

# Corporate governance and financial policies

## Influence of board characteristics on the dividend policy of Australian firms

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### Abstract

**Purpose** – The purpose of this paper is to examine the influence of board structure on dividend policy of Australian corporate firms. It also considers the traditional explanations of corporate dividend choice, such as agency cost theory, signalling hypothesis, the life cycle hypothesis along with tax-based explanations of dividend policy.

**Design/methodology/approach** – The final sample consists of 413 non-financial firms that are part of the All Ordinaries Index. The causal analysis was undertaken in three stages. In the first stage, the authors analyse the likelihood of paying dividends. And classify all firms as either dividend payers or non-payers. The authors then model this binary variable as a function of different sets of variables. In the second stage, the authors analyse the factors determining the magnitude of dividend payout by those firms that have paid a dividend. In contrast, stage three employs all firms – those which did not pay any dividend and those firms which paid a dividend.

**Findings** – For the study period 2004-2009, this study finds that board independence has a significant positive influence on the dividend payout of Australian firms. This finding is consistent with the “outcome” model of La Porta *et al.* (2000). This study also finds that size has a significant positive influence on the dividend payout of Australian firms thus providing support for the agency cost view of dividend policy. Similarly, this study also finds support for the signalling hypothesis and the life cycle theory given the significant positive influence of profitability and the significant negative influence of current losses and growth opportunities on the dividend policy of Australian firms.

**Research limitations/implications** – The findings of the study are robust with to alternative measures of variables employed and are not influenced by the global financial crisis. However, this study did not consider the possible endogenous and multiple relationships between dividends, debt, profitability, cash holdings and governance structures given the limited study period considered.

**Practical implications** – This study finds that board independence has a significant positive influence on the dividend behaviour of Australian firms. This suggests that dividends and independent directors play complementary governance roles. While dividends provide the monitoring and disciplinary roles, independent directors act as catalysts for enhancing effective board functioning. These findings have implications for corporate governance policies and the payout policies.

**Originality/value** – Though the governance role of dividends has long been recognized in the literature (Easterbrook, 1984; Jensen, 1986), very few studies analyse the influence of board characteristics on the decision to pay dividends in Australia. Given the distinct Australian setting where the tax imputation system allows companies to pay franked dividends to domestic investors, this study provides evidence on the interaction of corporate and dividend policies. This study finds that dividend policies are influenced by percentage franking of dividends. This study also finds that board independence has a significant positive influence on the dividend policy of Australian firms.

**Keywords** Corporate governance, Dividends

**Paper type** Research paper



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## Introduction

Dividend policy has long puzzled finance researchers. Founded on the seminal work of Miller and Modigliani (MM) (1961), various explanations have been offered to explain the relevance of dividends to the value of firms. Under perfect market conditions, and when no taxes or transactions costs exist, dividend policy has been argued to be irrelevant for the value of a firm by MM. Subsequent research has relaxed these assumptions and found that taxes, transaction costs and information asymmetry can account for dividend policy. Trade-off theory (Easterbrook, 1984), signalling theory (Jensen, 1986), agency cost theory (Easterbrook, 1984), life cycle theory (Grullon *et al.*, 2002; Deangelo and Deangelo, 2006; Deangelo *et al.*, 2006) and catering theory (Baker and Wurgler, 2004a, b) have all been offered as possible explanations for the dividend behaviour of firms.

More recent work has proposed that dividend payouts may be significantly influenced by board characteristics, such as board size, independence and chairman-chief-executive-officer (CEO) duality. For instance, La Porta *et al.* (2000) proposed two models which describe the relationship between governance and dividend payout of firms. The “outcomes” model predicts that minority shareholders bring pressure to bear on managers to reduce excess cash flow and as a result firms pay higher dividends. Governance in this context has a positive influence on dividend payouts. It has been claimed that independent directors can play an important role in safeguarding the interests of minority shareholders. The positive role of governance on the propensity to pay higher dividends was given empirical support by Jiraporn *et al.* (2011) for a sample of US firms.

The second “substitution” model predicts that managers interested in raising equity from markets in future may seek to build a reputation for protecting minority shareholders and this implies that firms which have relatively limited shareholder rights tend to pay higher dividends. The role of governance in determining corporate payout policy is further highlighted in Chae *et al.* (2009), who find that dividend payout is inversely affected by external financing constraints when corporate governance brings improvement to firms. Similarly, Jiraporn and Ning (2006) find that dividend payouts are inversely related to shareholder rights as firms substitute dividend payments for investor protection.

Whereas the idea of analysing the influence of governance on payout policy at firm-level is not new, most of the earlier literature has focused on the USA and some European countries. These findings cannot be generalized without qualification to Australia, given the peculiarities of the Australian institutional milieu, where tax imputation system exists and where that the governance framework is more a principle-based setting than a rule-based setting which prevails in the USA and some other developed countries. Accordingly, the present study considers the influence of board characteristics on the dividend policies of Australian firms. It seeks to identify the characteristics of a board in terms of board size, independence and CEO duality and then analyse the influence of these board characteristics on dividend payout along with the standard variables in the earlier literature.

Most of the earlier studies in the Australian context focus on the traditional explanations of dividend payout with two notable exceptions. While Setia-Atmaja *et al.* (2009) found that board independence and dividend payouts are substitutes for family-controlled firms in Australia, Setia-Atmaja (2010) finds that board independence and dividend payouts are complementary. Most of the earlier studies focus on a previous time period when corporate governance codes were still being adopted. Unlike

these earlier studies, our focus is much broader in that we include a sample of all non-financial firms listed on the Australian Securities Exchange (ASX) and our time period represents a new governance framework for Australian firms. Our study also incorporates percentage franking of dividends as an explanatory variable consistent with Cannavan *et al.* (2004) and Henry (2011). Another differentiating aspect of our study is its innovative methodology. We analyse the dividend decision in three stages separating whether to pay dividends or not and if dividends are paid how much to pay, unlike the earlier studies which either study the decision to pay or not pay dividends or how much dividends to pay. In the first stage, we consider the decision to pay or not to pay dividends. In the second stage, we analyse the factors influencing the magnitude of dividend payout (MDP) of only dividend paying companies. In the third stage, we include all firms and analyse the factors influencing the dividend decision. This three-stage approach helps identify the relative roles of traditional as well as governance related variables on the dividend decisions of Australian firms. In so doing, the paper attempts to contribute to our empirical understanding of international corporate governance by examining how governance characteristics influence dividend payout for a sample of Australian non-financial firms. The findings of our study have implications for governance policies as well as dividend policies.

