DIVIDEND POLICY, FINANCIAL LEVERAGE AND OWNERSHIP STRUCTURE: EMPIRICAL EVIDENCE FROM VIETNAM

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Abstract:

We examine the impact of leverage and state and foreign ownership structure on dividend payout policy of non-financial listed firms on both Ho Chi Minh and Hanoi Stock Exchange of Vietnam from 2010-2015. Our results suggest that firm with high level of debt tend to pay less dividend due to their financial constrain. Moreover, dividends are used as a signal of good performance to investors. Thus, firms tend to keep stable dividend policy over time. In addition, firms with higher portion of shares owned by the government are more likely to pay out more dividends. Meanwhile, foreign investors are found to have power in monitoring managers so they do not have to use dividend policy as the tool to reduce the free cash flow problem

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1. Introduction

The agency conflicts of interest between managers and shareholders stem from the separation between ownership and control of corporations (Fama & Jensen, 1983; Jensen & Meckling, 1976). The main agency problem lies in the use of free cash flows by managers. As for corporations with no agency problems, free cash flows are used to fund projects that have positive net present values (Jensen, 1986). However, for corporations in which agency problems exist, self-serving managers divert free cash flows to benefit themselves at the expense of shareholders. Various mechanisms have been proposed as

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potential solutions to this free cash flow problem and dividend payout policy, financial leverage and ownership structure are the most three significant ones.

Several studies consider dividend payment as a mechanism to resolve the conflict between managers and shareholders since the payment or non-payment of dividends causes the firms to undergo a third-party audit, which results in lower agency costs (Jensen & Meckling, 1976 and Jensen,1986). Financial leverage also serves as a monitoring tool to reduce agency problems (Ross, 1977 and Stulz, 1990) because firms may face the risk of bankruptcy if managers fail to meet their debt obligations. In addition, the agency theory implies that ownership structure can affect the dividend payout policy because dividend can be used as a tool to reduce the agency problem and information asymmetry. For instant, Kevin et al. (2012) found that the portion of shares held by foreign investor had an inverse relationship with cash dividend. They imply that foreign investors can monitor the managers, thus, they do not need a tool as dividend payout for monitoring purpose. On the contrary, the portion of shares held by foreign investors is found to have a positive relationship with the dividend payout policy (Baba, 2009). He argues that when foreign investors do not possess enough power and ability to monitor the managers, they tend to use dividend policy as the way to reduce the free cash flow problem.

In Vietnam, although dividend policy has been studied by several researchers, most of these studies only focused on examining the determinants of dividend policy. No research has examined the dividend policy as a mechanism to control the free cash flow problem of firms and whether dividend policy, financial leverage and ownership structure play as substitutes or complements in reducing free cash flow problem. Therefore, the first objective of this research is to examine the dividend policy of Vietnamese firms as a mechanism in controlling the free cash flow problem. In addition, this study examines other two mechanisms such as leverage and ownership structure as tools managing free cash flow problems. Finally, this study investigates whether dividends, debt and ownership are complement mechanisms in reducing agency costs of free-cash-flow.

The data used in this research is collected from Stoxplus database including non-financial listed companies on Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) of Vietnam. The research period covers from 2010 to 2015. The final sample consists of 3699 firm-year observations from 622 listed firms.

Using panel data, our study shows evidence that firms with the higher use of debt tend to pay less dividend to shareholders. This is because they need to retain net income to meet their debt obligations. In addition, firms, which have a great number of shares held by the government tend to pay out more dividends and follow a stable dividend policy. On the contrary, foreign investors seem to have power in monitoring managers. Therefore, foreign investors do not rely on dividend as a tool to control the free cash flow problem.

The rest of the paper is organized as follows. Section 2 presents the literature review about dividend theories and summarizes the previous studies about the determinants of the dividend. Section 3 describes the data collection and model specification. Section 4 discusses the research findings and presents the robustness tests and results. Finally, Section 5 presents conclusions, recommendations and the limitation of this study.

2. Literature review

2.1. Dividend policy and financial leverage

Financial leverage involves rising of funds from outsource. It is the degree to which a company uses fixed-income securities such as debt and preferred equity. The more debt financing a company uses, the higher its financial leverage. No doubt that firm using debt financing tends to generate high profit on one hand but also subject to higher obligation to outsiders on other hand. The level of risk to which firms are exposed with mixed capital structure is too high because there is always possibility that firm may not be in position to cover its fixed financial cost in coming future time.

A survey on CEOs and managers about the determinants of their dividend decision making show that capital structure has influence on dividend policy (Baker, Veit & Powell, 2001). Those companies which have employed leverage in their capital structure

are more conservative and maintain decreasing trend of dividend payout (Warne & Insan 2011). Since firms with high debt are more likely to be financially constrained and should be less able to pay dividends, a negative relationship between financial leverage and dividend payout policy is expected. It is explained that firms with a high level of debt prefer to cut dividends, voluntarily or under creditors' pressure, to maintain cash needed to fulfill their obligations toward corporate debt-holders (Higgins (1972) and McCabe (1979), Rozeff (1982), Agrawal & Jayaraman 1994; Faccio, Lang & Young 2001, Afza & Hammad 2011). This argument is parallel to the arguments of Al-Malkawi (2007), Patra et al. (2012) and Al-Najjar (2009). In addition, the increase in firms' riskiness due to the use of more debt raises their external financing costs (i.e. interest rate) and makes them more dependent on retained earnings. Therefore, financial leverage is negatively related to dividend payouts (Al-Twaijry, 2007; Crutchley & Hansen, 1989).

