dummies	no	yes	yes	no	yes	yes
Cons	-2.320**	-0.751	-2.135***	-1.893*	-0.915	-2.261***
	(1.140)	(0.860)	(0.777)	(1.004)	(0.892)	(0.748)
N	240	154	150	240	154	150
Chi-squared	22.54	32.24	119.5	20.84	16.16	114.5
R-squared	0.12	0.11	0.38	0.10	0.11	0.39

See, Barney (1991); Eisenhardt and Schoonhoven (1990); Reed, Lubatkin, and Srinivasan (2006). Since, young firms typically operate in a rapidly evolving and risky environment, retaining executives with firm specific human capital is crucial (Castanias & Helfat, 1991), as success in reaching the IPO milestone is largely attributable to these original TMTs (Kroll et al., 2007; Nelson, 2003; Zimmerman, 2008). Moreover, original TMT members are

characteristized by a higher need for achievement, strong psychological attachment to the company, greater power and influence within the organization, stronger economic ties, higher ownership stakes, longer investment horizons and higher degrees of firm specific skill relative to outside TMT members. Based on this line of research, we conjecture that a positive relationship exists between the proportion of original TMT members and firm performance in the post IPO period.

Table 4, Columns I- III, present estimates from regressions of ROA on change in TMT membership, as well as control variables. Here, as an explanatory variable, we use the proportion of original TMT members in a given year as a proxy to capture the changes in TMT membership. The results suggest that change in TMT membership has a significantly positive relationship with ROA across columns I- III. For a young firm, this indicates that original TMTs have a positive influence on firm performance in the next five years period subsequent to the IPO process. We find new evidence that the proportion of original TMTs has a positive relationship with ROA over the post-IPO period for at least six years.

As expected, we find that the coefficient of TMT size is positive, suggesting that a larger and more diverse management team is beneficial for young firms. The result is consistent with findings of Haleblian and Finkelstein (1993) that large TMT size is more profitable in turbulent environments. Board size is statistically significant, in line with previous studies in the Australian context (Kiel & Nicholson, 2003; Pham, Suchard, & Zein, 2011), but in contrast with international research (De Andres et al., 2005; Yermack, 1996). We suggest, from these results, that the increase in board size brought a variety of knowledge and linkages to support the top management in dealing effectively with the turbulent environment thus benefiting the firm. Firm size has a positive impact on performance, indicating that bigger firms have higher performance. King and Santor (2008) report that larger Canadian firms

have higher ROA. A significant positive relation between CEO duality and ROA, suggesting that CEO duality may be value enhancing for young firms.

In order to evaluate the relationship between changes in board membership and performance, it is important to understand how the board membership of young firms differs from the board membership of established firms. In small firms, the role of the corporate board focuses on providing strategic advice; extending the network of the management; and mitigating conflict that arises from separation of ownership and controls. Further, board members of young firms may be more intrinsically motivated and derive nonmonetary as well as monetary benefits form working in their organizations (Wasserman, 2006). Consequently, they may have the psychological profiles of a steward and thus gain utility from fulfilling the purposes and objectives of the organization. The mutual gains resulting from this state of fit are high. Given board members' common commitment and corporate vision, granting them board seats facilitates the promotion of the strategic decision that they favour. Less monitoring from outside directors means they face fewer constraints in implementing strategies. Here, we expect a positive relationship between proportion of original board members and performance over the post-IPO period. To simplify the analysis of the relationship between firm performance and the changes in board membership, we use the proportion of original directors as the main independent variable. The proportion of original board members shows a positive relationship with ROA in columns V and VI of Table 4.

The parameter estimates for the control variables are interesting. For example, we find that director age has a significant negative impact on operating performance. We interpret this result to mean that old directors may not catch up with new information and technology as easily as young directors, which may be important in dealing with unexpected and new problems during the turbulent environments. Neither the proportion of non-executive

directors nor dividend payout ratio are significant explanators of ROA. These results support the findings of Haniffa and Hudaib (2006); Hermalin and Weisbach (2001); Weir, Laing, and McKnight (2002). The results support the hypothesis that original board members have a positive influence on performance over the post-IPO period.

