Board Financial Expertise and Corporate Payout Policy

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This study investigates whether financial experts on the board affect firm economic decisions. Motivated by agency theory, I examine the relationship between board financial expertise and corporate payout policy. I find that board financial expertise influences a firm's dividend policy. Furthermore, I find that the level of agency costs proxied by the percentage of institutional ownership mitigates the relationship between board financial expertise and dividend policies. Several additional analyses support the main findings. The results are important as they demonstrate board financial expertise has effects beyond financial reporting quality by affecting crucial corporate policies.

INTRODUCTION

The purpose of this study is to examine whether and how board financial expertise influences firm payout policies. Financial expertise is a crucial factor that can affect board efficacy. In the wake of accounting scandals in the early 2000s, policy makers and business communities stress the need for more financial expertise on the board. Their premise is that financial expertise can help directors monitor management's financial reporting process more effectively.

Academic research supports their claim by showing that the presence of financial expertise is related to higher financial reporting quality (Agrawal and Chadha, 2005; Karamanou and Vafeas, 2005; Krishnan, 2005). Furthermore, a recent strand of research finds that directors with financial expertise have effects beyond financial reporting quality by affecting corporate policies such as borrowing, hedging, compensation, and tax planning (Güner, Malmendier, and Tate, 2008; Dionne and Triki, 2005; Gore, Matsunaga, and Yeung, 2011; Robinson, Xue, and Zhang, 2013).

Financial expertise on boards can be associated with corporate financial decision making through the avenue of agency costs. Financial experts on boards are likely to impact agency costs by affecting board effectiveness through their monitoring roles. A better understanding of financial numbers can help the board oversee management since evaluating firm financial policies may require financial expertise. Board members who lack the necessary knowledge and expertise may not be effective in adequately reviewing and monitoring the financially sophisticated policies.

Using firms covered in the Risk Metrics Directors database for the sample period 2006-2011, I investigate the relation between board financial expertise and corporate dividend policy. I find that board financial expertise influences a firm's dividend policy. Furthermore, I find that the level of agency costs proxied by the percentage of institutional ownership mitigates the relationship between board financial expertise and dividend policies. As robustness tests, propensity score matching and instrument variable approaches are employed to control for possible endogeneity. Additionally, I examine how board

financial expertise affects the choice between dividends and repurchases for payer firms. Robustness tests produce similar results.

This study contributes to the existing literature in several ways. First, the study shows that board financial expertise affects firm economic decisions. It improves our understanding of board financial expertise by showing that such expertise influences real corporate policies. Although the main grounds to require board financial expertise is to improve financial reporting quality, the recent studies show that such expertise results in economic outcomes. Second, this study enriches the literature that examines the relation between corporate governance and firm dividend policy by showing board composition leads to variation in firm payout activities.

The next section includes literature review and develops hypotheses. Next sections describe methodology, include sample and descriptive statistics, and show empirical results and additional analyses. The last section concludes the paper.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Board Financial Expertise

The separation of ownership and control in corporations leads to conflicts of interest between managers and shareholders (Jensen and Meckling, 1976). Corporate governance is specifically designed to reduce such agency conflicts. Corporate boards are one of the, if not the most significant, internal corporate governance mechanisms. Thus, when properly functioning, corporate boards are expected to be effective in mitigating agency problems. Boards of directors are responsible for monitoring and advising top management to protect shareholder interests. That is, monitoring and advising top management are two main functions that the board of directors performs (Jensen, 1993). The monitoring roles involve overseeing management that can control potential agency costs. The advising roles involve providing strategic advice to management with regard to top-level key decision making. Motivated by agency theory, this study focuses on the monitoring role of directors.

Financial expertise is a crucial factor that can affect board efficacy. Agrawal and Chadha (2005) document that the probability of restating financial statements is significantly lower in companies whose boards or audit committees have an independent director with financial expertise. Firms with audit committee financial expertise are more likely to update management forecasts (Karamanou and Vafeas, 2005) and less likely to be associated with the incidence of internal control problems (Krishnan, 2005).

Expanding the scope of these studies, a recent strand of research finds that directors with financial expertise have effects beyond financial reporting quality by affecting corporate policies. Güner, Malmendier, and Tate (2008) show that, within non-financial firms, financial expertise on boards can impact corporate decisions in a way that is not necessarily beneficial to shareholder value. When commercial bankers join the board of a firm as an outside director who is not a current or former employee of the firm, the firm obtains larger loans. The effect depends on affiliation, i.e., the presence of directors whose banks have a lending relationship with the firm. However, the increased financing flows only to firms with good credit but poor investment opportunities. Thus, the additional lending appears to benefit creditors rather than shareholders. In other words, bankers lend in the best interest of the bank. Their results suggest that increasing financial expertise on boards may not benefit shareholders if conflicting interests such as bank profits are involved. By finding financial experts are associated with policies that may create value for their financial institutions, but not necessarily for shareholders, Güner et al. (2008) challenge the view that more financial expertise on corporate boards unambiguously improves firm policy.