The paper is divided into five main parts. Section 2 describes the Australian institutional context. Section 3 provides a synoptic account of the relevant literature and concomitant hypothesis development. Section 4 provides a description of the sample and presents summary statistics for the variables employed. The findings of the study and discussion of results are set out Section 5. The paper ends with some brief concluding remarks in Section 6.

### **Australian institutional setting**

The tax imputation system came into force in Australia in 1988. In 2000, tax changes allowed resident investors – including retail and institutional investors – to claim a tax offset or refund based on their total taxable income, including the grossed up dividends. In Australia, shareholders do not pay a separate capital gains or dividend tax. Investors add the capital gains to their income and pay a tax on the combined income. Capital losses can be offset with capital gains in the current year or can be carried forward. Given the tax imputation system, shareholders in Australia receive franking credits when firms pay franked dividends. Investors add the grossed up dividends to their other income and pay income taxes on the taxable income. Franking credits are used as offset thereby lowering overall tax liability. The 2000 amendments enable investors to seek refund from Australian tax office (ATO) when they have unused franking credits.

In 2003, the ASX introduced the Principles of Good Corporate Governance (ASX CG guidelines hereafter) and Best Practice Recommendations. Principle 2 of the guidelines explicitly recommends that firms structure their boards to add value. Principle 2.1 deals with the board independence and suggests that the majority of boards should consist of independent board members. Recommendation 2.3 of the guidelines holds that the positions of chairperson and CEO be separated.

Against this background, the present study examines the impact of board characteristics on payout policies in a setting which is manifestly different to the USA and UK. Australian financial markets are also characterised by high levels of investor protection similar to that of many organization of economic cooperation and development

(OECD) countries, but differ in an important aspect relating to corporate control. Investors in Australian firms enjoy considerable private benefits of control (Nenova, 2003). A differing tax system, a governance framework which focuses on principles and a capital market setting that has significant retail protection as well as retail participation makes it relevant for a study of influence of governance on dividend payout policies.

This study thus concentrates on the determinants of dividend policy of Australian firms, including size, profitability and growth opportunities, which capture agency theory, life cycle theory and signalling theory, as well as governance factors, such as board size, independence and CEO duality. Apart from focusing on the traditional determinants of dividend policy, the paper also introduces board characteristics as determinants of dividend policy.

### Literature review

Several theories have been advanced to explain the dividend behaviour of firms. Early work focused more on trade-off theory, agency cost and signalling theories. Agency costs affect the dividends paid by firms (Farinha, 2003; Jensen, 1986). Firms which face higher agency costs may pay higher levels of dividends as a way of resolving the conflict of interest between investors and managers. Many studies employed the size of firms as a proxy for agency costs. Typically larger firms are expected to face higher agency costs compared to smaller firms, given the higher degree of separation of ownership and management. Coulton and Ruddock (2011) find that dividend paying firms in Australia tend to be larger compared to firms which did not pay any dividends. Firm size may also act as a proxy for the degree of information asymmetry. There is generally more information available about large firms compared to small firms. Accordingly, to resolve information asymmetry problem, small firms may have to disclose more information or pay greater dividend payout to shareholders. Thus size of firms may have a positive or negative influence on the dividend payout.

The signalling hypothesis asserts that firms may use dividends as a method of signalling their future profitability. Motivated by transaction costs, firms may retain more earnings with a view to reinvest in firm activities when managers believe that the firm can earn a higher rate of return compared with what investors could earn. However, for firms to be able to send strong signals that cannot be easily imitated, they pay dividends and approach the market to raise the additional funds when necessary. Thus the signalling hypothesis predicts that profitability has a positive influence on dividends paid by firms (Jensen *et al.*, 1992; Miller and Rock, 1985). Coulton and Ruddock (2011) find that dividend paying firms in Australia tend to be profitable compared to firms which did not pay any dividends. Given these factors, the present study hypothesizes that earnings have a positive influence on the dividend payout of Australian firms. Following Deangelo *et al.* (1992), the current study also includes a loss dummy to examine the influence of current losses on the dividends. Losses are expected to have a negative influence on dividend payout since firms attempt to send signals to the market that their permanent earnings have declined (Deangelo *et al.*, 1992).

The life cycle theory predicts that mature firms pay dividends compared to growing firms. Mature firms may also pay dividends as a way to signal to the market that they face lower systematic risk as their products or markets reach a mature stage (Grullon *et al.*, 2002). Earlier studies also find that growth and risk can influence dividend payout ratios (DPR) (Da Silva *et al.*, 2004; Farinha, 2003; Rozeff, 1982). The present study thus examines two hypotheses relating to life cycle theory. In the first place,

growth opportunities are expected to have negative influence on the dividend payout of Australian firms. Second, systematic risk is also expected to have a negative influence on the dividend payout of Australian firms.

The cash holdings of firms may influence their decision to pay dividends. Particularly when they are correlated with free cash flows (FCF), cash flows have a positive impact on the dividends as firms try to run down FCF as a way to reduce agency costs (Farinha, 2003; Jensen, 1986). Capital structure decisions may also influence the dividends paid by firms, given the possible conflict of interest between bondholders and shareholders.

The present study considers the traditional variables in the literature relating to agency costs and life cycle theory of dividends in addition to examining the relationship between board characteristics and dividend payout of Australian firms.

