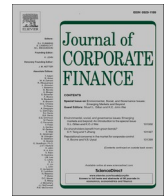




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CEO power and the likelihood of paying dividends: Effect of profitability and cash flow volatility

Shahbaz Sheikh

DAN Department of Management & Organizational Studies, Faculty of Social Science, The University of Western Ontario London, Ontario, Canada

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ABSTRACT

This study empirically investigates the relation between CEO power and the likelihood of dividend payouts. It argues that powerful CEOs pay dividends to establish reputation in capital markets to raise external financing at favorable terms. The net expected value of such reputation, however, depends on the likelihood of external financing, which is positively related to low profitability and high cash flow volatility. Empirical results show that powerful CEOs are more likely to pay and increase dividends when their firms face low profitability and high cash flow volatility.

1. Introduction

The job of a CEO carries a certain image of power (Hamori and Kakarika, 2009) and CEOs are perceived as chief planners and architects of key strategic decisions (Berger et al., 2008). However, every CEO does not enjoy the same influence on corporate policies. In fact, the degree of their influence depends on the degree of power they have relative to their boards and other team members. While prior studies have thoroughly examined the relation between CEO power and corporate investment and financial policies, the impact of CEO power on corporate payout policies has received marginal attention.¹ This study fills that gap by exploring the relation between CEO power and the likelihood of paying dividends. Agency theory (Jensen and Meckling, 1976) postulates that managers have incentives to misappropriate corporate resources for their personal use and firms can restrict managerial discretion by paying cash dividends, which reduces the amount of free cash flows under managerial control (Easterbrook, 1984). Furthermore, paying dividends exposes managers to capital market discipline by increasing the likelihood of using external financing for investments. Managers, on the other hand, prefer to finance projects with internal funds to avoid capital markets monitoring and the possibility that funds will be unavailable or available at higher cost in future (Jensen, 1986). Agency theory predicts that managers prefer financial slack and are less likely to pay dividends.

Although managers have incentives to reduce dividends, their ability to influence payout decisions depends on the degree of power they have in corporate decision making. An increase in power increases managerial capability to make payout decisions in their own

E-mail address: ssheik2@uwo.ca.

¹ For example, CEO power and financial policies (e.g., Jiraporn et al., 2011; Chintrakarn et al., 2014), CEO power and firm value (e.g., Adams et al., 2005; Bebchuk et al., 2011; Landier et al., 2013; Sheikh, 2018b), and CEO power and innovation (e.g., Galasso and Simcoe, 2011; Hirshleifer et al., 2012; Sheikh, 2018a).

interests. As CEOs become more powerful, agency problems of empire building become severe, which may lead to lower shareholder wealth (Pan et al., 2016). Powerful CEOs are often overconfident of their skills and are more likely to take higher risks (Adams et al., 2005). Overconfident CEOs overestimate returns to their investments and tend to overinvest in wasteful projects (Malmendier and Tate, 2005). Deshmukh et al. (2013) find that overconfident CEOs build financial slack for future investments by lowering the level of current dividend payouts. Powerful CEOs, therefore, have strong incentives (motive) and capability (opportunity) to retain cash flows and are even less likely to pay dividends.

However, powerful CEOs may not always reduce dividends and may even choose to pay dividends if they expect to raise funds externally on attractive rates. This is because powerful CEOs have higher reputational concerns and investors perceive CEO power as a further misalignment of managerial interests, an indication of poor internal governance, and increased entrenchment. Consequently, investors demand higher returns for providing funds to firms that are managed by powerful CEOs, which increases cost of external financing. The literature on corporate governance argues that managers at poorly governed firms pay dividends to establish reputation in expectation of raising funds in capital markets at favorable terms (La Porta et al., 2000). Studies on managerial entrenchment also posit that entrenched (powerful) managers may voluntarily commit to pay dividends to seek protection against disciplinary sanctions from outsiders (Zwiebel, 1996; Fluck, 1999). This study argues that powerful CEOs, like those at poorly governed and entrenched firms, pay dividends to mitigate reputational concerns, when they expect a higher need and likelihood of using external finance.

Paying dividends, however, has its own costs. Dividends reduce the amount of internally generated cash flows and negatively impact financial flexibility, leading to higher need for external funds. Dividends also make it difficult for powerful CEOs to overinvest in their preferred projects and engage in empire building. Powerful CEOs compare the expected value of reputation with the cost of establishing such reputation and pay dividends *only when* the net expected value is positive. This study argues that the net expected value of establishing reputation is positive when the likelihood of external financing is very high. When the likelihood of accessing external financing is low, the expected value of reputation is low and less than its costs. Prior studies show that the need, frequency, and the likelihood of external financing are high when profitability (internally generated funds) is low and cash flow volatility is high (Myers, 1984; Minton and Schrand, 1999; Ferrando and Mulier, 2015). Both of which are out of control of powerful CEOs and force them to issue equity capital to fund investment projects. Powerful CEOs therefore are more likely to pay dividends to invest in reputation *when* they face lower profitability and high cash flow volatility.

Using a large sample of US firms for the period 1992 to 2016, and an index of CEO power, I estimate the moderating effect of low profitability and high cash flow volatility on the relation between CEO power and the likelihood of paying dividends. Benchmark results from Probit and linear probability model (LPM) regressions show that CEO power is not related to the likelihood of paying dividends. Further analysis, however, indicates that CEO power is significantly positively associated with the likelihood of paying and increasing dividends *when* profitability is low and cash flow volatility is high. Additional tests show that low profitability and high cash flow volatility are positively related to the need and likelihood of external financing. Overall, the empirical results provide strong support to the notion that powerful CEOs are more likely to pay dividends when they anticipate a positive net expected value of establishing reputation in capital markets due to higher need and likelihood of external financing.

I use a series of robustness checks to test the sensitivity of the empirical results. The results remain robust when I use instrumental variable (IV) regressions to mitigate concerns about potential endogeneity of CEO power and the likelihood of dividend payments. Results also remain similar when I use alternative measures of profitability and cash flow volatility or when I calculate low profitability and high cash flow volatility relative to industry medians, instead of sample medians. The empirical results remain similar to benchmark regressions when I use a binary variable of power as alternative measures of power or use principal component analysis or factor analysis to create CEO power variable. Finally, I find similar results when I use financial constraints (Kaplan-Zingales (1997) or Whited-Wu (2006) indices) as alternative to low profitability and high cash flow volatility.

I contribute to the emerging literature on CEO power and dividends in a few distinct ways. First, I document that powerful CEOs are more likely to pay dividends *when* they face low profitability and high cash flow volatility. To the best of my knowledge, this is the first study that provides such evidence. Second, I use a broad index of power that encompasses various dimensions of CEO power, unlike previous studies that use either one measure (e.g., Chintrakarn et al., 2018) or a few individual measures to construct CEO power (e.g., Onali et al., 2016). Third, I add to the management literature that discusses the role of a CEO in shaping corporate payout policies (e.g., Finkelstein and Hambrick, 1996; Tushman and Romanelli, 1985). In this respect, I show that CEOs, especially those with power, have the incentives and ability to influence corporate payout policies. Finally, I contribute to the research that employs agency theory (Jensen and Meckling, 1976) to explain the relation between CEO power and payout policies (e.g., Easterbrook, 1984; Jensen, 1986; La Porta et al., 2000; Chintrakarn et al., 2018).