Further, the effect of corporate governance mechanisms on firm performance appears to be, not only statistically significant, but also economically large. An increase in the proportion of original TMT members by 1% point is associated with an increase in ROA of 0.57% points. In addition, an increase in proportion of original board members by 1% point increases ROA by approximately 0.37% points.

Overall, the OLS findings support the hypotheses that the original TMT members and original board of directors plays a significant role in Australian young firms. We find that the proportion of original TMT members and proportion of original board members have significantly positive impacts of firm performance in the post-IPO period.

4.2. Effect of changes in corporate governance mechanisms on market performance

In this section, we use the market based measure to assess firm performance. The results reported in Appendix Table 6 shows that when we use market based measures (Tobin's Q), governance changes do not effect performance. Unlike the results with ROA, we do not find any noteworthy relationship between governance variables and Tobin's Q. The lack of predictive power for Q is not surprising. In fact Hermalin and Weisbach (1998) claim that this is exactly as theory predicts: accounting measures of performance reflect the characteristics of current managers, while stock market based measures of performance should also reflect the expectation of future management changes. We are cautious about the result, given that previous studies found that Tobin's Q is more susceptible to biases arising from accounting artifacts than ROA (Demsetz & Villalonga, 2001). Further, King and Santor

(2008) uses a sample of Canadian family firms and observed that the organizational performance of the companies looked much better when ROA values are considered rather than Tobin'Q as a performance measure. In the context of a young firm, the market may not fully understand the future prospect of the firm, and may undervalue the firm. The inconsistent results of ROA and Tobin's Q suggest that the relationship between market based and accounting based measures of young firms are unusual, potentially indicating that the situation is due to liability of newness of these young firms as they struggle to build healthy financial structures in the early stage of their life cycle.

5. Extended analysis and robustness tests

Here, we estimate the post-IPO performance over a two-year window in order to compare the results with existing studies such as Kroll et al. (2007) and Walters et al. (2010). Table 5 reports the results. We find that the effect of original TMT members and original board members are positive and statistically significant at all conventional levels in all specifications. In addition, a direct comparison of Table 4 and 5 shows that the estimated coefficients on the proportion of original TMT members and proportion of original board members are statistically stronger than the results in Table 4. Our results are consistent with Kroll et al. (2007) and Walters et al. (2010) who find that original TMT and board members have a positive influence on performance for young firms in the post-IPO period. Overall, our results are qualitatively similar to those we report in the paper with a five-year post-IPO period.

Table 5. Panel regression-Random effects of firm performance (ROA) on governance mechanisms plus controls for two years.

This table presents the results from Panel regression-Random effects between firm performance (ROA) and governance variables. The sample consists of 80 observations from 40 young firms in Australia from 2002-2004. See Table 1 for variable definitions. **Robust Standard errors** are displayed in parentheses below the **coefficients**. Year dummies are included but not shown. The asterisks *, **, and *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Dependent variable= ROA					
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Proportion of original TMT members	0.740***	0.819**	0.826**			
	(0.268)	(0.332)	(0.398)			
Proportion of original board members				0.658	1.575**	1.625***
				(0.500)	(0.705)	(0.576)
TMT size	0.294	0.124	0.013	0.223	0.171	0.025
	(0.194)	(0.177)	(0.165)	(0.204)	(0.158)	(0.147)
Board size	0.056	0.119	0.016	0.032	-0.004	0.189**
	(0.106)	(0.117)	(0.081)	(0.152)	(0.135)	(0.092)
Non-exc. directors	0.162	-0.791	-0.872	-0.059	-0.579	-0.381
	(0.786)	(0.659)	(0.559)	(1.068)	(0.846)	(0.597)
CEO duality	0.449*	0.586***	0.541***	0.393	0.654***	0.721***
	(0.266)	(0.176)	(0.181)	(0.335)	(0.234)	(0.179)
Director age		0.012	-0.021		0.023	-0.016
		(0.021)	(0.015)		(0.018)	(0.011)
Firm size (Ln assets)			0.327***			0.370***
			(0.110)			(0.087)
Dividend payout ratio			0.001			-0.001
			(0.003)			(0.003)
Leverage			-0.637**			-0.275
			(0.285)			(0.329)
Firm risk			0.196			-0.420
			(0.992)			(1.052)
Year dummies	no	yes	yes	no	yes	yes
cons	-2.068**	-2.352**	-2.716**	-1.561	-2.982***	-3.385***
	(0.829)	(1.100)	(1.139)	(1.003)	(1.009)	(0.897)
N	80	53	50	80	53	50
Chi-squared	31.03	26.67	83.03	23.38	22.79	136.1
R-squared	0.17	0.24	0.58	0.12	0.32	0.6