Governance arrangements and the ownership structure of firms may also help mitigate agency conflicts and thus may influence the value of firms (Berle and Means, 1933; Crutchley and Hansen, 1989). Gompers *et al.* (2003) pioneered the literature that establishes causal relationships between governance mechanisms and financial policies of firms. A number of studies have employed the Governance Index developed in this approach for the corporate firms in the USA. Subsequent work by Bebchuk and Cohen (2005) and Bebchuk *et al.* (2009) identify the relevant internal provisions of governance leading to the development of an “entrenchment” index in the USA. No such measures are as yet available in the Australian context.

Board of directors and the sub-committees of the board may play an important role in providing the monitoring and disciplinary role and thus contribute to the reduction of agency costs. Board characteristics may also have significant influence on DPR. Boards with a classified structure – commonly referred to as staggered boards – have been found to have significant positive influence on DPR for the USA firms (Jiraporn and Chintrakarn, 2009). Australian firms typically have staggered boards where a certain number of directors retire every year and usually seek re-election. It is not apparent if there are any unitary boards in Australia, though the Companies Act 2001 does not have any provisions preventing the election of boards annually. Given the considerable difficulties that firms experience in finding appropriate independent directors, most of the companies usually have a three-year term of office for directors with possible re-election.

Publicly listed companies in Australia are required to have a minimum number of three directors at any point of time and the ASX CG guidelines recommend a majority of independent directors for Australian firms. These guidelines also include recommendations relating to the separation of chairmanship and CEO and for majority independence of board sub-committees. The size of the board of directors depends on the complexity of business and the availability of relevant experience and skills set. A board with very few members may not be equipped to deliver the governance roles that are expected. Large boards may also at times be non-functional and may not help in mitigating the agency conflicts between managers and shareholders. Larger boards may lead to higher dividend payouts if different board members are trying to satisfy different clientele. Similarly smaller boards may or may not lead to higher dividend payout. Smaller boards are likely to be more entrenched and when they are motivated by considerations of raising equity from markets in the future, these boards may attempt to pay higher dividends as a way to establish reputation (La Porta *et al.*, 2000). In the Australian context, Setia-Atmaja *et al.* (2009) find that board size has no significant impact on the dividend payout of Australian firms for the period 2000-2005.

Kiel and Nicholson (2003) found a positive relationship between board size and corporate performance. The relationship between board size and dividend payout is an empirical issue and that governance in terms of board size may complement or substitute discipline that comes with dividend payout. It is thus hypothesized that board size has a significant influence on dividend payout as board of directors cater to the needs of different investor groups.

Adams and Ferreira (2007) argue that improved board independence may improve value of firms if accompanied by increased disclosures. Board independence may have positive influence on dividend payout when independent board members encourage firms to pay dividends when firms are saddled with high levels of FCF. Along similar lines, independent board members may determine that it is in the best interest of firms to pay dividends, thereby signalling good prospects when firms have promising projects at hand. Independent directors thus facilitate the continual monitoring of the firm by the market participants. Setia-Atmaja *et al.* (2009) found that board independence had a positive and significant influence on the dividend payout of Australian firms for the period 2000-2005. The present study thus hypothesises that board independence has a significant positive influence on dividend payout of Australian firms.

According to stewardship theory, duality has positive benefits for the firm since no conflict of interest is necessarily assumed between managers and shareholders (Donaldson, 1990). On the other hand, agency theory assumes a conflict of interest between investors and management and thus CEO duality may lead to expropriation. Firms that have CEO duality may thus payout more dividends thereby reducing FCF. CEO duality is thus expected to have a significant influence on the dividend payout of Australian firms. In general, a positive influence supports the stewardship theory whereas a negative influence supports agency theory.

### Sample description, variables and summary statistics

The final sample consists of 413 non-financial firms which are part of the all ordinaries index (AOI). Financial and real estate firms are excluded from the sample given that they are regulated and that their dividend decisions may be subject to additional regulations. The sample firms constituted 60 per cent of total market capitalization of ASX as at the end of 2009. Data relating to board size, independence, CEO duality and percentage franking of dividends was painstakingly collected for the period 2004-2009 from the annual reports of companies. Financial information is taken from the Thomson Reuters Datastream database.

The study period covers 2004-2009. ASX CG guidelines were adopted in 2003 and firms have followed these guidelines since then. The Australian economy has experienced relatively stable conditions over the study period, notwithstanding the global financial crisis (GFC), and while the stock market has witnessed volatility spikes from time to time, it did not really experience sustained bearish or bullish periods. The interest rate regime represented increasing interest rates in the initial period and then a subsequent series of interest cuts. Exchange rate movements showed considerable fluctuations over the period.

The present study employs average DPR calculated over a five-year rolling period to capture the dividend behaviour of firms. The DPR is calculated as total ordinary dividends declared in a year divided by after-tax earnings excluding extraordinary items. Firms paying dividends in Australia typically pay an interim dividend and a



final dividend during each financial year. The use of a five-year average dividend payout thus assists in focusing on long-term considerations thereby reducing the noise in short-term induced by transient earnings. A similar measure was employed in Farinha (2003) and Rozeff (1982).

More than half of the sample firms did not pay a dividend in one or more years (see Table I). Dividend paying firms on average paid 36.4 per cent of their profits. An examination of payout trends indicated that the GFC did not have any significant impact on the mean payout ratio of Australian firms. Average dividends increased in each of the sample years and grew from a steady 12 per cent in 2004 to 22 per cent in 2009. Dividend paying firms on average are larger relative to firms that did not pay any dividends. Similarly, dividend paying firms on average are more profitable, whereas non-dividend paying firms have on average losses. Dividend paying firms have higher leverage, lower growth, lower levels of cash, higher levels of FCF and a lower degree of systematic risk compared to non-dividend paying firms. An examination of board characteristics shows that dividend paying companies on average have larger boards and are more independent compared to non-dividend paying firms. CEO duality is marginally higher for dividend paying firms at 4.9 per cent compared to 4.3 per cent for non-dividend paying firms.