2. Motivation and hypothesis development

2.1. CEO power and the likelihood of paying dividends

CEO power has been under investigation in economics, finance, management, and social psychology literature. There is however, no agreed-upon definition of power in any of these disciplines. Power is usually defined as an individual's capacity to exert their will and achieve their goals in a any relationship (Pfeffer, 1981). CEO power, in this context, refers to CEO authority and influence over corporate policies in relationship to the board and other team members. A CEO is generally perceived as powerful if they can make strategic decisions despite resistance from the board and other team members. Economic theory posits that an increase in CEO power enhances managerial ability to extract personal benefits at the expense of shareholders and increases managerial influence on corporate investment, financing, and payout decisions. Whereas the impact of CEO power on firm investment and financing policies

has been extensively explored, its effect on dividend policy has not been fully investigated. Consequently, there is no theoretical explanation of the payout of policies of powerful CEOs.

The extant literature on dividend policy also does not offer a unified theory of why firms pay dividends. Instead, there are several studies that attempt to explain differences in corporate payout policies.² These studies attempt to explain how corporate dividend policies relate to agency costs (Easterbrook, 1984; Jensen, 1986), signaling (Miller and Rock, 1985; John and Williams, 1985), tax clienteles (Elton and Gruber, 1970), life-cycle (DeAngelo et al., 2006), catering (Baker and Wurgler, 2004) and behavioral factors (Graham and Kumar, 2006; Turner et al., 2013).

The most relevant explanation to this study is the agency theory (Jensen and Meckling, 1976). It postulates that managers have control over cash flows, which allows them to pursue their personal interests instead of distributing cash back to shareholders. In the words of Jensen (1986), “payouts to shareholders reduce the resources under managers’ control, thereby reducing managers’ power, and making it more likely they will incur the monitoring of the capital markets which occurs when the firm must obtain new capital (see M. Rozeff, 1982; F. H. Easterbrook, 1984). Financing projects internally avoids this monitoring and the possibility the funds will be unavailable or available only at high explicit prices” (p.323). Agency theory, therefore, predicts that managers have incentives to build financial slack and either don’t pay or don’t increase dividends.

CEO power, as defined above, increases managerial influence over dividend policy and further misaligns the interests of managers and shareholders. Powerful CEOs not only have the incentives (motive), but also the capability (opportunity) to shape the payout policies of their firms in their own interests. Pan et al. (2016) find that as CEOs gain control over their boards, the quantity of investment increases and the quality of investment deteriorates, indicating that CEOs engage in empire building when they gain more power. Powerful CEOs are often overconfident of their abilities and decision making skills. The literature documents that overconfident CEOs are more likely to overinvest in wasteful projects that lead to reduction in shareholder wealth. Malmendier and Tate (2005), for example, show that overconfident CEOs overestimate returns to their investments and tend to overinvest. Deshmukh et al. (2013) develop a model of overconfident CEOs and dividend policy. They show that overconfident CEOs view external financing as costly and build financial slack for future investments by lowering the current dividend payouts. Their empirical results show that the level of dividends is lower in firms managed by overconfident CEOs.

There are only a couple of studies that use a direct measure of power and dividend policy. Onali et al., (2016) use three separate measures of CEO power (ownership, tenure, and unforced turnover) and find that CEO power has a negative impact on dividend payout ratios and firm performance. Chintrakarn et al. (2018) using CEO pay slice of Bebchuk et al. (2011) as a measure of power, report that powerful CEO are less likely to pay dividends. Overall, the literature shows overconfident and powerful CEOs are less likely to pay dividends, leading to the following hypothesis:

Hypothesis 1. CEO power is negatively associated with the likelihood of paying and increasing dividends.

2.2. CEO power and the likelihood of paying dividends: Impact of low profitability and high cash flow volatility

The discussion in the previous section shows that powerful CEOs have the capability to reduce dividends, which further misaligns their interests with investors and increases reputational concerns. Consequently, powerful CEOs may not reduce dividends and may even pay or increase dividends when they expect to raise external funds in future. The literature on corporate governance contends that poorly governed firms (i.e., firms with weak shareholder rights) have higher reputational concerns and need to establish a reputation for “moderation in expropriating shareholders” in expectation of raising funds from capital markets on attractive terms (La Port et al., 2000). One way to establish such reputation is to pay dividends, and poorly governed firms are more likely to pay dividends. Officer (2006) finds that predicted dividend payer firms with weak governance are more likely to pay dividends than predicted payer firms with strong governance. Neilsen (2006) finds empirical evidence that indicates that firms with weak shareholder rights (poor governance) tend to pay dividends, and conditional on paying, pay higher level of dividends.

Similarly, the entrenchment literature argues that managers pay dividends to gain protection against fear of disciplinary actions from outsiders (Zwiebel, 1996; Fluck, 1999). Hu and Kumar (2004) report that factors that increase managerial entrenchment are positively related to the likelihood and level of dividend payments. John and Knyazeva (2006) argue that a pre-commitment to dividend payments reduces agency problems in the presence of weak governance and Jo and Pan (2009) show that firms with more entrenched managers are more likely to pay dividends and this policy persists over time.

When CEOs command greater power in decision making, it sends a negative signal about investor protection and shareholder rights. Shareholders perceive an increase in power as an indication of poor governance and an increase in managerial entrenchment, and demand higher returns for providing funds to the companies managed by powerful CEOs to protect their investments. Prior literature documents that corporate governance and managerial entrenchment are positively associated with cost of capital. Ashbaugh et al., (2009), for example, show that firms with better corporate governance present lower agency risk to shareholders and have lower cost of equity capital. Zhu (2014) using an international sample, reports that firms with good corporate governance are associated with lower cost of equity and lower cost of capital. Collins and Huang (2011) find that increases (decreases) in managerial entrenchment are positively associated with increases (decreases) in cost of equity capital. Chen et al. (2013) report that executive pay disparity is positively associated with the implied cost of equity. Lee et al. (2018) document that CEO connectedness (power) is positively related to a firm’s cost of capital. This study argues that powerful CEOs, like those at poorly governed and entrenched firms, face higher cost of

² See Baker and Weigand (2015) for a survey of theories of dividend policy.

raising external finance and face a higher need to mitigate reputational concerns by paying dividends when they expect to raise external funds.

Dividend payments, however, result in lower cash flows, higher need for external finance and lower financial flexibility. Establishing a good reputation by paying dividends is only valuable if the expected value of such reputation exceeds its costs. Powerful CEOs would rationally choose to invest in reputation by paying dividends only when they expect a higher likelihood of issuing equity capital (i.e., the net expected value of reputation is positive). If the likelihood of issuing equity capital is low, the net expected value of reputation is negative and powerful CEOs would not invest in reputation by paying dividends.