We examine whether our key findings are robust to some econometric issues related to multicollinearity and other issues. To check whether multicollinearity affects the result, we calculate the variance inflation factor (VIF) for all variables in the study. As a rule of thumb, multicollinearity is likely to exist when the independent variables are highly correlated (i.e., r = 0.90 and above) or the VIFs for any of the variables exceed 10 (Gujarati & Porter, 2009). The average variance inflation factor (VIF) is 2.01 and the highest for any regressors is 2.90,

which is well below the threshold indicator of 10. The results suggest a lack of evidence for multicollinearity between the variables.

The results for operating performance are similar when estimating with pooled OLS.[5] The key independent variables and control variables have the same sign and significance in each of the regression estimates on ROA as those reported earlier. This result confirms that the presence of original TMT and board members are beneficial for the performance of young firms.

A key concern is that our results could be driven by reverse causality. It is possible that the poor performance of company is responsible for future changes in board and TMT structure. However, we argue that, the endogeneity issue may not be severe because during the early years of operation the young firms often have negative profitability (Reichstein, Dahl, Ebersberger, & Jensen, 2010). In the case of young firms, investors might be attracted mainly because of ex-ante or expected performance not because of ex-post performance. Nevertheless, we take steps to deal with this potential endogeneity problem. Following, Bennedsen, Kongsted, and Nielsen (2008), we re-estimate our specification in Appendix Table 8 using two-stage least squares. For simplicity of exposition, we report results only for specifications used in column III and VI of Table 4 and Table 7.

We report the second stage of our IV estimation in Appendix Table 8. Columns I and III shows the second stage pooled OLS regression of ROA on original TMT membership, original board membership and board size, and all explanatory variables including year dummies and our instruments: 1-year and 2- years lagged of original TMT membership, original board membership and board size. The reason behind this is that board and TMT

[5]Appendix Table 7 examines the relationship between changes in ownership structure on corporate governance mechanisms and operating performance changes on young firms using pooled OLS model.

membership variables in prior years could not have resulted from firm performance in subsequent years. Column II and IV shows the second stage of our firm Random-effect IV regressions of ROA on original TMT membership, original board membership and board size with 1-year and 2- years lagged of original TMT membership, original board membership and board size as the instruments for original TMT membership, original board membership and board size. All specifications include year dummies.

The coefficient on original TMT membership, original board membership and board size are not significantly different from zero in either column. This is a common problem with IV estimation (Wooldridge, 2012). If endogeneity of original TMT membership, original board membership and board size are a serious problem in performance regressions for our sample, then we would have to rely on our IV-estimates, from which we would have to conclude that there is no relationship between ROA and original TMT membership, original board membership and board size. On the other hand, if endogeneity is not a serious problem, then we can rely on the OLS estimates. To test whether original TMT membership, original board membership and board size are correlated with the error term of the performance regression, we perform the Wu-Hausman F test and Durbin-Wu-Hausman Chi-sq test. The test statistic for the null that original TMT membership, original board membership and board size are uncorrelated with error term. We cannot reject the null.

This suggests that once we control for the governance and firm characteristics in our regressions, as well as firm random-effects, endogeneity of original TMT membership, original board membership and board size due to reverse causality is not a serious concern in our performance regression, at least for young firms.

Our conclusions depend critically on the quality of our instruments. Although we believe that our instrument is plausibly exogenous, we explore the hypothesis that change in board of

directors and TMT membership significantly affects firm performance. We reject that the models in columns II and V of Appendix Table 9 are under identified at the 1% level using the Kleibergen-Paap rk Wald statistic provided by ivreg2 in Stata, so our instruments appears relevant. However, the first stage robust Kleibergen-Paap Wald rk F-statistic are only 4.96 and 4.11 respectively. Staiger and Stock (1997) recommend F-statistics of 10 in the first stage. Thus, our instruments are not as strong as we would like. We can also see from the output reported in Table 8, the exogeneity of the two instruments is respected (see p-value of Hansen J statistic).