In contrast, Dionne and Triki (2005) show that financially knowledgeable directors can positively impact firm behavior with regard to hedging policies. Firms whose audit committees are entirely composed of financially educated directors and those whose boards have a majority of financially educated directors are more active in managing their risks. They classify a director as financially educated if s/he holds a degree or was enrolled in a program offering finance courses. Financially educated directors seem to encourage corporate hedging, which is found to be positively related to firm

performance. Hence, they suggest that shareholders are better off with financially educated directors on their boards and audit committees.

Furthermore, Gore, Matsunaga, and Yeung (2011) find that firms with financial expertise in firm governance structure tend to use lower levels of incentive-based compensation for their chief financial officers. They suggest that financial experts allow firms to reduce reliance on incentive compensation by providing stronger oversight and/or direction with regard to firm financial policies and strategies. Robinson, Xue, and Zhang (2013) also suggest that directors with financial expertise influence corporate business activities by documenting a significant relationship between firm tax planning and financial expertise on the audit committee.

Dividend Policy

Prior studies argue that dividend payments are affected by agency problems arising from the separation of ownership and management. Rozeff (1982) introduced agency costs as a potential explanation for dividend policy. He reports a significant association between dividend policy and agency costs, arguing that managers prefer retaining more cash in the firm to avoid costly external financing and, thus, reduce dividend payments. Jensen's (1986) agency theory states that dividend policy is determined by agency costs arising from the divergence of ownership and control. Because of agency costs, managers may not always adopt a dividend policy that is value-maximizing for shareholders. Rather, they may choose a dividend policy that maximizes their own benefits. In the absence of effective corporate governance, managers may not invest extra cash in profitable projects or distribute dividends to shareholders. As a result of different interests between shareholders and managers, the payment of cash dividends can be an area for the potential conflicts between these two groups (White 1996).

Agency theory predicts that shareholders prefer higher level of dividends whereas managers dislike them. Shareholders prefer higher level of dividends because paying dividends lowers the level of cash in the firm and managers have fewer opportunities to squander cash. Owners who cannot be entirely certain of mangers' intention are better off when they receive extra cash in the form of dividends. In the context of agency problem, certain firm characteristics may affect dividend expectation behavior of outside shareholders (Baker, 2009). For instance, if firm has high quality of internal governance, shareholders may be satisfied with lower level of dividends. If firm has many good investment opportunities, managers could be less pressured to pay dividends.

Unlike shareholders who have preference for higher level of dividends, managers dislike dividends because they are deprived of the free cash flow that could otherwise be exploited. Managers are imperfect agents who try to maximize their own benefits when they have such opportunities. In the context of this imperfect agency assumption, there are several agency costs-(i) the cost of monitoring managers and (ii) the risk aversion of managers (Baker, 2009). The cost of monitoring managers is a significant problem if a firm has a wide ownership base. Monitoring shareholders bear costs whereas other shareholders enjoy benefits. Thus, shareholders prefer having external body monitor managers and dividend payments can function as a governance mechanism. Dividend payments expose firms to more frequent monitoring by the primary capital markets as paying dividends increases the probability that new equity has to be issued more often (Easterbrook, 1984). Thus, managers would dislike paying dividends because of more frequent monitoring by the primary markets.

The second type of agency costs is that managers are risk averse. Because managers' wealth is tied up in their firms, they are unwilling to take risky projects that may be beneficial to shareholders. If managers continue to invest only in safe projects, returns for shareholders might be lower. Another way managers can lower firm's risk level is to decrease the debt-equity ratio. Managers can decrease the debt-equity ratio by relying on internally generated funds, which can transfer wealth from shareholders to bondholders. Manager's continuous reliance on internal funds gives undue benefits to existing bondholders because their payoff structures are already scheduled based on a higher risk level (Easterbrook, 1984). Thus, shareholders would want managers to take sufficient risks within the boundary established by debt contract. One way to encourage managers to take risky projects is making them depend on external financing for investments. And this can be achieved through the regular payment of

dividends because dividend payments decrease the amount of internal funds available to managers for new projects. When issuing new equity, a firm uses services from financial intermediaries such as investment bankers to structure a deal. The risk-taking behaviors of managers are evaluated by underwriters of stock or lenders. Manager's inadequate risk-taking will be reflected in the price of new security. Thus, managers who are risk-averse would dislike paying dividends.