Prior studies document that the need, frequency, and likelihood of accessing external financing depend on the size and volatility of cash flows. Higher profitability enables firms to grow by financing positive NPV projects using internally generated funds. Other things being equal, more profitable firms are more likely to generate funds internally and less likely to need external financing. It is well established in the empirical capital structure literature that more profitable firms require less external finance and are less likely to access capital markets (e.g., Myers, 1984). Previous research also shows a positive relation between corporate investments and the availability of internal cash flows (e.g., Fazzari et al., 1988; Hubbard, 1998). Ferrando and Mulier (2015) find that profitability measures are more significant in predicting the likelihood of financing constraints than liquidity or leverage ratios and that lower profitability increases financial constraints and the need to raise external funds.

Moreover, Higher cash flow volatility results in higher frequency of shortfalls in investment expenditures and higher frequency of raising external funds, as firms attempt to smooth shortfalls in internal cash flows and investment expenditures. Higher cash flow volatility makes it difficult to plan future investment projects. Bulow and Rogoff, (1989) show that higher uncertainty in future cash flows increases the expected value of the option of going back to capital markets and Minton and Schrand (1999) find that cash flow volatility increases the likelihood and cost of accessing external capital markets.

In summary, powerful CEOs are more likely to pay dividends to invest in reputation when they perceive a positive net expected value of such reputation. The net expected value of such reputation is positively related to low profitability and high cash flow volatility, both of which increase the likelihood of using external finance and are not influenced by powerful CEOs. It is, therefore, more likely that powerful CEOs would pay dividends when they face low profitability and high cash flow volatility. This leads to the second and the primary hypothesis of this study:

Hypothesis 2. CEO power is positively associated with the likelihood of paying and increasing dividends when profitability is low and cash flow volatility is high.

3. Data, measurement, and empirical methodology

3.1. Sample

I combine data from various sources to create a large panel of US corporations. Data on components of power index (CEO pay slice (CPS), tenure, equity ownership, and job titles) are extracted from S&P ExecuComp database. Information on outside directors is collected from Institutional Shareholders' Service (ISS) dataset and on financial characteristics (e.g., sales, dividends) is extracted from Compustat database. Data on CEO founder status and relationship with the founding family are hand collected. Following previous studies, I drop regulated firms and firms in the financial sector (SIC codes in the ranges 4910–4949 and 6000–6999). After merging data from all sources, the final sample consists of an unbalanced panel of 25,308 firm year observations for the period 1992–2016.

3.2. Measuring dividend payouts

Since this study estimates the effect of CEO power on the likelihood of paying dividends, I create two indicator variables. First, following Fama and French (2001), I create an indicator variable ($\text{dividends} > 0$) that equals 1 if dividends paid (dividend per share multiplied by total number of shares) is positive and 0 otherwise. Second, I create ($\Delta \text{dividends} > 0$) which equals 1 if the change in dividends is positive and 0 otherwise.

3.3. Measuring CEO power

Finkelstein (1992) argues that power is a multidimensional concept that evolves over time and should be measured accordingly. He highlights structural, ownership, expert, and prestige dimensions of power. Tang et al., (2011) argue that the prestige dimension of CEO power is not a proximal measure relative to other dimensions and should not be included in the measurement of CEO power. I follow these studies and construct an index of CEO power using seven variables that encompass structural, ownership, and expert dimensions of power. The description of the individual components of the power index is provided below.

Structural Power is composed of four indicator variables of CEO pay slice (CPS), duality, triality, and board structure. CEO pay slice (CPS) is measured as the ratio of CEO total compensation to the aggregate total compensation of top five executives in the management (Bebchuk et al., 2011). I create a categorical variable (CPS power) that equals 1 if CPS is greater than the industry median CPS and 0 otherwise. Duality is the concentration of the titles of “CEO” and “chair” of the board and triality is the concentration of the titles of “CEO”, “chair” of the board and “president” of the company. I create a categorical variable (duality) that equals 1 if the CEO is also the chair of the board and 0 otherwise, and another categorical variable (triality) that equals 1 if the CEO is the chair of the board and is also the president of the company and 0 otherwise. CEO board power equals 1 if the proportion of outside directors on the board is less

Table 1A
Descriptive statistics and correlations.

		Mean	SD	VIF	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	IX	III	IV	IX
I	Dividends (0/1)	0.511	0.500																
II	Δdividends (0/1)	0.331	0.470		0.65														
III	Power (1–7)	2.538	1.412	1.03	–0.02	–0.02													
IV	LPROF&HCFV (0/1)	0.270	0.444	1.43	–0.23	–0.24	–0.02												
V	Assets (\$ millions)	7419	28,829	1.42	0.14	0.13	–0.08	–0.07											
VI	cash/assets	0.158	0.168	1.55	–0.30	–0.17	–0.01	0.15	–0.08										
VII	Cash flows/assets	0.104	0.086	2.49	0.13	0.16	0.01	–0.37	0.00	0.03									
VIII	ROA	0.140	0.100	2.88	0.20	0.22	0.03	–0.49	–0.01	–0.11	0.75								
IX	Market to book	3.553	3.840	1.13	0.02	0.06	–0.01	–0.14	0.00	0.13	0.21	0.25							
X	Debt to assets	0.188	0.175	1.24	0.05	0.00	–0.02	–0.04	0.07	–0.35	–0.15	–0.09	–0.06						
XI	Firm age (years)	10.019	6.154	1.27	0.19	0.08	–0.14	–0.02	0.16	–0.09	–0.04	–0.09	–0.06	0.12					
XII	Tangible assets	0.269	0.218	2.28	0.15	0.07	0.02	–0.08	0.02	–0.38	0.17	0.13	–0.08	0.24	–0.02				
XIII	R&D intensity (%)	3.392	8.402	1.25	–0.19	–0.12	–0.02	0.14	–0.04	0.37	–0.15	–0.21	0.09	–0.15	–0.04	–0.21			
XIV	Capital intensity (%)	5.506	5.663	2.19	0.00	0.00	0.06	–0.10	–0.02	–0.19	0.28	0.23	0.03	0.04	–0.17	0.68	–0.10		
XV	Executive deaths	0.009	0.097	1.01	0.04	0.03	–0.01	0.01	–0.01	–0.03	–0.01	0.01	–0.01	0.00	–0.07	0.01	–0.03	0.00	
XVI	Industry turnover	0.095	0.071	1.03	0.00	0.02	–0.04	–0.03	0.03	0.03	–0.01	–0.01	0.06	0.03	0.14	–0.06	0.02	–0.02	–0.01

than the industry median proportion of outside directors and 0 otherwise.

Ownership power comes from CEO stock ownership and relationship with the founding family. I create two indicator variables. CEO stock ownership equals 1 if CEO stock ownership is greater than the industry median ownership and 0 otherwise. Founding family equals 1 if the CEO is either founder or related to the founding family and 0 otherwise. Finally, expert power is calculated using CEO tenure. Expert power equals 1 if CEO tenure is greater than the industry median tenure and 0 otherwise. Industry medians for all variables are calculated using [Fama-French \(1997\)](#) 48-industry classification.