In summary, these results demonstrate that the presence of original boards of directors and top management members have a positive influence on firm value when an operating performance measure is used. However, those findings are not replicated when a market performance measure is used. The relationship between market based and accounting based measures in young firms are worthy of further exploration although this situation is beyond the scope of this study.

6. Conclusion

Organization theorists assert that the IPO is an important milestone for a company as it is the "re-birth" of the organization (see, e.g.Certo et al. (2009)) and IPO firms provide a unique opportunity to explore the link between two corporate governance mechanisms, namely TMT structure and board composition and their effect on post- IPO performance. This objective of this paper is to examine whether original board members and TMT members are beneficial to young firms performance at the post-IPO stage.

Using Australian data for young firms over the period 2002-2007, our results are consistent with the hypothesis that corporate governance mechanisms have an impact on firm

performance following an IPO. Particularly, we find that both original TMT and board members have a positive effect on post-IPO performance. We also observe a strong positive relationship between the original TMT members and board members and post-IPO performance in the short-term period (i.e. two-year period). Overall, our study reveals that both original TMT and board members have a significant effect on both short term and long-term IPO performance. Although similar results do not apply when the Tobin's Q as a performance measure is also used, one plausible explanation is that market measure based on Tobin's Q is very noisy measure of organizational performance for young firms as these firms suffer from liability of newness. This may also be why as these young firms become more established and the market player get to know them, their accounting and market based performance measures start to reveal similar results.

These findings suggests that these firms due to their unique nature are in need of inputs, expertise and experience from inside board members and TMT members who possess relevant experience, firm-specific knowledge and expertise may also represent as an important source of competitive advantage. If they are still in place, they will continue to provide these resources. If new blockholders replace them, this process becomes more difficult and ultimately might have a negative consequences for firm performance.

The findings of the papers matters to managers, investors, firms for several reasons. First, boards play a vital role in decision making over and above monitoring of executive actions by providing additional resources that firm TMTs might use to execute their strategies. Second, from the investor point of view, it is important to build a harmonious relationship with the original TMTs of IPO firms as they play an important role through crucial decision making for firm performance.

Appendix

Table 6. Panel regression-Random effects of firm performance (Tobin's Q) on governance mechanisms plus controls.

This table presents the results from Panel regression-Random effects between firm performance (Tobin's Q) and governance variables. The sample consists of 240 observations from 40 young firms in Australia from 2002-2007. See Table 1 for variable definitions. **Robust Standard errors** are displayed in parentheses below the **coefficients**. Year dummies are included but not shown. The asterisks *, **, and *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Dependent variable= Tobin's Q					
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Proportion of original TMT members	-7.937	-0.969	-0.850			
	(6.336)	(0.928)	(0.954)			
Proportion of original board members				-1.095	0.415	0.310
				(1.822)	(1.434)	(1.534)
TMT size	-2.790	-0.172	-0.216	-2.076	-0.017	-0.103
	(2.891)	(0.291)	(0.288)	(2.514)	(0.309)	(0.313)
Board size	-1.615	0.101	0.222	-1.752	0.065	0.191
	(1.328)	(0.227)	(0.259)	(1.412)	(0.276)	(0.314)
Non-exc. directors	-3.660	0.910	0.046	0.037	1.308	0.282
	(9.863)	(1.380)	(1.245)	(7.873)	(1.097)	(1.045)
CEO duality	7.369*	0.732	0.614	7.245*	0.803	0.703
	(4.127)	(1.135)	(1.133)	(4.112)	(1.133)	(1.141)
Director age		0.007	0.042		-0.010	0.026
		(0.070)	(0.070)		(0.070)	(0.069)
Firm size (Ln assets)			-0.411			-0.393
			(0.368)			(0.377)
Dividend payout ratio			0.009			0.007
			(0.010)			(0.010)
Leverage			-0.035			0.077
			(0.803)			(0.787)
Firm risk			1.703			2.086
			(2.472)			(2.759)
Year dummies	no	yes	yes	no	yes	yes
cons	24.198	1.541	3.445	17.056	0.815	2.708
	(21.309)	(3.203)	(3.523)	(16.713)	(3.388)	(3.947)
N	240	154	150	240	154	150
Chi-squared	4.347	21.9	25.84	4.547	21.21	18.9
R-squared	0.08	0.03	0.06	0.06	0.03	0.05

Table 7. Pooled OLS regression of firm performance (ROA) on governance mechanisms plus controls.