Dividend payouts are argued to combat agency conflicts by reducing the amount of free cash flow, which can be used by managers for their private benefits rather than for maximizing shareholders' wealth (Jensen, 1986; DeAngelo, DeAngelo, and Stulz, 2006). Firms with better governance quality should incur fewer agency conflicts. In such firms, managers are less likely to adopt a suboptimal dividend policy. Consequently, the quality of corporate governance should have an impact on dividend policy. Under the agency framework, the link between corporate governance quality and dividend policy has been extensively examined but yields mixed evidence.

In general, cross-country studies document that strong governance is associated with larger dividend payouts (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000) while country-specific studies, most of which use sample firms from the US, find the opposite (John and Knyazeva, 2006). By using a country-level legal regime and minority shareholder protection index, LaPorta et al. (2000) find that dividends are higher in countries with stronger investor protection. Their theory is that minority shareholders can take certain actions such as voting out ineffective managers and compelling managers to pay out extra cash held in a firm in a country where they have stronger legal support.

On the other hand, for a US sample, John and Knyazeva (2006) find an inverse relationship between governance quality and dividend payout. Their reasoning for the inverse relation between governance quality and dividend payout is that dividends are costly and better governance quality lowers the agency costs of free cash flow. Dividends cause the payer firm to incur tax costs. Besides, in the case of inadequate cash internally generated, regular dividend payments cause the firm to incur the cost of forgone positive NPV projects or the added cost of raising external funds to finance them. Jo and Pan (2009) also find an inverse relationship between dividend payouts and governance quality, using G index (Gompers, Ishii, and Metrick, 2003) as measure of governance quality. Agrawal and Nasser (2012) find a negative relationship between dividend yield and the presence of a blockholder on the board.

I predict a significant association between board financial expertise and firm dividend policy because both financial expertise and the dividend policy are related to agency costs. Dividend policy can play a role in mitigating agency conflicts. Likewise, board financial expertise can serve as a control mechanism. However, it is not theoretically clear in what direction they should be related to each other because they can be either substitutes or complements in mitigating agency costs.

The *substitution hypothesis* argues that corporate governance can substitute payout as a control mechanism, predicting a negative association between governance quality and dividend payouts (La Porta et al., 2000). Firms with strong governance are less likely to use dividends as a device to mitigate agency conflicts. Although dividends may reduce agency costs in the dividend-paying firms, the payout is made costly by the taxation of dividend income received by the stockholders. Dividends are costly because dividend payment not only imposes a tax cost on the payer firm but also incurs the cost of forgone positive net present value projects or the additional cost of external financing to fund them in the case of inadequate internal cash flow (John and Knyazeva, 2006; Jiraporn et al., 2011). Thus, optimal dividend policy involves a tradeoff between agency benefits and tax costs and it may be desirable to avoid these costs related to dividend payouts if agency costs are not severe due to stronger governance. Firms with better quality of governance are likely to lower dividend payouts because dividends are costly and better governance weakens the agency costs of free cash flow. Under the substitution hypothesis, board financial expertise is expected to be negatively related to the level of dividends. Instead of using dividend payment as an additional governance mechanism, financial experts monitor the cash management and risk-taking behavior of managers.

The *outcome hypothesis* argues that corporate governance and payout policy are complements in controlling agency costs, predicting a positive relationship between governance quality and dividend payouts (La Porta et al., 2000). Firms with better governance quality provide their shareholders with

stronger protection. Thus, shareholders will force managers to pay higher dividends rather than allow them to use excess cash for their own personal benefits (La Porta et al., 2000). That is, firms with better governance quality pay more dividends because of the pressure from shareholders. Under the outcome hypothesis, board financial expertise is expected to be positively related to dividend payouts. That is, financial experts force managers to pay higher dividends.

Because of these two contrasting hypotheses, whether a specific board quality, financial expertise, increases or decreases dividend payouts is an empirical issue. Thus, I test the following hypotheses (stated in the null form).

H_1: Financial expertise on the board is not related to the level of dividend payment.

To the extent that board financial expertise affects corporate dividend policy through the avenue of agency costs, such a relationship likely varies with a firm's level of agency costs. As a proxy for the firm's level of agency costs, I use institutional ownership. Hence, I investigate whether the relationship between board financial expertise and dividend is influenced by a firm's institutional ownership.