I add the above seven indicator variables to create an index of power, which ranges between 0 (not powerful) and 7 (the most powerful). It is possible that a CEO who is coded as powerful in one dimension of power may not be powerful in other dimensions. To check the robustness of the empirical results, I create an indicator variable (high power) that equals 1 if the power index is greater than the sample median and 0 otherwise. Moreover, I use principal component analysis (PCA) and factor analysis (FA) to create two additional indices of power to check the robustness of the power variable.

3.4. Measuring profitability and cash flow volatility

Profitability is calculated as earnings before interest and taxes to sales (EBIT/Sales) ratio. Specifically, I create low profitability (LPROF) as an indicator variable that equals 1 if profitability is lower than the sample median and 0 otherwise. Following prior studies (e.g., [Almeida and Campello, 2010](#)), I use earnings before interest, taxes, depreciation, and amortization to assets (EBITDA/Assets) ratio to calculate cash flows. I then calculate the standard deviation of a firm's cash flows over the previous 4-year period for each fiscal year and measure cash flow volatility as the coefficient of variation (CV) of the cash flows, which is calculated as the standard deviation of cash flows divided by the absolute value of the mean of cash flows for the same period. The coefficient of variation is a unitless measure ([Minton and Schrand, 1999](#)). I then create an indicator variable, high cash flow volatility (HCFV) that equals 1 if the coefficient of variation is greater than the sample median and 0 otherwise. Finally, I create the primary variable of low profitability and high cash flow volatility (LPROF&HCFV), which is an indicator variable and equals 1 when profitability is low and cash flow volatility is high and 0 otherwise.

3.5. Empirical methodology

I estimate the following equation to examine the relation between CEO power and the likelihood of paying dividends and the moderating effect of low profitability and high cash flow volatility on this relation:

$$Dividends_{i,t} > 0 = \beta_0 + \beta_1 Power_{i,t} + \sum_{j=2}^n \beta_j Control\ Variables_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

Where, as explained above, $Dividends > 0$ is an indicator variable that equal 1 when dividends are positive and 0 otherwise and $\Delta Dividends > 0$ equals 1 when change in dividends is positive and 0 otherwise. Power is the CEO power index which is a continuous variable and ranges between 0 and 7. γ_i and δ_t represent industry and year fixed effects respectively. Industry fixed effects are estimated using [Fama-French \(1997\)](#) 48-industry classification. I use Probit and Linear Probability Model (LPM) regressions to calculate the likelihood of paying dividends and a positive change in dividends. All coefficients are estimated with robust standard errors adjusted for heteroscedasticity ([White, 1980](#)) and clustered at firm level ([Petersen, 2009](#)).

Following previous studies (e.g., [Fama and French, 2001](#); [Hu and Kumar, 2004](#); [DeAngelo et al., 2006](#); [Jo and Pan, 2009](#)), I include several firm specific variables that are known to have significant effect on the likelihood of paying dividends. *Firm size* is measured as the natural log of total assets. *Cash holdings*, *Cash flows* and *profitability* are included to control for the ability to pay dividends. Cash holdings equal total value of cash and cash equivalents to book value of assets. Cash flows are calculated as the ratio of operating cash flows to book value of assets and profitability is measured by the return on assets (ROA) ratio. To control for investment and growth opportunities, I include market to book ratio, which is calculated as the ratio of market value of equity to book value of equity. *Leverage* is measured by the debt to assets ratio and asset *tangibility* is the ratio of property, plant, and equipment to total assets. I include *firm age* to control for maturity and investment intensities to control for competition between R&D and capital expenditures and dividend payments. R&D intensity is the ratio of R&D expenditures to total assets and capital intensity is the ratio of capital expenditures to total assets. I replace missing R&D values with 0 and include an indicator variable (missing R&D) to control for the systematic effect of this variable. Detailed description of these variables is provided in the Appendix.

[Table 1A](#) provides descriptive statistics of the variables used in the estimation. It also provides variance inflation factors (VIFs) of all the independent variables. These factors are generally less than 3 and indicate that there are no big concerns for multicollinearity ([Kennedy, 2008](#)). The table shows that on average, about 51% of the sample firms pay dividends while 33% of them increase current level of dividends ($\Delta dividends > 0$). The average firm in the sample has total assets of \$7.41 billion and has been in sample for over 10 years. It has cash holding of 15.8%, cash flows to assets of 10.4%, market to book ratio of 3.55, debt to assets ratio of 18.8%, and ROA of 14%. The average tangible fixed assets, R&D, and capital expenditures are 27.8%, 3.5%, and 5.8% of total assets respectively.

[Table 1B](#) reports summary statistics of the individual components of CEO power index. Average CEO pay slice (CPS) is 38.1% of the total pay of executive team, which is comparable to [Bebchuk et al. \(2011\)](#) study. The CEO is the chair of the board 43.6% of the time and chair of the board and president of the company about 17.9% of the time. Average board is 70.7% comprised of outsider directors. Average CEO has been in the job for 7 years, holds 2.47% of firm equity (median is only 0.22%), and 6% of the time belongs to a founder family. The power index has an average (median) value of 2.538 (2.0).

Table 1B
Components of CEO power index.

Variable	Mean	Median	Std. Dev.	25th Percentile	75th Percentile
Power index	2.538	2	1.412	1	3
CEO pay slice (CPS)	0.381	0.379	0.136	0.301	0.455
CEO duality (0/1)	0.436	0	0.496	0	1
CEO triality (0/1)	0.179	0	0.384	0	0
Outside directors	0.707	0.75	0.17	0.6	0.857
CEO tenure (years)	7.009	5	7.446	2	10
CEO stock ownership (%)	2.477	0.22	6.505	0	1.37
Founding family (0/1)	0.06	0	0.237	0	0

4. Results

4.1. CEO power and the likelihood of paying dividends

Table 2 presents results from Probit and linear probability model (LPM) regressions of the likelihood of dividend payments. The results show that the coefficients on CEO power are not statistically significant at any acceptable level. It seems that CEO power does not have any significant effect on the likelihood of paying or increasing dividends. Other control variables in Table 2 have expected signs. Firm size and profitability (ROA) confirm the positive association documented in previous work. The coefficients on cash holdings to assets are negative (Chintrakarn et al., 2018) and on growth opportunities (market to book) are positive (Deshmukh et al., 2013). Firm age is positively related to the likelihood of paying dividends and leverage (debt to assets) has a negative effect. R&D and capital expenditure intensities compete with dividends and have negative coefficients. Overall, the empirical results in Table 2 do not provide empirical support to hypothesis 1, which states that CEO power is negatively associated with the likelihood of paying and increasing dividends.

4.2. CEO power and the likelihood of paying dividends: The impact of profitability and cash flow volatility

This study argues that powerful CEOs are more likely to pay dividends when they face low profitability and high cash flow volatility. To test the moderating effect of low profitability (LOPROF) and high cash flow volatility (HCFV), I create a binary variable

Table 2
CEO power and the likelihood of paying dividends: Benchmark regressions.