This table presents the results from Pooled OLS regression between firm performance (ROA) and governance variables. The sample consists of 240 observations from 40 young firms in Australia from 2002-2007. See Table 1 for variable definitions. **Robust Standard errors** are displayed in parentheses below the **coefficients**. Year dummies are included but not shown. The asterisks *, **, and *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Dependent variables= ROA					
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Proportion of original TMT members	0.572***	0.350**	0.218*			
	(0.212)	(0.161)	(0.128)			
Proportion of original board members				0.187	0.453**	0.371*
				(0.294)	(0.219)	(0.209)
TMT size	0.402**	-0.037	0.022	0.354*	-0.023	0.040
	(0.187)	(0.117)	(0.113)	(0.189)	(0.120)	(0.114)
Board size	0.215**	0.087	-0.001	0.225**	0.036	-0.058
	(0.095)	(0.061)	(0.045)	(0.102)	(0.066)	(0.049)
Non-exc. directors	0.412	-0.526	-0.405	0.156	-0.445	-0.256
	(0.701)	(0.451)	(0.464)	(0.716)	(0.461)	(0.460)
CEO duality	-0.168	0.260	0.572***	-0.174	0.281	0.575***
	(0.230)	(0.170)	(0.156)	(0.234)	(0.173)	(0.149)
Director age		0.004	-0.021*		0.011	-0.018*
		(0.011)	(0.011)		(0.010)	(0.011)
Firm size (Ln assets)			0.274***			0.283***
			(0.058)			(0.057)
Dividend payout ratio			0.002			0.002
			(0.002)			(0.002)
Leverage						-0.273
						(0.253)
Firm risk			0.066			0.092
			(0.599)			(0.596)
Year dummies	no	yes	yes	no	yes	yes
cons	-2.828***	-0.950	-2.166***	-2.386***	-1.193*	-2.276***
	(0.757)	(0.651)	(0.773)	(0.757)	(0.675)	(0.750)
N	240	154	150	240	154	150
F-stat	6.985	1.736	5.959	5.457	1.688	7.836
R-squared	0.13	0.119	0.365	0.104	0.116	0.39

Table 8. Instrumental Variable (IV) Regressions of firm performance (ROA) on governance mechanisms.

Column I and III shows the second stage pooled OLS regression of ROA on original TMT membership, original board membership and board size, and all explanatory variables including year dummies and our instruments: 1-year and 2- years lagged of original TMT membership, original board membership and board size. Column II and IV shows the second stage of our firm Random-effect IV regressions of ROA on original TMT membership, original board membership and board size with 1-year and 2- years lagged of original TMT membership, original board membership and board size as the instruments for original TMT membership, original board membership and board size. Table 1 describes the sample and the control variables further. All specifications include year dummies. The Wu-Hausman F test and Durbin-Wu-Hausman chi-sq tests (p-value in parentheses) statistic for the hypothesis that original TMT membership, original board membership and board size are uncorrelated with the error term of the performance regression is reported in the second last row. The asterisks *, **, and *** indicate the significance at the 10%, 5%, and 1% level, respectively.