Institutional holdings are shown to improve the quality of corporate governance (Carleton, Nelson, and Weisbach, 1998) and lower agency costs (Hartzell and Starks, 2003). Institutional investors can influence the level of firms' agency costs because of their monitoring activities. Because they have significant positions that can be hard to move, they have incentives to spend significant resources on monitoring (Huson, Parrino, and Starks, 2001). Furthermore, they receive more of the benefits of monitoring and have more to lose from agency conflicts, compared to small investors. Institutional investors have capability to affect management's actions directly through ownership in the firm and indirectly by trading their shares in the firm (Gillan and Starks, 2003). When institutional investors engage in substantial selling, the share price can decline. Or it can be interpreted as bad news and cause other invests to sell, further contributing to a decline in share price (Parrino, Sias, and Starks, 2003). As such, institutional investors have ability to affect management's activities. Agency costs decrease with increasing institutional ownership and, thus, the association between expertise and dividend policy is expected to be pronounced for firms with low institutional ownership.

H_2: The association between board financial expertise and corporate dividend policy is pronounced for firms with low institutional ownerships.

METHODOLOGY

Measures of Board Financial Expertise

I use two proxies to measure board financial expertise. First, I use the proportion of financial experts on the board. The Sarbanes-Oxley Act of 2002 (SOX) Section 407 requires public firms to disclose whether a financial expert is included on an audit committee. It defines a financial expert as someone who has accounting, finance, or supervisory expertise. That is, financial experts have experience in accounting, auditing, finance positions, or supervising employees with financial responsibilities. Following previous research that uses the SOX definition of financial expert (Defond, Hann, and Hu, 2005; Krishnan and Visvanathan, 2008), I classify a director as a financial expert if s/he has worked as a public accountant, principal or chief accounting officer, auditor, audit partner, principal or chief financial officer, financial controller, treasurer, vice president of finance, company president, or chief executive officer. The second proxy is the proportion of financial experts, defined as in SOX, on an audit committee.

Dividend Policy

$$DIVIDEND = \beta_0 + \beta_1 EXPERT + \beta_2 EXPERT*INST + \beta_3 LnTA + \beta_4 ROA + \beta_5 R\&D + \beta_6 TAX + \beta_7 RE + \beta_8 LEVERAGE + \beta_9 MTB + \beta_{10} FCF + \beta_{11} INST \quad (1)$$

where:

DIVIDEND = dividend / total assets
INST = percentage of institutional holdings
LnTA = natural logarithm of total assets
ROA = net income / total assets
R&D = R&D/total assets
TAX = income taxes / total assets
RE = retained earnings / total equity
LEVERAGE = total debt / total assets
MTB = market-to-book ratio = (book value of total assets + market value of equity-book value of equity) / book value of total assets
FCF = cash flow from operations / total assets

For H_1, the dependent variable is the ratio of dividends to total assets. Because the dependent variable is censored at zero for firms that do not pay dividends, I employ a Tobit regression model to remove biases that can occur in the OLS regression with a censored dependent variable (John and Knyazeva, 2006; Adjaoud and Ben-Amar, 2010).

To examine whether the level of agency conflicts affects the relationship between board financial expertise and firm financial policies (H_2), I use the interaction term EXPERT*INST in the regression. As the percentage of institutional holdings increases, agency costs are expected to be lower. Thus, I expect the interaction term to have a mitigating effect on the main effect of EXPERT on the dividend policy.

I include industry and year dummy variables in the regression model to alleviate the omitted variable problem. I cluster standard errors at the firm level to allow the error term to be heteroskedastic and correlated within firms. To mitigate the effect of outliers, I winsorize all continuous variables at the 1% and 99% level.

I control for firm size (LnTA), profitability (ROA), investment opportunities (R&D), the tax efficiency of dividends (TAX), retained earnings, leverage, growth opportunities (MTB), and free cash flow (FCF) (DeAngelo, DeAngelo, and Stulz, 2006; John and Knyazeva, 2006; Adjaoud and Ben-Amar, 2010; Jiraporn, Kim, and Kim, 2011). Furthermore, I control for the percentage of institutional holdings as other governance mechanism in an attempt to isolate the effect of the board. Large shareholders have incentive to monitor management (Shleifer and Vishny, 1986). Although I do not control for any other governance mechanisms, omitted variable bias does not seem to be a concern for this study because my financial expertise measure is not likely to be correlated with them. For example, Robinson et al. (2013) document that the proportion of financial experts on the audit committee is not correlated with their summary measure of corporate governance that includes board size, board independence, audit committee size, audit committee independence, institutional holdings, and the governance index developed by Gompers et al. (2003).