Variables	Probit		Linear Probability Model	
	Dividends>0	Δdividends>0	Dividends>0	Δdividends>0
Power	−0.0025 (0.854)	0.013 (0.203)	0.0005 (0.908)	0.0031 (0.313)
Firm size	0.2337*** (0.000)	0.2408*** (0.000)	0.0680*** (0.000)	0.0685*** (0.000)
Cash holdings	−1.1783*** (0.000)	−0.6519*** (0.000)	−0.3096*** (0.000)	−0.1138*** (0.005)
Cash flows	1.6662*** (0.000)	1.2928*** (0.000)	0.2910*** (0.000)	0.1625** (0.014)
ROE	2.2206*** (0.000)	3.2601*** (0.000)	0.5339*** (0.000)	0.7099*** (0.000)
Market to book	0.0096** (0.044)	−0.0003 (0.939)	0.0028** (0.030)	0.0017 (0.117)
Debt to assets	−1.1864*** (0.000)	−1.0456*** (0.000)	−0.3167*** (0.000)	−0.2874*** (0.000)
Firm age	0.5736*** (0.000)	0.0513 (0.188)	0.1736*** (0.000)	0.0293** (0.012)
Tangible assets	0.6176*** (0.002)	0.1784 (0.248)	0.1862*** (0.003)	0.0573 (0.237)
R&D intensity	−0.0577*** (0.000)	−0.0393*** (0.000)	−0.0018 (0.286)	0 (0.980)
Capital intensity	−0.0406*** (0.000)	−0.0294*** (0.000)	−0.0109*** (0.000)	−0.0063*** (0.000)
R&D missing	0.0964 (0.210)	0.0238 (0.668)	0.0730*** (0.002)	0.0294* (0.085)
Pseudo R ²	0.2789	0.1872	0.3094	0.1937
Observations	25,221	25,280	25,308	25,308

Results are from Probit and Linear Probability Model regressions of the effect of CEO power on the likelihood of paying dividends. Power index ranges between 0 and 7. *P*-values given in parentheses are based on robust standard errors and are clustered at firm level. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively. All other variables are explained in the appendix.

(LPROF&HCFV) that equals 1 when profitability is low (LPROF = 1), and cash flow volatility is high (HCFV = 1) and 0 otherwise. I then create an interaction variable of CEO power and LPROF&HCFV and run benchmark regressions with the interaction variable. Results are provided in Table 3. Although it is easy to calculate and interpret the interaction effects in a linear regression (e.g., LPM), it is not easy to do so in nonlinear regressions (e.g., Probit).³ In the LPM regression, the coefficients on power measure the effect of power on the likelihood of paying dividends when LPROF&HCFV equals 0. The effect of power when LPROF&HCFV equals 1, is measured by the sum of the coefficient on power and the interaction variable.⁴ Table 3 shows that the coefficients on power in LPM are negative but not significant in both specifications, indicating that power has no significant effect on the likelihood of paying and increasing dividends when LPROF&HCFV equals 0. The coefficients on the interaction variable are positive and significant in both specifications. The predicted probability of paying dividends increases by 0.0148 (0.0213–0.0065) and that of increasing dividends increases by 0.0180 (0.0221–0.0041) when LPROF&HCFV equals 1.

To estimate the effect of power on the predicted likelihood of paying and increasing dividends in the Probit model, I calculate average marginal effects (AMEs).⁵ Using the interaction term, when LPROF&HCFV = 0, the average marginal effect of power on dividends > 0 is -0.0069 (p-value 0.108) and on Δ dividends > 0 is -0.0026 (p-value 0.467). These results show that CEO power has no significant effect on the likelihood of paying or increasing dividends. However, when LPROF&HCFV = 1, the average marginal effect of power on dividends > 0 is 0.0133 (p-value 0.015) and on Δ dividends > 0 is 0.0170 (p-value 0.000). These results show that CEO power increases the likelihood of paying and increasing dividends when profitability is low and cash flow volatility is high. The magnitude is similar in both LPM and Probit regressions.

The coefficients on LPROF&HCFV are all negative and significant in both Probit and LPM regressions, indicating that firms that face low profitability and higher cash flow volatility are less likely to pay dividends. However, when powerful CEOs manage firms with lower profitability and higher cash flow volatility (i.e., LPROF&HCFV = 1), they tend to pay dividends and increase dividends. Other control variables in Table 3 have signs and significance like those in Table 2. Overall, the empirical results in Table 3 provide strong empirical support to hypothesis 2.

4.3. Robustness: treating endogeneity

Like many other empirical investigations, this study may also suffer from concerns about endogeneity of CEO power and the likelihood of paying dividends. To address these concerns, I run two-stage instrumental Probit regressions. Following previous studies (e.g., Khanna et al., 2015; Sheikh, 2018b; Li et al., 2019), I use sudden exogenous non-CEO top executive/director deaths, and yearly industry average non-CEO executive/director turnover as instrumental variables. A sudden death of an executive/director may have a positive or negative effect on CEO power. The death of an executive/director may negatively affect CEO power if the departed executive/director was a close connection of the CEO. It may take some time to build influential relationships with the new member, who may disagree with the CEO and weaken their ability to make decisions. A sudden departure of an executive/director may also provide an opportunity to the CEO to appoint a close executive/director, especially if the departed executive/director was the one who resisted their decisions.

Similarly, average industry turnover may have negative or positive effect on CEO power. A high executive turnover rate indicates competition in the talent market. When competition is high, a trusted executive/director may move to another firm, reducing the number of close members on the team. If the turnover is related to an executive/director who resisted CEO decisions, it provides an opportunity to appoint another close executive/director and strengthen power. I measure executive/director deaths as the total number of top executives/directors who left their positions due to death during the current CEO's tenure up to the current year and are defined year by year.⁶ Average industry turnover rate is calculated as the median turnover rate of executives/directors in the same industry. The industry median is calculated using Fama-French (1997) 48-industry classification.

Table 4 presents results from two-stage instrumental Probit regressions. Since I use interaction variables of power and low profitability/high cash flow volatility (LPROF&HCFV), I instrument both CEO power and its interaction with LPROF&HCFV in the first stage regressions. The IV Probit regressions use two step estimation, where CEO power and the interaction variable are estimated in the first stage regressions using instruments and the instrumented variables of power and interaction are used in the second stage to estimate the likelihood of paying and increasing dividends. Results from the first stage regressions show that the coefficient on sudden executive/director death is negative and significant in the power regression and negative but not significant in the interaction regression. The coefficient on average industry turnover rate is negative but not significant in the power regression and negative and significant in the interaction regressions. The Wald test of exogeneity (Chi square) are significant at 1% level.

In the second stage regressions, the coefficients on power (instrumented) are negative and significant indicating that power has negative effect on dividends and Δ dividends when LPROF&HCFV = 0. The coefficients on the interaction of power and LPROF&HCFV (instrumented) are all positive and significant, indicating that CEO power is positively associated with the likelihood of paying and increasing dividends when LPROF&HCFV = 1. The results from IV-Probit regressions provide further support to the primary findings of this study by mitigating concerns about endogeneity of CEO power. All other control variables in IV-Probit regressions have signs and

³ See Norten et al., (2004)

⁴ The effect of power when LPROF&HCFV = 1 equals β (power) + β (Power \times LPROF&HCFV).