	Dependent Variable= ROA			
Independent variables	**(1)**	**(2)**	**(3)**	**(4)**
Proportion of original TMT members	-0.229	-0.224		
	(0.172)	(0.218)		
Proportion of original board members			-0.210	-0.225
			(0.413)	(0.350)
TMT size	-0.039	-0.036	0.0003	0.008
	(0.075)	(0.125)	(0.126)	(0.174)
Board size	0.034	0.031	0.023	0.014
	(0.102)	(0.133)	(0.144)	(0.153)
Non-exc. directors	-0.034	-0.051	-0.116	-0.149
	(0.342)	(0.495)	(0.397)	(0.543)
CEO duality	0.651***	0.622***	0.608***	0.550**
	(0.215)	(0.212)	(0.212)	(0.214)
Director age	-0.016	-0.016	-0.020*	-0.020
	(0.011)	(0.014)	(0.011)	(0.015)
Firm size (Ln assets)	0.215***	0.214***	0.217***	0.214***
	(0.055)	(0.070)	(0.058)	(0.078)
Dividend payout ratio	0.004***	0.004**	0.004**	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)
Leverage	-0.055	-0.052	-0.014	-0.009
	90.272)	(0.189)	(0.253)	(0.193)
Firm risk	-0.054	-0.033	0.189	0.191
	(0.688)	(0.877)	(0.686)	(0.846)
Year dummies	yes	yes	yes	yes
cons	-1.388*	-1.377	-1.350	-1.300
	(0.800)	(1.074)	(0.868)	(1.189)
N	100	100	100	100
First-stage-F statistics	46.24		107.92	
	6.09		7.63	
Hansen J-test	0.650		0.286	
Chi-sq (df.) p-value in parentheses	(0.722)		(0.867)	
Are Regressors exogenous?				
Wu-Hausman F test	0.897		1.027	
	(0.412)		(0.362)	
Durbin-Wu-Hausman chi-sq test	2.066		2.360	
	(0.355)		(0.307)	

References

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics, 94*(2), 291-309.

Admati, A. R., Pfleiderer, P., & Zechner, J. (1994). Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium. *Journal of Political Economy, 102*(6), 1097-1130.

Baker, M., & Gompers, P. A. (2003). The Determinants of Board Structure at the Initial Public Offering*. *Journal of law and economics, 46*(2), 569-598.

Balatbat, M. C., Taylor, S. L., & Walter, T. S. (2004). Corporate governance, insider ownership and operating performance of Australian initial public offerings. *Accounting & Finance, 44*(3), 299-328.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management, 17*(1), 99-120.

Beatty, R. P., & Zajac, E. J. (1994). Managerial incentives, monitoring, and risk bearing: A study of executive compensation, ownership, and board structure in initial public offerings. *Administrative Science Quarterly, 39*(2), 313.

Bennedsen, M., Kongsted, H. C., & Nielsen, K. M. (2008). The causal effect of board size in the performance of small and medium-sized firms. *Journal of Banking & Finance, 32*(6), 1098-1109.

Bergh, D. D. (2001). Executive retention and acquisition outcomes: A test of opposing views on the influence of organizational tenure. *Journal of management, 27*(5), 603-622.

Bhagat, S., & Black, B. (2001). Non-Correlation between Board Independence and Long-Term Firm Performance, The. *J. CorP. l., 27*, 231.

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance, 14*(3), 257-273.

Bøhren, Ø., & Ødegaard, B. A. (2001). Corporate governance and economic performance in Norwegian listed firms. *Research Reports*(11).

Bouresli, A. K., Davidson, W. N., III, & Abdulsalam, F. A. (2002). Role of Venture Capitalists in IPO Corporate Governance and Operating Performance. *Quarterly Journal of Business and Economics, 41*(3/4), 71-82.

Braun, M., & Sharma, A. (2007). Should the CEO Also Be Chair of the Board? An Empirical Examination of Family-Controlled Public Firms. *Family Business Review, 20*(2), 111-126.

Burton, B., Helliar, C., & Power, D. (2004). The role of corporate governance in the IPO process: a note. *Corporate Governance: An International Review, 12*(3), 353-360.

Carpenter, M. A., Pollock, T. G., & Leary, M. M. (2003). Testing a model of reasoned risk-taking: governance, the experience of principals and agents, and global strategy in high-technology IPO firms. *Strategic Management Journal, 24*(9), 803-820.

Castanias, R. P., & Helfat, C. E. (1991). Managerial resources and rents. *Journal of management, 17*(1), 155-171.

Certo, S. T. (2003). Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review, 28*(3), 432-446.