A positive association is expected between firm size and dividend payout. Because larger firms have better access to external capital markets, they do not depend on internal funds to finance their investment projects as much as smaller firms do. A positive relation between free cash flow and dividend payouts is expected. Firms with high free cash flows may use dividend policy to reduce potential agency costs associated with free cash flow. R&D is expected to enter with a negative sign as it can capture investment opportunities. As a proxy for growth opportunities, MTB can also be negatively related to dividend if high MTB reflects the need for capital. Alternatively, MTB can have a positive relationship with dividend because firms with high MTB may be able to assure more consistent future payout (Guay and Harford, 2000) or be able to better signal investment opportunities to raise capital (Jo and Pan, 2009).

SAMPLE AND DESCRIPTIVE STATISTICS

I start with all the firms covered in the Risk Metrics Directors database because the Risk Metrics contains information about whether or not each director in the firm has financial expertise based on the SOX definition. The Risk Metrics Directors database compiles its data about individual board directors

from corporate proxy statements, covering the S&P 1500 firms. To collect data that are missing in the Risk Metrics Directors, I use Mergent Online, proxy statements, and company websites. Financial data are obtained from Compustat and institutional shareholding information is obtained from Thompson Financial's 13F filings. I exclude financial firms (SIC codes 6000-6999) and utilities (SIC codes 4000-4949) as board's role in these regulated firms can be limited. This procedure leads to my main sample of 7,299 firm-year observations for 1,253 unique firms for the sample period 2006-2011.

Table 1 shows the summary statistics of my sample, including mean, standard deviation, median, and first/third quartile. The sample includes relatively large firms that have mean total assets over $7.9 billion and median total assets over $1.5 billion. On average, financial experts make up about 22% and 53% of board and audit committee, respectively. The mean percentage of institutional holdings is 82%.

TABLE 1
DESCRIPTIVE STATISTICS OF REGRESSION VARIABLES

Variable	Obs.	Mean	Std Dev	First Quartile	Median	Third Quartile
BOARD	7299	0.22	0.13	0.13	0.18	0.30
AuditCommittee	7299	0.53	0.29	0.33	0.40	0.75
INST	6866	0.82	0.17	0.72	0.84	0.93
DIVIDEND	7299	0.01	0.04	0.00	0.00	0.02
LEVERAGE	7299	0.20	0.18	0.02	0.17	0.30
R&D	7299	0.03	0.05	0.00	0.00	0.04
LnTA	7299	7.48	1.59	6.36	7.36	8.49
ROA	7299	0.05	0.09	0.03	0.06	0.10
FCF	7299	0.12	0.08	0.07	0.11	0.16
RE	7299	0.23	0.44	0.08	0.28	0.46
TAX	7299	0.03	0.03	0.01	0.03	0.05
MTB	7299	1.62	1.08	0.91	1.30	1.96

Table 2 presents the Pearson correlation coefficients among main variables in my main sample. As expected, the proportion of financial experts on the board is highly correlated with the proportion of financial experts on the audit committee.

TABLE 2
PEARSON CORRELATION AMONG MAIN VARIABLES

	(1)	(2)	(3)
(1)BOARD	1		
(2)AuditCommittee	**0.866**	1	
(3)DIVIDEND	(0.017)	**(0.020)**	1

Correlation coefficients in bold are significant at 5% level.

REGRESSION RESULTS

In Table 3, I investigate the impact of board financial expertise on the magnitude of dividend payouts for testing H_1. Table 3 shows estimation results for Tobit regression with dividend payout ratio as the dependent variables. Both BOARD and Audit Committee display negative and significant coefficients. When the proportion of financial experts on the board increases by 1%, the dividend ratio decreases by 13%. When the proportion of financial experts on the audit committee increases by 1%, the dividend ratio decreases by 6%. BOARD is the proportion of financial experts, defined as in SOX, on the board. AuditCommittee is the proportion of financial experts, defined as in SOX, on an audit committee. Thus, these two measures are highly correlated with Pearson correlation of 0.866 (Table 2). Because of the high correlation, these two measures tend to produce similar results.

The empirical evidence obtained from using BOARD and AuditCommittee is consistent with the results of prior studies that use US sample firms, supporting the *substitution hypothesis*. Jo and Pan (2009) find an inverse relation between dividends and governance quality proxied by G index. Agrawal and Nasser (2012) also find a negative relationship between dividend yield and the presence of a blockholder on the board. This study supports prior studies by showing that more effective board with financial experts is associated with lower level of dividends. Financial experts on the board do not use dividend payment as an additional governance mechanism possibly because of the costs related to paying dividends.