⁵ I use STATA 17.0 margins command to calculate AMEs.

⁶ The Execucomp database reports reasons for leaving the company for the top five executives/directors. An executive/director is coded as leaving due to sudden death if the reason provided is "deceased."

Table 3

CEO power and the likelihood of paying dividends: Effect of profitability and cash flow volatility.

Variables	Probit		Linear Probability Model	
	Dividends>0	Δdividends>0	Dividends>0	Δdividends>0
Power	−0.0238 (0.108)	−0.008 (0.467)	−0.0065 (0.154)	−0.0041 (0.265)
LPROF&HCFV	−0.4676*** (0.000)	−0.6319*** (0.000)	−0.1569*** (0.000)	−0.1673*** (0.000)
Power × LPROF&HCFV	0.0765*** (0.001)	0.0994*** (0.000)	0.0213*** (0.001)	0.0221*** (0.000)
Firm size	0.2174*** (0.000)	0.2227*** (0.000)	0.0620*** (0.000)	0.0621*** (0.000)
Cash holdings	−1.1350*** (0.000)	−0.5968*** (0.000)	−0.2976*** (0.000)	−0.0988** (0.012)
Cash flows	1.6036*** (0.000)	1.2487*** (0.000)	0.2744*** (0.000)	0.1437** (0.027)
ROE	1.6524*** (0.000)	2.5353*** (0.000)	0.3335*** (0.000)	0.4916*** (0.000)
Market to book	0.0096** (0.045)	−0.0002 (0.963)	0.0027** (0.035)	0.0016 (0.134)
Debt to assets	−1.1909*** (0.000)	−1.0576*** (0.000)	−0.3165*** (0.000)	−0.2875*** (0.000)
Firm age	0.5873*** (0.000)	0.0646* (0.099)	0.1773*** (0.000)	0.0342*** (0.003)
Tangible assets	0.6439*** (0.002)	0.1992 (0.193)	0.1949*** (0.001)	0.0646 (0.174)
R&D intensity	−0.0560*** (0.000)	−0.0368*** (0.000)	−0.0017 (0.259)	0 (0.971)
Capital intensity	−0.0409*** (0.000)	−0.0292*** (0.000)	−0.0111*** (0.000)	−0.0063*** (0.000)
R&D missing	0.1026 (0.182)	0.0357 (0.516)	0.0725*** (0.001)	0.0296* (0.077)
Pseudo R ²	0.2834	0.1956	0.3161	0.2027
Observations	25,157	25,215	25,243	25,243

Results are from Probit and Linear Probability Model regressions of the effect of CEO power on the likelihood of paying dividends. Power index ranges between 0 and 7. LPROF&HCFV equals 1 when profitability is low and cash flow volatility is high and 0 otherwise. *P*-values given in parentheses are based on robust standard errors and are clustered at firm level. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively. All other variables are explained in the appendix.

significance similar to those in the benchmark regressions.

4.4. Robustness: using financial constraints

This study argues that powerful CEOs are more likely to pay dividends when they expect a higher need and likelihood of using external finance to fund investment projects. Since financially constrained firms are more likely to use external financing, I use financial constraints as an alternative measure of low profitability and high cash flow volatility. I use Kaplan and Zingales (1997) index of financial constraints and create a categorical variable (Constrained) that equals 1 if the KZ index is greater than the top 20th percentile and 0 otherwise. I then create an interaction variable of CEO power and Constrained. Results, which are provided in Table 5, show that the coefficients on Constrained are negative and significant, indicating that financially constrained firms (low profitability and high cash flow volatility) are less likely to pay dividends or increase the current level of dividends. The coefficients on power are not significant in any specification which shows that power has no significant effect on dividends when firms are not financially constrained (Constrained = 0). However, the coefficients on the interaction of power and constrained are all positive and significant. The average marginal effects show that powerful CEOs are more likely to pay dividends when they face financial constraints (Constrained = 1). I also use Whited-Wu (Whited and Wu, 2006) and SA (Hadlock and Pierce, 2010) indices as alternative measures of financial constraints. While WW index provides qualitatively similar results, SA index results are not significant, which is expected because the SA index does not include any measures of profitability or cash flows volatility in its construction.

4.5. Robustness: CEO power and the level of dividend payouts

Although the primary purpose of this study is to explore how low profitability and high cash flow volatility moderate the effect of CEO power on the likelihood of paying and increasing dividends, I also estimate the effect of CEO power on level of dividends (payout ratios). Table 6 provides results from Tobit and OLS regressions with robust standard errors clustered at the firm level. Whereas Tobit regressions use full sample, OLS regressions use only those firms that have positive payout ratios. I use dividends to assets, dividends to

Table 4

CEO power and the likelihood of paying dividends: Treating endogeneity.

	IV-PROBIT			
	First stage		Second stage	
Variables	Power	Power \times LPROF&HCFV	dividends>0	Δ dividends>0
Executive deaths	−0.4337*** (0.000)	−0.0823 (0.440)		
Industry turnover rate	−0.0516 (0.743)	−0.5360*** (0.002)		
Power			−0.9934*** (0.003)	−0.6039** (0.040)
LPROF&HCFV	−0.1875*** (0.000)	2.5664*** (0.000)	−4.7488*** (0.007)	−4.4431*** (0.009)
Power \times LPROF&HCFV			1.7251** (0.014)	1.5813** (0.018)
Firm size	−0.1208*** (0.000)	−0.0235*** (0.000)	0.2120*** (0.000)	0.1861*** (0.000)
Cash holdings	0.0263 (0.772)	−0.0657 (0.105)	−1.1257*** (0.000)	−0.6065*** (0.000)
Cash flows	−0.2428 (0.161)	0.1685* (0.076)	0.8486*** (0.004)	0.3952 (0.166)
ROA	0.0880 (0.581)	0.0072 (0.934)	1.7850*** (0.000)	2.7167*** (0.000)
Market to book	−0.0047* (0.081)	−0.0022 (0.129)	0.0078* (0.072)	0.0037 (0.357)
Leverage	0.1774*** (0.005)	0.0742** (0.030)	−1.1920*** (0.000)	−1.1362*** (0.000)
Firm age	−0.0292*** (0.000)	−0.0061*** (0.000)	−0.0484*** (0.000)	−0.0346*** (0.000)
Tangible assets	−0.2557*** (0.000)	−0.1597*** (0.000)	0.8915*** (0.000)	0.5259*** (0.001)
R&D intensity	−0.0193*** (0.000)	−0.0084*** (0.000)	−0.0536*** (0.000)	−0.0405*** (0.000)
Capital intensity	0.0091*** (0.001)	0.0032** (0.027)	−0.0426*** (0.000)	−0.0293*** (0.000)
R&D missing	0.0831*** (0.002)	0.0365** (0.011)	0.1227** (0.014)	−0.0293 (0.456)
R ²	0.052	0.692		
Chi Square			23.690*** (0.000)	18.970*** (0.001)
Observations	23,157	23,157	23,157	23,201

Results are from two-stage instrumental Probit regressions of the effect of CEO power on the likelihood of paying dividends. Power index ranges between 0 and 7. LPROF&HCFV equals 1 when profitability is low and cash flow volatility is high and 0 otherwise. P-values given in parentheses are based on robust standard errors. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively.

sales and dividends to income ratios. The results which are provided in [Table 6](#) show that CEO power is positively related to payout ratios when profitability is low and cash flow volatility is high (LPROF&HCFV = 1). These results provide general support to [hypothesis 2](#).