### Empirical analysis

As we have seen, the primary objective of the present study is to analyse the influence of traditional variables identified in the literature, such as size, profitability, growth opportunities, etc., along with board characteristics on the dividend payout of firms in Australia. With respect to the analysis, the Bonferroni adjusted pairwise correlations among the variables employed in the study were invoked for two main purposes. In the first place, this technique was used to gain a preliminary understanding of the associations that possibly exist among the variables employed. The second aim was to identify significantly high statistical correlations in order to avoid the possibility of multicollinearity between independent variables.

Our analysis of the correlations (not reported) shows that board size is not significantly associated with any of the other board characteristics or the other independent variables employed in the study. Size has a positive significant association with mean dividend payout whereas systematic risk is significantly negatively associated with mean dividend payout. All other correlations show values below 0.4 and thus are used as independent variables in the analysis to follow.

#### *Empirical strategy*

The causal analysis was undertaken in three stages. In the first stage, we analyse the likelihood of paying dividends. We classify all firms as either dividend payers or non-payers (DPayNPay). We then model this binary variable as a function of different sets of variables. We employ panel logit model in this stage to examine the decision to pay dividends. In the second stage, we analyse the factors determining the MDP by those firms that have paid a dividend. We employ random effects GLS in this stage. In contrast, stage three employs all firms – those which did not pay any dividend and those firms which paid a dividend. Average dividend payout (DPR) in this case ranges from 0 to a maximum of 1. Those firms that have a negative DPR or a DPR of more than one are censored. Given that these data have a large number of 0s and DPR that range between 0 and 1, Tobit models are employed to analyse the factors determining average DPR.

**Table I.**  
Descriptive statistics  
for variables  
employed in the  
study

Variable	Firm-years	Mean	SD	Min.	p25	p50	p75	Max.	Skewness	Kurtosis
<i>Non-dividend paying companies</i>										
DPR	1,181	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Size	693	4.524	1.655	0.433	3.431	4.528	5.619	10.415	0.072	2.836
RoA	972	-0.307	0.553	-2.479	-0.390	-0.153	-0.033	3.000	-0.799	11.296
Growth1	1,181	0.458	0.740	-0.668	0.000	0.170	0.680	7.204	2.745	15.344
Growth2	692	4.080	6.013	-7.624	1.386	2.551	4.734	51.519	4.415	30.766
Cash	968	0.320	0.277	0.000	0.082	0.245	0.502	0.996	0.803	2.664
FCF	619	-0.150	0.498	-4.762	-0.137	-0.040	-0.004	1.466	-5.289	40.332
Leverage	904	0.328	1.643	0.000	0.002	0.027	0.125	30.315	12.713	196.256
$\beta$	728	2.018	1.469	0.012	1.046	1.756	2.583	9.577	1.933	8.560
Franking (%)	1,181	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
BrdSize	721	5.842	2.010	0.000	5.000	5.000	7.000	13.000	0.857	3.931
BrdIndep	719	0.672	0.158	0.000	0.600	0.667	0.800	0.917	-0.988	4.298
CEODuality	721	0.043	0.203	0.000	0.000	0.000	0.000	1.000	4.506	21.303
<i>Dividend paying companies</i>										
DPR	1,069	0.364	0.196	0.001	0.195	0.359	0.511	0.905	0.179	2.213
Size	949	6.625	1.586	2.976	5.450	6.406	7.699	11.896	0.435	2.843
RoA	1,069	0.080	0.122	-1.633	0.042	0.071	0.115	1.393	-3.253	85.078
Growth1	1,069	0.249	0.414	-0.613	0.069	0.165	0.319	7.825	10.069	165.688
Growth2	949	3.374	3.991	0.093	1.369	2.292	3.867	51.519	5.592	52.192
Cash	1,067	0.105	0.132	0.000	0.022	0.056	0.133	0.934	2.523	10.899
FCF	863	0.058	0.180	-2.926	0.043	0.061	0.090	1.000	-8.632	124.741
Leverage	951	0.713	0.959	0.000	0.222	0.459	0.816	12.715	5.084	44.371
$\beta$	914	1.020	0.699	0.013	0.522	0.887	1.304	5.762	1.645	7.800
Franking (%)	1,069	0.836	0.370	0.000	1.000	1.000	1.000	1.000	-1.818	4.304
BrdSize	995	7.611	2.439	3.000	6.000	7.000	9.000	17.000	0.903	3.858
BrdIndep	995	0.739	0.149	0.000	0.667	0.786	0.857	0.938	-1.411	5.823
CEODuality	995	0.049	0.216	0.000	0.000	0.000	0.000	1.000	4.166	18.358

**Notes:** DPR measures the average dividend payout as a five-year average. Payout is calculated as dividend paid to earnings after tax excluding extraordinary items; size is measured as natural logarithm of market capitalization; RoA measures profitability as a five-year average of return on assets; Growth1 captures historical five-year growth in total assets; Growth2 captures expected growth and is the ratio of market value to book value; cash is measured as cash and equivalents to lagged total assets; FCF is measured as cash earnings net of capital expenditures and total dividends paid to market value; leverage is measured as total debt to total capital;  $\beta$  measures systematic risk estimated using market model; Franking (%) is percentage of dividends franked; BrdSize is measured as the total number of directors at the beginning of each financial year; CEO duality is measured as 1 if CEO is also the chairperson or 0 otherwise; BrdIndep measures board independence as the number of independent directors to total number of directors



Five regression specifications are used to identify the direction and size of influence of traditional variables identified in the earlier literature and board characteristics on the dividend behaviour in each stage. While Models 1 and 2 employ only financial variables identified in the earlier literature, Model 3 consists of only the three board structure related variables. Models 4 and 5 are composite models that include traditional financial variables as well as board structure related variables. While the Models 1 and 4 employ cash holdings as an independent variable along with other financial variables, Models 2 and 5 employ FCF instead of cash holdings.