In general, control variables in the regressions are signed as expected or insignificant. Firm size has the predicted positive coefficient. Because larger firms have better access to external capital markets, they do not depend on internal funds to finance their positive NPV investment projects as much as smaller firms do (Fama and French, 2001). Thus, they can pay higher dividends to their shareholders. Consistent with the FCF explanation of dividends (Jensen, 1986), the coefficient of free cash flow is positive. Firms with high free cash flows pay higher dividends to reduce higher agency costs related to a high level of excess cash. The coefficient of MTB is positive (Boumosleh and Cline, 2013; Gaspar et al., 2013). Firms with high MTB can assure more consistent future payout (Guay and Harford, 2000) or be able to better signal investment opportunities to raise capital (Jo and Pan, 2009). Consistent with a signaling perspective (Miller and Rock, 1985), a positive relation is found between ROA and dividend payouts (Jensen et al, 1992). The percentage of institutional ownership is entered with a significantly negative sign as documented in Agrawal and Nasser (2012).

TABLE 3
BOARD FINANCIAL EXPERTISE, INSTITUTIONAL HOLDINGS, AND DIVIDENDS
DEPENDENT VARIABLE: DIVIDEND PAYOUT

	Model 1		Model 2	
	coeff.	**p-value**	**coeff.**	**p-value**
BOARD	-0.134	0.034		
BOARD*INST	0.143	0.058		
AuditCommittee			-0.056	0.037
AuditCommittee*INST			0.058	0.070
LnTA	0.008	0.000	0.008	0.000
ROA	0.046	0.001	0.045	0.001
RD	-0.090	0.255	-0.089	0.260
TAX	0.149	0.007	0.152	0.007
RE	0.007	0.408	0.007	0.404
LEVERAGE	0.023	0.054	0.024	0.047
MTB	0.007	0.007	0.007	0.007
FCF	0.079	0.001	0.080	0.001
INST	-0.085	0.003	-0.085	0.003
Year	Yes		Yes	
Industry	Yes		Yes	
N	6806		6806	

Standard errors are clustered at the firm level for all regressions.

In H_2, I examine whether the percentage of institutional ownership affects the relationship between expertise and the level of dividend payment. The main variable of interest is the interaction term between BOARD*INST in the regression. The coefficient on the interaction term is significantly positive, suggesting that higher institutional holdings mitigate the negative relation between BOARD and dividend payouts. This result confirms my prediction that the relation between board financial expertise and dividend payouts is pronounced for firms with low institutional ownerships. In other words, if the firm's level of agency costs is low, which is proxied by high institutional ownerships, the association between expertise and dividends is weakened. The result showing that such a relationship varies with the firm's level of agency costs is consistent with the premise that board financial expertise affects dividend payouts through the avenue of agency costs. The result for Audit Committee is similar to that for BOARD. Taken together, the findings support the hypothesis that the relation between board financial expertise and corporate dividend payments is pronounced for firms with low institutional ownerships.

ADDITIONAL ANALYSES

Possible Endogeneity

To control for possible endogeneity, several methods are employed. First, I use propensity score matching. Armstrong, Jagolinzer, and Larcker (2010) argue that propensity-score methods should be applied to empirical accounting studies in which the hypothesized causal variable is an endogenous choice by managers, boards of directors, or other similar parties. The major advantage of the propensity

score matching method is that it does not rely on a specific functional form and does not require appropriate exogenous instrumental variables (Lennox, Francis and Wang 2012). In order to employ the method, I first compute the probability (i.e., the propensity score) that a firm with given characteristics has board financial expertise. This probability is computed based on all firm characteristics included in the main regression. The method matches observations based on the probability of undergoing treatment (i.e., board financial expertise). I use the propensity scores obtained from the logistics estimation and perform a one-to-one nearest neighbor match without replacement. For the purpose of including only close matches in the sample, I impose a caliper of 0.001, which indicates that the differences in propensity scores between treatment and control firms are below 0.1%. By requiring that the maximum difference between the propensity score of the treatment firm and that of its matching peer is 0.1%, I ensure the firms in the control sample are sufficiently similar to the firms in the treatment sample. The matching procedures control for relevant sample differences other than board financial expertise.

As a result, I obtain a matched sample of 2,742, 1,371 of which are included in the treatment sample and the other 1,371 are included in the control sample. Using the propensity score matched sample, I re-estimate the Tobit regression model with the dependent variable of dividend payments (Table 4). The coefficient on BOARD is negatively related to dividend level at the 5 percent. For AuditCommittee, I repeat the same procedure used for BOARD. The coefficient on AuditCommittee is negatively related to dividend level at the 5 percent level. In sum, using propensity score matching to control for possible endogeneity produces similar results.