Certo, S. T., Holcomb, T. R., & Holmes, R. M. (2009). IPO research in management and entrepreneurship: Moving the agenda forward. *Journal of management, 35*(6), 1340-1378.

Certo, S. T., Holmes Jr, R. M., & Holcomb, T. R. (2007). The influence of people on the performance of IPO firms. *Business Horizons, 50*(4), 271-276.

Chahine, S., Filatotchev, I., & Zahra, S. A. (2011). Building Perceived Quality of Founder-Involved IPO Firms: Founders' Effects on Board Selection and Stock Market Performance. *Entrepreneurship Theory and Practice, 35*(2), 319-335.

Chancharat, N., Krishnamurti, C., & Tian, G. (2012). Board structure and survival of new economy IPO firms. *Corporate Governance: An International Review, 20*(2), 144-163.

Cohen, B. D., & Dean, T. J. (2005). Information asymmetry and investor valuation of IPOs: Top management team legitimacy as a capital market signal. *Strategic Management Journal, 26*(7), 683-690.

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics, 87*(2), 329-356.

Council, A. C. G., & Exchange, A. S. (2007). Corporate governance principles and recommendations: ASX Corporate Governance Council.

Daily, C. M., & Dalton, D. R. (1995). CEO and director turnover in failing firms: an illusion of change? *Strategic Management Journal, 16*(5), 393-400.

De Andres, P., Azofra, V., & Lopez, F. (2005). Corporate boards in OECD countries: size, composition, functioning and effectiveness. *Corporate Governance: An International Review, 13*(2), 197-210.

Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance, 7*(3), 209-233.

Denis, D. J., Denis, D. K., & Sarin, A. (1997). Agency problems, equity ownership, and corporate diversification. *The Journal of Finance, 52*(1), 135-160.

Desai, A., Kroll, M., & Wright, P. (2003). CEO duality, board monitoring, and acquisition performance: a test of competing theories. *Journal of Business Strategies, 20*(2), 137-156.

Easterwood, J. C., İnce, Ö. Ş., & Raheja, C. G. (2012). The evolution of boards and CEOs following performance declines. *Journal of Corporate Finance, 18*(4), 727-744.

Eisenhardt, K. M., & Schoonhoven, C. B. (1990). Organizational growth: Linking founding team, strategy, environment, and growth among US semiconductor ventures, 1978-1988. *Administrative Science Quarterly*, 504-529.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of law and economics, 26*(2), 301-325.

Fischer, H. M., & Pollock, T. G. (2004). Effects of social capital and power on surviving transformational change: The case of initial public offerings. *Academy of Management Journal, 47*(4), 463-481.

Francis, B. B., Hasan, I., & Wu, Q. (2012). Do corporate boards matter during the current financial crisis? *Review of Financial Economics, 21*(2), 39-52.

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics*. Boston, MA: McGraw-Hill.

Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal, 36*(4), 844-863.

Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance & Accounting, 33*(7-8), 1034-1062.

Hermalin, B. E., & Weisbach, M. S. (1998). Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review, 88*(1), 96-118.

Hermalin, B. E., & Weisbach, M. S. (2001). Boards of directors as an endogenously determined institution: A survey of the economic literature: National Bureau of Economic Research.

Higgins, M. C., & Gulati, R. (2006). Stacking the deck: The effects of top management backgrounds on investor decisions. *Strategic Management Journal, 27*(1), 1-25.

Jain, B. A., & Kini, O. (1994). The post-issue operating performance of IPO firms. *The Journal of Finance, 49*(5), 1699-1726.

Jensen, G. R., Solberg, D. P., & Zorn, T. S. (1992). Simultaneous determination of insider ownership, debt, and dividend policies. *Journal of Financial and Quantitative Analysis, 27*(02), 247-263.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Kahn, C., & Winton, A. (1998). Ownership structure, speculation, and shareholder intervention. *The Journal of Finance, 53*(1), 99-129.

Kiel, G. C., & Nicholson, G. J. (2003). Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance. *Corporate Governance: An International Review, 11*(3), 189-205.

King, M. R., & Santor, E. (2008). Family values: Ownership structure, performance and capital structure of Canadian firms. *Journal of Banking & Finance, 32*(11), 2423-2432.