Brown *et al.* (2011) surveyed the existing literature on corporate governance and highlighted governance data “stickiness” and potential endogeneity problems. Given the unobserved heterogeneity in the case of firm specific factors, OLS estimates may not be consistent and may be biased as well as inefficient (Himmelberg *et al.*, 1999; Schultz *et al.*, 2010; Wintoki *et al.*, 2012; Yermack, 1996). By contrast, panel data techniques provide consistent estimates and the present study thus employs panel data methods to analyse dividend behaviour.

The present study further employs the Hausman test to determine if fixed effects or random effects panel data models are appropriate. The null hypothesis of no systematic difference in coefficients estimated from random and fixed effects models is tested using the Hausman test. Based on the Hausman test results, the present study employs random effects panel data models to analyse the effects of board characteristics on average dividend payout for a sample of Australian firms in the second stage.

#### *Decision to pay or not pay dividends*

The decision to pay dividends or not to pay dividends is modelled using random effects panel logit regression (see Table II). As we have seen, the dependent variable DPayNPay takes a value of 0 when firms pay no dividend and a value of 1 when firms pay a dividend. Given the binary dependent variable a logit model is considered appropriate. Similarly to control for unobserved heterogeneity, panel logit model is employed. The results show that the size of a firm has a significant and positive influence on the decision to pay dividends. The positive sign implies that large firms attempt to reduce agency costs by paying dividends to shareholders.

Profitability has a significant positive influence on the decision to pay a dividend. This finding implies that higher levels of permanent earnings enable firms to pay dividends to shareholders and firms may start using dividends to signal improved permanent earning capacity. On the other hand, a reduction in the permanent earnings leads firms to decline to pay dividends as their earnings have fallen. The loss dummy has a significant negative influence on the decision to pay dividends. Similarly, firms experiencing losses tend not to pay dividends. This result is consistent with Deangelo *et al.* (1992) and thus supports the information signalling hypothesis.

Cash holdings have a significant negative influence on the decision to pay dividends. This result is surprising given that firms are expected to pay higher dividends with larger cash holdings. FCF, on the other hand, has a significant positive influence on the decision to pay dividends. This finding is consistent with agency theory. While leverage has a positive influence on the decision to pay dividends, systematic risk has a negative influence and these influences are not statistically significant in all models. The percentage of franking of dividends has a significant positive influence on the decision to pay dividends. This is consistent with tax-based explanations of dividend policies. Evidence of the influence of board size and board

Model	(1)	(2)	(3)	(4)	(5)
Size	0.578*** (2.75)	0.606** (2.54)		0.460* (1.74)	0.414 (1.29)
RoA	7.191*** (3.71)	6.319*** (3.08)		7.387*** (3.50)	7.103*** (2.83)
LossDV	-2.211*** (-3.57)	-2.647*** (-3.61)		-2.057*** (-3.14)	-2.476*** (-3.13)
Growth1	-0.386 (-1.01)	-0.401 (-0.91)		-0.370 (-0.90)	-0.400 (-0.80)
Growth2	-0.033 (-0.59)	-0.045 (-0.74)		-0.049 (-0.74)	-0.053 (-0.68)
Cash	-2.071 (-1.64)			-2.035 (-1.49)	
FCF		0.042 (0.11)			0.106 (0.24)
Leverage	0.282** (2.21)	0.218 (1.64)		0.311** (2.21)	0.247 (1.62)
$\beta$	-0.441* (-1.76)	-0.569* (-1.93)		-0.392 (-1.47)	-0.488 (-1.51)
Franking (%)	6.354*** (7.45)	6.910*** (6.79)		6.727*** (6.44)	7.763*** (5.16)
BrdSize			0.213** (2.23)	0.151 (1.07)	0.259 (1.46)
BrdIndep			4.098*** (3.10)	2.862 (1.55)	3.520 (1.56)
CEODuality			0.642 (0.68)	-0.751 (-0.59)	-0.245 (-0.15)
Intercept	-2.313 (-1.56)	-2.429 (-1.43)	-1.438 (-1.21)	-4.817** (-2.33)	-5.992** (-2.32)
Industry dummy	Yes	Yes	Yes	Yes	Yes
Firm-years	1,485	1,212	1,714	1,347	1,111
$\chi^2$	90.196	69.658	17.071	74.292	46.629
Loglikelihood	-206.064	-159.639	-509.185	-184.262	-141.160
Probability	0.000	0.000	0.001	0.000	0.000

**Table II.**  
Random effects  
panel logit  
regression of  
decision to pay  
dividend

**Notes:** z statistics in parentheses. The decision to pay dividends is modelled using panel Logit model; dependent variables DPayNPay takes a value of 1 for firms paying dividend or a value of 0 for firms omitting or not paying dividends; variable descriptions are provided in Table I. \*, \*\*, \*\*\*Significance at 10, 5 and 1 per cent, respectively

independence on the decision to pay dividends is very weak. While Model 3 shows evidence of a significant influence, this does not persist when financial variables are included (as in Models 4 and 5). CEO duality has no significant influence on the decision to pay dividends of Australian firms.

#### *Factors influencing MDP*

At this stage only firms which paid a dividend during the sample period are included. A random effects panel generalized least squares regression is employed to analyse the influence of traditional financial variables and board structure related variables on the MDP (see Table III). Firm size has a significant positive influence on the size of dividend payout. This finding is consistent with agency cost view of dividends. Large firms tend to pay higher dividends as a way to reduce agency costs. Profitability has a significant