TABLE 4
MATCHED PROPENSITY SCORES

Dependent variable:	Model 1		Model 2	
	Dividend Payout			
	coeff.	p-value	coeff.	p-value
BOARD	-0.023	0.032		
AuditCommittee			-0.012	0.010
LnTA	0.006	0.000	0.007	0.000
ROA	0.034	0.144	0.052	0.048
RD	-0.155	0.024	-0.101	0.386
TAX	0.151	0.015	0.106	0.135
RE	0.008	0.354	0.013	0.197
LEVERAGE	0.022	0.069	0.048	0.009
MTB	0.007	0.007	0.008	0.013
FCF	0.026	0.246	0.017	0.484
INST	-0.035	0.001	-0.043	0.000

Industry and year dummies are included and standard errors are clustered at the firm level.

Second, I use instrument variables for expertise proxies. I employ two instrument variables: industry-average EXPERT (IndusBoard and IndusAudCom) and board size (BoardSize). Even though a firm's financial polices might affect the same firm's governance, such policies are not likely to be related to industry-level governance (John and Knyaezeva, 2006; John and Kadyrzhanova, 2008). Additionally, following Robinson et al. (2013), I use the number of directors on the board as an instrument.

To overcome potential problems related to instruments, I follow approaches suggested by Larcker and Rusticus (2010). First, in an attempt to evaluate a presence of a weak-instrument problem, I conduct

several weak instrument robust tests for IV Tobit model (i.e., conditional likelihood-ratio (CLR) test, Anderson–Rubin (AR) statistic, Kleibergen–Moreira Lagrange multiplier (LM) test, and Wald test). All tests indicate that the instruments are not weak. Secondly, to justify the use of IV Tobit rather than Tobit results, I conduct Wald test of exogeneity. The test rejects the null hypothesis of no endogeneity, justifying the use of IV Tobit results.

Table 5 shows the first stage and second stage regression results for instrument variable (IV) Tobit model. In the first stage where the dependent variable is BOARD, both instruments are significant. In the second stage, the dependent variable is the level of dividend payouts. The results for BOARD in IV-Tobit model are consistent with those in Tobit model whereas the results for Audit Committee are not significant. Overall, the additional tests to control for possible endogeneity support the main findings.

TABLE 5
IV-TOBIT FOR DIVIDEND PAYOUTS AND BOARD FINANCIAL EXPERTISE

	Model 1		**Model 2**		**Model 3**		**Model 4**	
Dependent variable:	**First stage BOARD**		**Second stage DIVIDEND**		**First stage AuditCommittee**		**Second stage DIVIDEND**	
	coeff.	**p-value**	**coeff.**	**p-value**	**coeff.**	**p-value**	**coeff.**	**p-value**
BOARD			-0.21	0.000				
AuditCommittee							-0.015	0.634
IndusBoard	0.851	0.000						
IndusAudCom					0.963	0.000		
BoardSize	-0.014	0.000			-0.001	0.765		
LnTA	0.010	0.000	0.006	0.000	0.020	0.000	0.006	0.000
ROA	-0.012	0.602	0.042	0.004	-0.008	0.882	0.044	0.002
RD	0.115	0.001	-0.19	0.000	0.491	0.000	-0.214	0.000
TAX	-0.018	0.762	0.203	0.000	-0.150	0.280	0.206	0.000
RE	0.004	0.314	0.019	0.000	0.008	0.418	0.019	0.000
LEVERAGE	0.024	0.011	0.042	0.000	0.032	0.162	0.039	0.000
MTB	0.001	0.786	0.005	0.000	-0.002	0.582	0.005	0.000
FCF	-0.036	0.164	0.039	0.013	-0.006	0.920	0.043	0.003
INST	0.024	0.005	-0.059	0.000	0.097	0.000	-0.066	0.000

All regressions include year dummy variables. Standard errors are clustered at the firm level for all regression.

The Choice between Dividends and Repurchases

Dividends and share repurchases are the two major means that firms use to distribute cash to their shareholders. Compared to dividends, repurchases offer greater flexibility and are considered discretionary managerial payouts (John and Knyazeva, 2006). Repurchases impose no commitment to make future payouts. Jagannathan et al. (2000) contend that repurchases preserve financial flexibility relative to dividends because they do not implicitly commit the firm to future payouts. Their hypothesis is that dividends represent an ongoing commitment and are used to distribute permanent cash flows while repurchases are used to pay out cash flows that are potentially temporary. John and Knyazeva (2006) contend that dividends are more effective than repurchases at mitigating agency costs of free cash flow because of their pre-commitment to make future payouts. Floyd, Li, and Skinner (2013) document the

evidence that dividends play a crucial role in corporate financial policy that cannot be replicated by repurchases. As one reason for such evidence, they indicate that dividends represent an ongoing commitment to pay out cash, resolving the agency costs of free cash flow.