Kor, Y. Y. (2003). Experience-Based Top Management Team Competence and Sustained Growth. *Organization Science, 14*(6), 707-719.

Kroll, M., Walters, B. A., & Son, A. L. (2007). The Impact of Board Composition and Top Management Team Ownership Structure on Post-IPO Performance in Young Entrepreneurial Firms. *The Academy of Management Journal, 50*(5), 1198-1216.

Lee, P. J., Taylor, S. L., & Walter, T. S. (1996). Australian IPO pricing in the short and long run. *Journal of Banking & Finance, 20*(7), 1189-1210.

Lopez de Silanes, F., Vishny, R., & Shleifer, A. (2000). Agency problems and dividend policies around the world. *Journal of finance, 60*(1), 1-33.

Lynall, M. D., Golden, B. R., & Hillman, A. J. (2003). Board composition from adolescence to maturity: A multitheoretic view. *Academy of Management Review, 28*(3), 416-431.

McConnell, J. J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics, 27*(2), 595-612.

Morck, R., Shleifer, A., & Vishny, R. W. (1989). Alternative Mechanisms For Corporate Control. *The American Economic Review, 79*(4), 842.

Murray, A. I. (1989). Top management group heterogeneity and firm performance. *Strategic Management Journal, 10*(S1), 125-141.

Nelson, T. (2003). The persistence of founder influence: Management, ownership, and performance effects at initial public offering. *Strategic Management Journal, 24*(8), 707-724.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies, 22*(1), 435-480.

Pham, P. K., Suchard, J.-A., & Zein, J. (2011). Corporate governance and alternative performance measures: evidence from Australian firms. *Australian Journal of Management, 36*(3), 371-386.

Rechner, P. L., & Dalton, D. R. (1991). CEO duality and organizational performance: A longitudinal analysis. *Strategic Management Journal, 12*(2), 155-160.

Reed, K. K., Lubatkin, M., & Srinivasan, N. (2006). Proposing and Testing an Intellectual Capital-Based View of the Firm. *Journal of Management studies, 43*(4), 867-893.

Reichstein, T., Dahl, M. S., Ebersberger, B., & Jensen, M. B. (2010). The devil dwells in the tails. *Journal of Evolutionary Economics, 20*(2), 219-231.

Sanders, W., & Boivie, S. (2004). Sorting things out: Valuation of new firms in uncertain markets. *Strategic Management Journal, 25*(2), 167-186.

Staiger, D., & Stock, J. H. (1997). Instrumental Variables Regression with Weak Instruments. *Econometrica, 65*(3), 557-586. doi: 10.2307/2171753

Stinchcombe, A. (1965). Social structure and organizations. *In J. G. March (Ed.), Handbook of organizations:*, 42–193.

Tihanyi, L., Ellstrand, A. E., Daily, C. M., & Dalton, D. R. (2000). Composition of the top management team and firm international diversification. *Journal of management, 26*(6), 1157-1177.

Walters, B. A., Kroll, M., & Wright, P. (2010). The impact of TMT board member control and environment on post-IPO performance. *Academy of Management Journal, 53*(3), 572-595.

Wasserman, N. (2006). Stewards, agents, and the founder discount: Executive compensation in new ventures. *Academy of Management Journal, 49*(5), 960-976.

Weir, C., Laing, D., & McKnight, P. J. (2002). Internal and external governance mechanisms: their impact on the performance of large UK public companies. *Journal of Business Finance & Accounting, 29*(5-6), 579-611.

Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics, 105*(3), 581-606.

Wooldridge, J. M. (2012). *Introductory econometrics: a modern approach*: Cengage Learning.

Wright, P., Kroll, M., & Elenkov, D. (2002). Acquisition returns, increase in firm size, and chief executive officer compensation: The moderating role of monitoring. *Academy of Management Journal, 45*(3), 599-608.

Xie, B., Davidson, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance, 9*(3), 295-316.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics, 40*(2), 185-211.

Zimmerman, M. A. (2008). The influence of top management team heterogeneity on the capital raised through an initial public offering. *Entrepreneurship Theory and Practice, 32*(3), 391-414.

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