Model	(1)	(2)	(3)	(4)	(5)
Size	0.029*** (4.98)	0.030*** (4.90)		0.029*** (4.86)	0.030*** (4.60)
RoA	0.281*** (5.69)	0.298*** (5.38)		0.285*** (5.71)	0.301*** (5.38)
LossDV	-0.104*** (-8.78)	-0.108*** (-8.22)		-0.103*** (-8.67)	-0.107*** (-8.26)
Growth1	0.034*** (2.59)	0.042*** (2.89)		0.038*** (2.81)	0.044*** (3.06)
Growth2	-0.004*** (-3.12)	-0.005*** (-3.17)		-0.004*** (-2.95)	-0.004*** (-2.87)
Cash	-0.094** (-2.35)			-0.093** (-2.31)	
FCF		0.029*** (3.71)			0.026*** (3.42)
Leverage	0.019*** (3.37)	0.024*** (3.82)		0.023*** (3.98)	0.030*** (4.52)
$\beta$	0.005 (0.59)	0.005 (0.60)		0.005 (0.66)	0.007 (0.79)
Franking (%)	0.004 (0.24)	0.012 (0.70)		-0.006 (-0.42)	0.003 (0.20)
BrdSize			0.004 (1.31)	-0.000 (-0.14)	0.002 (0.79)
BrdIndep			0.186*** (4.22)	0.117*** (2.87)	0.127*** (2.85)
CEODuality			0.059** (2.27)	0.034 (1.49)	0.043* (1.79)
Intercept	0.174*** (4.00)	0.119** (2.49)	0.183*** (4.71)	0.088* (1.73)	0.014 (0.25)
Industry dummy	Yes	Yes	Yes	Yes	Yes
Firm-years	871	738	995	845	719
$\chi^2$	261.833	236.214	24.443	268.676	246.198
Probability	0.000	0.000	0.000	0.000	0.000

**Table III.**  
Random effects  
panel GLS regression  
of size of dividend  
payout

**Notes:**  $z$  statistics in parentheses. Only dividend paying firms are included in this sample; dependent variables five-year average dividend payout ratio for firms paying dividends; DPR measures the average dividend payout as a five-year average; variable descriptions are provided in Table I. \*, \*\*, \*\*\*Significance at 10, 5 and 1 per cent, respectively

positive influence on the size of dividend payouts, while at the same time a loss dummy has a significant negative influence. These findings are consistent with signalling hypothesis where firms signal to investors that their earnings have risen or fallen on a permanent basis. Historical growth has a significant positive influence on the size of dividend payout, whereas future growth opportunities have a significant negative influence on the dividend payout. These results imply that while firms have the capacity to pay dividends based on historical growth, their future needs are also growing and in the presence of significant transaction costs of raising capital firms may reduce dividend payout to augment capital for future funding needs. The negative impact of future growth is consistent with Farinha (2003), Jensen and Meckling (1976) and Jensen (1986). Leverage has a significant positive influence on the MDP. This result implies that the monitoring and disciplinary role that debt can play means dividends and debt may complement each other.

Systematic risk (as measured by  $\beta$ ) has no significant impact on the MDP implying that a firm's life cycle matters only in terms of the decision to pay dividends and not on the magnitude of dividends. FCF has a significant positive influence on the size of dividend payout and this is consistent with agency theory.

Board independence and CEO duality have a significant positive influence on the size of dividend payout. This implies that corporate firms in Australia are encouraged by independent directors to pay a higher payout and seek the required funds from capital markets. This is consistent with Eastbrook (1984) who proposed that dividends facilitate indirect monitoring by primary markets. It can also be inferred that the Australian boards, though relatively small in size (with a median membership of seven persons) can be considered effective given the complementary role they play. Shareholder rights in Australian firms are considered to be strong compared with many other countries and these results are consistent with La Porta *et al.* (2000). Board size has no significant influence on the size of dividend payout of Australian firms.

#### *Alternative approach – Tobit analysis of dividend behaviour*

In the third stage of our empirical analysis the sample firms are censored for a negative dividend payout – firms pay a dividend even though they incur losses in a given year – and for payouts exceeding 100 per cent. In the latter case, firms experience a higher cash outflow than their net income in any given year. The influence of the traditional financial variables and the board structure related variables on a five-year average dividend payout is estimated using both pooled Tobit regression analysis (see Table IV) and random effects panel Tobit analysis (see Table V).

Size has a significant positive influence on the average dividend payout and the influence of size persists even when controlled for unobserved heterogeneity. This finding is consistent with the agency cost view of the dividend policy and is similar to the findings of Coulton and Ruddock (2011) and Setia-Atmaja *et al.* (2009). Profitability has a significant positive influence on the dividend payout while the loss dummy has a significant negative influence on the dividend payout consistent with signalling hypothesis. Both measures of growth have a significant negative influence on the dividend payout. These findings are consistent with life cycle hypothesis and are similar to the findings of several investigators (see, for instance, Coulton and Ruddock, 2011; Da Silva *et al.*, 2004; Farinha, 2003; Rozeff, 1982). FCF has a significant positive influence on the dividend payout and this is consistent with agency theory. Similarly, leverage has a significant positive influence on the dividend payout again confirming the complementary nature of discipline of debt and governance role of dividends. Whereas systematic risk has a negative significant influence on the dividend payout in the Tobit-pooled regressions, this influence does not persist when controlled for unobserved heterogeneity. Percentage franking of dividends has a significant positive influence on the dividend payout of Australian firms, thus this findings supports the tax-based explanations of dividend payout.

Board independence has a significant positive influence on the average dividend payout and this influence persists after controlling for unobserved heterogeneity. The influence of board size is not pervasive and it is significant in only one out of three regression models. Whereas CEO duality is statistically significant in pooled Tobit models, the effect disappears when controlled for unobserved heterogeneity in the composite model (Model 3) in random panel Tobit regressions. Consistent with Donaldson (1990), managers of Australian firms do not necessarily have conflicting