Following John and Knyazeva (2006), I examine how board financial expertise affects the choice between dividends and repurchases for payer firms. In Table 6 that shows Logit estimation, Model 1 compares firms that pay dividends with firms that use repurchases only. Firms that use dividends as the only component or as a part of payout policy are compared with firms that use repurchases only. The dependent variable is the dummy variable equal to 1 if firms have positive cash dividends and 0 if firms use repurchases only. The coefficient on BOARD is significantly negative, implying that firms with higher percentage of financial experts on their board tend to adopt payout policies based only on repurchases. When firms have fewer experts, the use of dividends is more likely. Model 2 and 3 provide further evidence of the effect of board financial expertise on the choice of payout policy type. Model 2 compares firms that use both dividends and repurchases with firms that use repurchases only. The dependent variable is the dummy variable equal to 1 for firms that use both dividends and repurchases and 0 for firms that use repurchases only. The coefficient on BOARD is significantly negative, suggesting that firms with more financial experts are more likely to choose a repurchase-only policy over a combination of dividends and repurchases. Model 3 compares firms that pay dividends only with firms that use repurchases only. The significantly negative coefficient on BOARD provides evidence that higher fraction of financial experts on the board is associated with lower probability of adopting dividend-only policies. In all 3 models, the results for AuditCommittee are similar to those for BOARD.

In sum, the results in this section are consistent with the main results in the earlier section. Firms with higher percentage of financial experts on their board tend to adopt payout policies based only on repurchases. When firms have fewer experts, the use of dividends is more likely. These findings support the *substitution hypothesis* that firms with weak governance choose dividends over repurchases because dividends can function as a strong governance mechanism. Also, these findings are consistent with John and Knyazeva (2006), which report that firms with stronger governance are more likely to use repurchases as the primary form of payout.

CONCLUSION

This study investigates whether financial experts on the board affect firm economic decisions. Motivated by agency theory, I examine the relationship between board financial expertise and corporate payout policies. I predict a significant association between board financial expertise and firm dividend policy because both financial expertise and the dividend policy are related to agency costs. Dividend policy can play a role in mitigating agency conflicts. Likewise, board financial expertise can serve as a control mechanism. Consistent with my prediction, I find that board financial expertise influences a firm's dividend policy. I also find that the level of agency costs proxied by the percentage of institutional ownership mitigates the relationship between board financial expertise and dividend policies. Employing propensity score matching and instrument variable approaches to control for possible endogeneity produce the similar results. Furthermore, examining the choice between dividends and repurchases supports the main findings. The results are important as they demonstrate board financial expertise has effects beyond financial reporting quality by affecting crucial corporate policies.

TABLE 6
PAYOUT CHOICES (DIVIDENDS VS. REPURCHASES)

Dependent variable:	Model 1 DIV vs. REP ONLY		Model 2 DIV & REP vs. REP ONLY		Model 3 DIV ONLY vs. REP ONLY	
	coeff.	p-value	coeff.	p-value	coeff.	p-value
BOARD	-0.976	<.0001	-0.715	0.005	-0.807	0.001
LnTA	0.364	<.0001	0.459	<.0001	0.070	0.001
ROA	0.368	0.248	0.720	0.047	-0.435	0.025
RD	-2.924	0.002	-2.768	0.011	-2.122	0.014
TAX	2.166	0.006	2.242	0.011	0.251	0.538
RE	0.030	0.431	0.041	0.373	0.002	0.907
LEVERAGE	0.057	0.759	-0.206	0.323	-0.094	0.483
MTB	0.036	0.229	0.005	0.878	0.014	0.461
FCF	0.160	0.700	0.690	0.147	-0.387	0.178
Dependent variable:	**Model 1 DIV vs. REP ONLY**		**Model 2 DIV&REP vs. REP ONLY**		**Model 3 DIV ONLY vs. REP ONLY**	
	coeff.	**p-value**	**coeff.**	**p-value**	**coeff.**	**p-value**
AuditCommittee	-0.545	<.0001	-0.323	0.004	-0.439	<.0001
LnTA	0.391	<.0001	0.490	<.0001	0.082	0.000
ROA	0.427	0.204	0.850	0.031	-0.476	0.016
RD	-2.926	0.003	-2.936	0.010	-2.163	0.009
TAX	2.220	0.006	2.410	0.010	0.149	0.731
RE	0.022	0.522	0.050	0.345	0.004	0.858
LEVERAGE	0.042	0.828	-0.191	0.381	-0.080	0.566
MTB	0.031	0.306	-0.001	0.974	0.013	0.527
FCF	0.168	0.695	0.761	0.134	-0.360	0.200

Industry and year dummies are included and standard errors are clustered at the firm level.

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