4.6. Further tests of robustness

I perform several other robustness checks to test the sensitivity of the empirical results. First, I use (EBITDA/sales) and total net cash flows from operating activities from statement of cash flows (OANCF from Compusat) to assets as alternative measures of profitability and cash flows. I also calculate low profitability and high cash flow volatility relative to industry medians, instead of sample medians, using [Fama-French \(1997\)](#) 48-industry classification. Second, I re-construct the low profitability and high cash flow volatility (LPROF&HCFV) variable by creating an indicator variable that equals 1 when profitability is low and cash flow volatility is high and 0 when profitability is high and cash flow volatility is low (instead of 0 otherwise). In this specification, I drop all observations where profitability is high and cash flow volatility is high or profitability is low and cash flow volatility is low too. Third, I use principal component analysis (PCA) and factor analysis (FA) to create power indices. Fourth, I re-create the dependent variables as total payout and change in total payout being positive. Total payout>0 equals 1 if total payout (dividends plus share repurchases) is positive and 0 otherwise and Δ total payout>0 equals 1 if change in total payout is positive and 0 otherwise. The unreported results from all these alternative specifications show that the empirical results are not driven by alternative construction of variables.

Table 5
CEO power and the likelihood of paying dividends: Effect of financial constraints.

Variables	Probit		Linear Probability Model	
	dividends>0	Δdividends>0	dividends>0	Δdividends>0
Power	−0.0062 (0.672)	0.0134 (0.204)	0 (0.997)	0.0029 (0.404)
Constrained	−1.9066*** (0.000)	−1.3272*** (0.000)	−0.4943*** (0.000)	−0.3109*** (0.000)
Power × Constrained	0.0821** (0.013)	0.0598** (0.031)	0.0171** (0.026)	0.0106** (0.048)
Firm size	0.2104*** (0.000)	0.2239*** (0.000)	0.0589*** (0.000)	0.0627*** (0.000)
Cash holdings	−0.3776* (0.065)	−0.1464 (0.351)	−0.0594 (0.257)	0.0438 (0.270)
Cash flows	1.3773*** (0.000)	1.0398*** (0.000)	0.1899*** (0.010)	0.0988 (0.125)
ROE	1.4373*** (0.000)	2.8010*** (0.000)	0.2775*** (0.000)	0.5485*** (0.000)
Market to book	0.0146*** (0.003)	0.0017 (0.640)	0.0036*** (0.002)	0.0022** (0.030)
Debt to assets	1.3447*** (0.000)	0.4392*** (0.002)	0.3594*** (0.000)	0.1384*** (0.001)
Firm age	0.5608*** (0.000)	0.0116 (0.763)	0.1621*** (0.000)	0.0220** (0.048)
Tangible assets	0.7140*** (0.000)	0.1767 (0.246)	0.1905*** (0.001)	0.06 (0.192)
R&D intensity	−0.0596*** (0.000)	−0.0396*** (0.000)	−0.0016 (0.356)	0.0001 (0.935)
Capital intensity	−0.0387*** (0.000)	−0.0265*** (0.000)	−0.0096*** (0.000)	−0.0055*** (0.000)
R&D missing	0.0921 (0.234)	0.0213 (0.697)	0.0726*** (0.001)	0.0291* (0.076)
Pseudo R ²	0.3427	0.2183	0.3697	0.2207
Observations	25,221	25,280	25,308	25,308

Results are from Probit and Linear Probability Model regressions of the effect of CEO power on the likelihood of paying dividends. Power index ranges between 0 and 7. Constrained equals 1 Kaplan-Zingales (1997) index of financial constraints is greater than the top 20th percentile and 0 otherwise. P-values given in parentheses are based on robust standard errors and are clustered at firm level. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively. All other variables are explained in the appendix.

4.7. Effect of low profitability and high cash flow volatility on the likelihood of external financing

The central idea of this study is that powerful CEOs dislike paying dividends, as predicted by agency theory. However, they pay dividends to establish a reputation to raise external funds when they expect a higher likelihood of accessing external financing due to lower profitability and high cash flow volatility. In this section, I estimate the direct effect of low profitability and high cash flow volatility on the likelihood and need (level) of external financing. Following previous studies (e.g., Almeida and Campello, 2010), I estimate the following equation:

$$\text{External Financing}_{i,t} = \alpha_0 + \alpha_1 \text{Low Profitability}_{i,t} + \alpha_2 \text{High Cash Flow Volatility}_{i,t} + \sum_{j=3}^n \alpha_j \text{Control Variables}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where external financing is calculated as net equity issued. Net equity issued is calculated as the sale of common and preferred stock minus purchase of common and preferred stock. Control variables include firm size, cash holdings, cash flows, Tobin's Q, debt to equity, tangible assets, R&D intensity, capital intensity, year, and industry effects. Table 7 provides results from Probit, linear probability model (LPM), and OLS regressions. The coefficients on low profitability and high cash flow volatility in in Probit and LPM regressions are positive and significant. These results indicate that firms are more likely to issue new equity when they face low profitability or high cash flow volatility. The coefficients from OLS regressions are also positive and indicate that low profitability and high cash flow volatility are positively associated with the level (need) of new equity issuance. Overall, these results provide a direct evidence that both low profitability and high cash flow volatility increase the likelihood and need for external financing.

Table 6

CEO power and the likelihood of paying dividends: Level of dividends.