Model	(1)	(2)	(3)	(4)	(5)
Size	0.008*** (3.28)	0.008*** (2.81)		0.007** (2.13)	0.005 (1.40)
RoA	0.005 (0.43)	0.023 (1.46)		0.011 (0.70)	0.032 (1.58)
LossDV	-0.174*** (-16.23)	-0.176*** (-14.44)		-0.177*** (-15.63)	-0.181*** (-14.19)
Growth1	-0.019*** (-3.14)	-0.016** (-2.35)		-0.016** (-2.52)	-0.013* (-1.78)
Growth2	0.001 (0.76)	0.000 (0.42)		0.001 (1.06)	0.001 (0.73)
Cash	-0.047** (-2.37)			-0.055** (-2.47)	
FCF		0.018*** (2.83)			0.022*** (3.17)
Leverage	0.001 (0.57)	0.004 (1.47)		0.003 (1.23)	0.006** (2.11)
$\beta$	-0.013*** (-3.61)	-0.014*** (-3.30)		-0.015*** (-3.43)	-0.015*** (-3.18)
Franking (%)	0.187*** (17.17)	0.201*** (16.45)		0.178*** (15.24)	0.193*** (14.91)
BrdSize			0.027*** (11.56)	0.002 (0.74)	0.003 (1.37)
BrdIndep			0.219*** (6.05)	0.106*** (3.76)	0.122*** (3.84)
CEODuality			0.108*** (4.21)	0.057*** (3.05)	0.068*** (3.29)
Intercept	0.208*** (10.13)	0.176*** (7.63)	-0.130*** (-4.90)	0.134*** (4.86)	0.082*** (2.67)
Industry dummy	Yes	Yes	Yes	Yes	Yes
Firm-years	1,485	1,212	1,714	1,347	1,111
$\chi^2$	1,553.327	1,226.185	227.658	1,376.601	1,108.920
Loglikelihood	797.568	612.562	153.067	694.557	547.602
Probability	0.000	0.000	0.000	0.000	0.000

**Notes:** *t* statistics in parentheses; dependent variable is five-year average DPR; payout is calculated as a ratio of dividend paid to earnings after tax excluding extraordinary items; firms with more than 100 per cent payout are censored so are the firms paying dividends but have negative earnings; variable descriptions are provided in Table I. \*, \*\*, \*\*\*Significance at 10, 5 and 1 per cent, respectively

**Table IV.**  
Tobit regression of  
determinants of  
dividend payout

interests with shareholders. As a result it would seem that they are more willing to pay higher levels of dividends and are willing to raise money from the capital markets when needed. Another possible interpretation is that the results show evidence of the substitution effect proposed by La Porta *et al.* (2000) that managers intending to raise equity from the markets are trying to build their reputation by paying higher levels of dividends. These findings highlight the complementary role independent boards and dividends play in the governance of firms.

In sum, in all models employed among the board characteristics, board independence has a significant positive influence on average dividend payout of Australian firms. The influence of CEO duality is not statistically significant when controlled for unobserved heterogeneity. Board size has no significant influence on the dividend payout of Australian firms.

Model	(1)	(2)	(3)	(4)	(5)
Size	0.017*** (5.77)	0.018*** (5.20)		0.017*** (4.91)	0.018*** (4.42)
RoA	0.030** (2.23)	0.043*** (2.60)		0.035** (2.18)	0.045** (2.31)
LossDV	-0.143*** (-16.41)	-0.143*** (-14.73)		-0.138*** (-14.99)	-0.139*** (-13.63)
Growth1	-0.020*** (-4.01)	-0.018*** (-3.13)		-0.021*** (-3.77)	-0.019*** (-3.08)
Growth2	-0.002** (-2.41)	-0.002** (-2.45)		-0.002** (-2.23)	-0.002** (-2.34)
Cash	-0.046*** (-2.70)			-0.053*** (-2.73)	
FCF		0.015*** (3.27)			0.016*** (3.19)
Leverage	0.009*** (3.49)	0.008*** (3.14)		0.010*** (3.95)	0.010*** (3.60)
$\beta$	-0.001 (-0.45)	-0.002 (-0.63)		-0.002 (-0.54)	-0.003 (-0.67)
Franking (%)	0.070*** (6.42)	0.077*** (6.14)		0.063*** (5.31)	0.070*** (5.16)
BrdSize			0.005** (2.41)	0.001 (0.63)	0.003 (1.20)
BrdIndep			0.131*** (4.98)	0.095*** (3.63)	0.099*** (3.40)
CEODuality			0.035** (2.03)	0.015 (0.92)	0.028 (1.49)
Intercept	0.179*** (8.41)	0.154*** (6.30)	0.080*** (3.30)	0.111*** (3.80)	0.073** (2.16)
Industry dummy					
Firm-years	1,485	1,212	1,714	1,347	1,111
$\chi^2$	642.386	500.677	37.886	545.190	435.356
Loglikelihood	1,215.655	972.110	1,025.737	1,069.809	871.443
Probability	0.000	0.000	0.000	0.000	0.000

**Table V.**  
Random effects  
panel Tobit  
regression –  
determinants of  
dividend payout

**Notes:** *z* statistics in parentheses. Dependent variable is five-year average DPR; payout is calculated as a ratio of dividend paid to earnings after tax excluding extraordinary items; firms with more than 100 per cent payout are censored so are the firms paying dividends but have negative earnings; variable descriptions are provided in Table I. \*, \*\*, \*\*\*Significance at 10, 5 and 1 per cent, respectively

### Robustness

With respect to the robustness of our results, we need to consider multicollinearity. Analysis of variance inflation factor (VIF) and tolerance for all the variables included in the analysis shows values of  $< 3$  for VIF and above 0.3 for tolerance. VIF or tolerance indicates if there is a multicollinearity problem with the variables included and the values for VIF and tolerance suggest that variables included in the present study are not collinear. The present study similarly has employed robust variance measures which do not necessarily assume homoscedasticity. The estimates obtained from the models employed in the study are thus consistent as well as unbiased and the findings can be generalized to the population of Australian firms as a whole. The study period considered in the present study includes the GFC period. To rule out the possibility of contaminated estimates due to influence of GFC, all the analysis is undertaken for the



period 2004-2007 and the results are consistent with results obtained for the whole sample period.

### Conclusions

In this paper, we have considered financial variables identified in dividend literature along with three board characteristics (board size, board independence and duality) that are often considered in governance literature. The present study finds an average dividend payout of 17 per cent and the trends show a gradual increase in average dividend payout over the sample period. More than half of the sample firms, however, did not pay a dividend in one or more years. Dividend paying firms on average are larger, more profitable, have higher leverage, lower growth, lower levels of cash, higher levels of FCF and lower degree of systematic risk compared to non-dividend paying firms. An examination of board characteristics shows that dividend paying companies on average have larger boards and are more independent compared to non-dividend paying firms. CEO duality is marginally higher for dividend paying firms at 4.9 per cent compared to 4.3 per cent for non-dividend paying firms. The summary statistics also show that the median board size of Australian firms is 7 and that the median board independence is 75 per cent. These results are similar to the characterization of boards of 348 large Australian non-financial firms in 1996 by Kiel and Nicholson (2003). On the other hand, CEO duality has fallen significantly with an average of only around 5 per cent of sample firms showing CEO duality as analysed in our study for the period 2004-2009 compared to the 23 per cent reported by Kiel and Nicholson (2003). In addition, we analysed the dividend behaviour of Australian firms in three stages. In the first stage, the decision to pay or not to pay dividends was examined using random effects panel logit models. Size and profitability had significant positive influence on the decision to pay dividends in Australia. Large firms pay dividends in order to reduce the agency costs that they face compared to small firms. Similarly firms signal their future profitability by paying dividends as this cannot be easily imitated by firms that do not experience increases in permanent earnings. Firms incurring losses have a significant negative influence on the decision to pay dividends. This result is consistent with Deangelo *et al.* (1992) and thus together with the positive influences of profitability support the information signalling hypothesis. FCF has a significant positive influence on the decision to pay dividends thus supporting agency theory. Similarly, percentage franking of dividends has a significant positive influence thus supporting tax-based explanations of dividend policy. The three board characteristics included in the study show no significant influence on the decision to pay dividends in the Australian context.

In the second stage, only firms that paid a dividend during any given year were included in the analysis and the influence of the traditional financial and board structure related variables on the size and MDP was analysed. Size and profitability have similar influence on the size of dividend payout supporting agency view of dividend payouts and signalling hypothesis respectively. Furthermore, the loss dummy variable has a significant negative influence on dividend payout thus providing additional evidence of signalling hypothesis. Historical growth has a significant positive influence on the average dividend payout of Australian firms. Future growth as measured by the ratio of market value to book value on the other hand has a significant negative influence on the size of dividend payout implying that firms retain earnings when future growth opportunities are available. Leverage has a significant

positive influence thus supporting the complementary role played by the discipline of debt and the governance role of dividends.

Board independence and CEO duality have significant positive influence on the dividend payout of Australian firms. These results imply that independent board members play a complementary governance role by encouraging firms to pay dividends and give an opportunity for investors to scrutinize firms when future funding is raised. Positive influence of CEO duality implies that firms that have the same person performing both roles pay higher levels of dividends to compensate for the perceived lack of independence or lower shareholder protection.

In the third stage, a composite analysis of dividend payouts by firms was analysed using Tobit regressions. Consistent with earlier analyses, size has a significant positive influence on average payout thus supporting agency cost view of dividends. Similarly, profitability has a significant positive influence on the dividends, whereas the loss dummy continues to have a significant negative influence on dividends thus providing some support for the signalling hypothesis. Panel Tobit regressions clearly highlight the significant negative influence of the both growth measures on the dividend payout thus providing support for life cycle view of dividends. Mature firms pay dividends given their lower growth opportunities. However,  $\beta$  has no significant impact on the dividend payout.

Empirical analysis of the influence of board characteristics shows that board independence has a significant positive influence on the average dividend payout. This implies that independent directors encourage firms to pay dividends while encouraging firms to raise money for future projects through capital markets. These findings are consistent with Setia-Atmaja *et al.* (2009) who find that board independence had a positive and significant influence on dividend payout of Australian firms. Board size and duality are found to have no significant influence on dividend payout of Australian firms particularly when controlled for unobserved heterogeneity.

In essence, we find that firm size and the level of FCF have a significant positive influence on the dividend behaviour Australian firms thus providing support for the agency cost view of dividend policy. We also find support for signalling hypothesis as profitability has a significant positive influence and the loss dummy has a significant negative influence on the dividend payout of Australian firms. This study also finds support for life cycle theory as the growth measures have a significant negative influence in the panel Tobit regressions. We also find support for tax-based explanations of dividend policy in Australia where franking credits make dividends attractive for investors. These findings are consistent with Henry (2011).

The present study also finds that board independence has a significant positive influence on the dividend payout of Australian firms. While board independence and other board characteristics have no influence on the decision to pay dividends, board independence has a significant influence on the magnitude of dividend of dividend paying firms. This suggests that dividends and independent directors play complementary governance roles. While dividends provide the monitoring and disciplinary roles, independent directors act as catalysts for enhancing effective board functioning. These findings are consistent with the "outcomes" model proposed by La Porta *et al.* (2000).

Our findings have implications for public policy and financial decision making. Principle-based governance frameworks that prevail in countries like Australia are as effective as the rule-based governance frameworks that prevail in the USA and other countries in ensuring that corporations achieve the desired outcomes for investors and

other stakeholders. The tax imputation system adopted in Australia allows companies to avoid double taxation. Franked dividends are valuable to domestic investors and companies may pursue dividend policies that not only enhance shareholder value but also ensure that excess cash is returned to shareholders. Investors may invest in firms that pay higher dividends and have more independent boards as a way to reduce their agency cost. Corporate firms may pay higher dividends and increase the number of independent directors on their boards as a way to signal to the market of their quality. Policy makers and regulators may encourage more independent boards and pursue taxations policies that are efficient and that encourage investment and ultimately economic growth. The findings of the study are robust and are not influenced by the GFC. However, we did not consider the possible endogenous and multiple relationships between dividends, debt, profitability, cash holdings and governance structures, given the limited study period considered. Future research may thus be fruitfully directed at considering these multiple relationships or more broadly interactions between financial policies and governance structures.

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