Variables	Tobit			OLS - Dividend payers only		
	Dividends/ assets	Dividends/ price	Dividends/ income	Dividends/ assets	Dividends/ price	Dividends/ income
Power	−0.0009*** (0.006)	−0.0011*** (0.008)	−0.0083*** (0.005)	−0.0007*** (0.007)	−0.0010*** (0.007)	−0.0056*** (0.001)
LPROF&HCFV	−0.0078*** (0.000)	−0.0150*** (0.000)	−0.0764*** (0.000)	−0.0019* (0.052)	−0.0095*** (0.000)	−0.0305*** (0.009)
Power × LPROF&HCFV	0.0017*** (0.001)	0.0024*** (0.000)	0.0157*** (0.006)	0.0007** (0.022)	0.0010* (0.058)	0.0077** (0.026)
Firm size	0.0031*** (0.000)	0.0057*** (0.000)	0.0318*** (0.000)	0.0012*** (0.000)	0.0021*** (0.000)	0.0101*** (0.000)
Cash holdings	−0.0098* (0.069)	0.0008 (0.908)	−0.1535*** (0.003)	0.0025 (0.438)	0.0621*** (0.000)	−0.0029 (0.907)
Cash flows	0.0526*** (0.000)	0.0542*** (0.000)	0.3575*** (0.000)	0.0131** (0.016)	0.0335*** (0.000)	0.0748* (0.061)
ROE	0.0939*** (0.000)	0.0683*** (0.000)	0.3540*** (0.000)	0.0658*** (0.000)	0.0331*** (0.002)	0.006 (0.885)
Market to book	0.0007*** (0.000)	0.0007*** (0.000)	0.0031*** (0.005)	0.0007*** (0.000)	0.0009*** (0.000)	0.0025*** (0.000)
Debt to assets	−0.0207*** (0.000)	−0.0174*** (0.001)	−0.2348*** (0.000)	−0.0032 (0.325)	0.0224*** (0.000)	−0.0492** (0.027)
Firm age	0.0139*** (0.000)	0.0144*** (0.000)	0.1264*** (0.000)	0.0067*** (0.000)	−0.0015 (0.336)	0.0500*** (0.000)
Tangible assets	0.0153*** (0.001)	0.0262*** (0.000)	0.2210*** (0.000)	0.0101*** (0.000)	0.0213*** (0.000)	0.1303*** (0.000)
R&D intensity	−0.0011*** (0.000)	−0.0011*** (0.000)	−0.0128*** (0.000)	−0.0002* (0.063)	0.0015*** (0.000)	−0.0029*** (0.000)
Capital intensity	−0.0013*** (0.000)	−0.0017*** (0.000)	−0.0129*** (0.000)	−0.0008*** (0.000)	−0.0011*** (0.000)	−0.0063*** (0.000)
R&D missing	0.0041*** (0.008)	0.0045** (0.015)	0.0303** (0.039)	0.0004 (0.667)	0.0052*** (0.000)	0.0024 (0.737)
Pseudo R ²	−0.2563	−0.2681	0.2903	0.2180	0.2413	0.1025
Observations	25,243	25,222	24,430	15,139	12,910	14,548

Results are from Tobit and OLS regressions of the effect of CEO power on the likelihood of paying dividends. Power index ranges between 0 and 7. LPROF&HCFV equals 1 when profitability is low and cash flow volatility is high and 0 otherwise. P-values given in parentheses are based on robust standard errors and are clustered at firm level. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively. All other variables are explained in the appendix.

5. Conclusion

This study empirically examines the conditions which induce powerful CEOs to pay dividends and increase the current level of dividends. It argues that powerful CEOs dislike paying dividends and pay dividends only when they need to establish reputation of better treatment of shareholders. The net expected value of this reputation is positive when the likelihood of accessing external financing is high, which in turn depends on low profitability and high cash flow volatility. Empirical results are consistent with the hypothesis and show that powerful CEOs are more likely to pay and increase dividends when profitability is low and cash flow volatility is high.

Although the empirical results of this study are robust to alternative measures of profitability, cash flow volatility, power, and payouts, it has its own limitations. One limitation is that this study uses a sample of US corporations and its results may not be generalized to other countries due to differences in governance and payout policies. Another limitation is the use of the power index that measures structural, ownership and expert dimensions of CEO power. CEOs, however, may gain power through their social networks and connectedness and build influential relationships with the management team and board of directors by appointing executives and directors from their networks (Khanna et al., 2015; Lee et al., 2018). Finally, this study uses data from non-financial non-regulated industries. It would be interesting to explore the moderating effect of profitability and cash flow volatility on the relation between CEO power and dividend policy in regulated and financial industries.

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Table 7

External financing: Effect of low profitability and high cash flow volatility.

Variables	Probit	Linear Probability Model	OLS
	Net equity issuance	Net equity issuance	Net equity issuance
Low profitability	0.1261*** (0.000)	0.0446*** (0.000)	0.0075*** (0.000)
High CFV	0.1519*** (0.000)	0.0569*** (0.000)	0.0050*** (0.000)
Firm size	−0.1446*** (0.000)	−0.0508*** (0.000)	−0.0065*** (0.000)
Cash holdings	−0.3941*** (0.000)	−0.1348*** (0.000)	−0.0266*** (0.000)
Cash flows	−2.8909*** (0.000)	−0.9344*** (0.000)	−0.2682*** (0.000)
Tobin's Q	0.0717*** (0.000)	0.0218*** (0.000)	0.0037*** (0.000)
Debt to equity	0.0001 (0.187)	−0.0001* (0.060)	0.0001*** (0.000)
Tangible assets	0.0363 (0.734)	0.0043 (0.910)	0.0131*** (0.003)
R&D intensity	0.0019 (0.667)	−0.0006** (0.011)	0.0004** (0.021)
Capital intensity	0.0300*** (0.000)	0.0103*** (0.000)	0.0016*** (0.000)
R&D missing	−0.0506 (0.192)	−0.0228* (0.078)	−0.0004 (0.801)
Pseudo R ²	0.1116	0.1413	0.2269
Observations	30,179	30,179	30,179

Results are from Probit, Linear Probability Model, and OLS regressions of the effect of CEO power on dividend policy. Power index ranges between 0 and 7. Low profitability equals 1 when profitability is less than sample median and 0 otherwise. High CFV (cash flow volatility) equals 1 when coefficient of variation is greater than sample median and 0 otherwise. External financing equals net equity issuance plus net debt issuance divided by book value of assets. P-values given in parentheses are based on robust standard errors and are clustered at firm level. Year and Industry controls not reported. ***, **, and * represent significance at 1%, 5% and 10% respectively. All other variables are explained in the appendix.

Declaration of Competing Interest

None.

Appendix

Variable	Definition
Dividends>0	A categorical variable that equals 1 if the total amount of cash dividends is positive and 0 otherwise.
Δdividends>0	A categorical variable that equals 1 if the change in dividends is positive and 0 otherwise.
Cash flow volatility	Coefficient of variation calculated as the ratio of the standard deviation of earnings before interest, taxes, depreciation, and amortization (EBITDA/assets) to absolute mean of (EBITDA/assets).
High cash flow volatility (HCFV)	A categorical variable that equals 1 if the coefficient of variation is greater than sample median coefficient of variation and 0 otherwise
Profitability	Earnings before interest and taxes to sales (EBIT/Sales)
Low profitability (LPROF)	A categorical variable that equals 1 if profitability is less than the sample median profitability and 0 otherwise
LPROF&HCFV	A categorical variable that equals 1 if LPROF = 1 and HCFV = 1 and 0 otherwise.
Power	Power index that ranges between 0 and 7.
Firm size	Log of book value of assets.
Cash holdings	Cash and cash equivalents divided by book value of assets.
Cash flows	Operating cash flows divided by book value of assets.
ROA	Net income divided by book value of assets.
Market to book	Market value of equity / book value of equity.
Debt to assets	Total debt divided by book value of assets.
Firm age	Number of years the firms has been in the Compustat.
Tangible assets	Total net property, plant, and equipment divided by book value of assets.
R&D intensity	R&D expenditures divided by book value of assets.
Capital intensity	Capital expenditures divided by book value of assets.
Executive/director deaths	Total number of top executives/directors who left their positions due to death during the current CEO's tenure up to the current year and are defined year by year.
Average industry turnover	Median turnover rate of executives/directors in the same industry using Fama-French 48 industry classification.

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