Another strand of literature argue that debt is another mechanism used to reduce the agency costs of free cash flow. As stated above, Jensen and Meckling (1976) gave agency theory which advocates conflict of interest between investors and managers. Managers pursue their own benefits by taking financial decisions and disregard the interests of investors. This conflict leads to the agency costs like monitoring cost and bankruptcy cost. Rozeff (1982), Easterbrook (1984) and Bhaduri (2002) gave arguments that both dividend payments and debt are used to reduce more cash flows under the supervision of management so both can be used to reduce agency costs. Regarding debt, it allows creditors to have more control and monitoring power over the managers who are under pressure to meet debt obligations by improving organizational efficiency and eliminating negative NPV projects (Agrawal & Knoeber, 1996; Fleming, Heaney & McCosker, 2005; Jensen & Meckling, 1986, Stulz, 1988). In fact, debt can substitute for dividends in reducing information asymmetry and agency problems. Therefore, if the signaling power of dividends is limited in firms with a high level of debts, these firms will have less incentive to pay dividends in comparison to less levered firms (Imad, 2016).

In the study of Al-Kuwari (2009), he also found the strong negative relationship between leverage ratio and dividend payout ratio. The reason for this negative relationship is that

highly levered firms carry a large burden of transaction costs from external financing, hence, firm need to maintain their internal sources of fund to meet their obligations.

However, Ayub (2005) reasoned that there is a probability that debt has no effect on the dividend policy in the countries that the public debt market is not well organized. Aasia (2011) when examining the relationship between financial leverage on the dividend policy also pointed out that debt ratio of the company is not significantly impacting on the dividend policy of the firm.

2.2. Dividend policy and ownership structure

The agency theory implies that ownership structure can affect the dividend payout policy because dividend can be used as a tool to reduce the agency problem and information asymmetry. Many empirical studies pointed out there were various trends in dividend policy among companies with different ownership structure. Rozeff (1982) shows that dividend payout is negatively related to the percentage of stock held by insiders. Furthermore, he finds that outside shareholders demand a higher dividend payout if they own a higher fraction of the common equity and if their ownership is more disperse.

Kevin et al. (2012) found that the portion of shares held by foreign investor in China had an inverse relationship with cash dividend. They imply that foreign investors can monitor the managers, thus, they do not need a tool as dividend payout for monitoring purpose. On the contrary, Baba (2009) indicated that the portion of shares held by foreign investors had a positive relationship with the dividend payout policy. The author argued that when foreign investors did not possess enough power and ability to monitor the managers, they tend to use dividend policy as the way to reduce the free cash flow problem. Warrad et al., (2012) study the relationship between ownership structure and dividend payout policy for the Jordanian industrial firm. Their findings reveal no relationship between private ownership, government ownership, foreign ownership structure and the dividends policy. However, their results show positive and significant relationship between foreign ownership and dividend payout policy.

In addition, Kevin et al. (2012) highlighted that there is a positive relationship between the portion shares held by government and the dividend payout ratio. They also added that those firms that have major shares held by the government tend to have a stable dividend policy and a high payout ratio. This was also documented by Al-Kuwari (2009) who found that government ownership positively impact on the dividend policy. Al-Malkawi (2007) also suggests that the proportion of stocks held by insiders and state ownership significantly affect the number of dividends paid. Firms with optimum capital structure are able to pay high dividends in comparison with other companies.

It would be interesting to examine the ownership structure as a determinant of firms' propensity to pay dividend policy in Vietnam as the government outweighs foreign investors in firms' ownership structure. The results of Ramli (2010) suggest that controlling shareholders does influence the dividend policy. Most Vietnamese-listed firms were privatized from state-owned enterprises and the government is generally a major shareholder after the firms go public. Managers are delegated to act on behalf of government. Thus, it is expected that managers of these firms will act on the interest of the controlling shareholders, i.e. the government.

In the research about the relationship between ownership structure and dividend policy in Vietnam, Ly and Bay (2015) found a positive relationship among the portion of shares held by foreign investors and government and dividend payout policy.

2.3. Dividend policy and other control variables

2.3.1. Firm size

Firm size is one of the most important factors that affects dividend policy. The life-cycle theory explains that large and mature firms which have high free cash flow tend to pay dividends more often than small ones. A great number of studies investigated the relation between distributed cash dividends and the size of the firm but no consensus was achieved (Baker et al., 2007; Jakob & Johannes, 2008).

Jensen and Meckling (1976) argued that managers have greater control over larger firms where ownership is more dispersed and shareholders have low incentive and ability to monitor. As a substitute solution to agency problem, a high dividend payout ratio would help these firms send positive signals (Lloyd, Jahera & Page 1985; Sawicki, 2005).

Al-Kuwari (2009) and a growing number of other studies (Eddy & Seifert, 1988; Jensen, Solberg & Zorn, 1992; Redding, 1997; Holder, Langrehr & Hexter, 1998; Al-Malkawi, 2007; Manos, 2002; Mollah, Keasey & Short, 2002) found that firm size was positively related to dividend payout as large firms were easier to access capital markets, and had the ability to raise funds with lower issuance costs for external financing. Other studies show that small firms pay low dividend because of the high transaction cost they must bear if they need to raise fund externally (Holder, Langrehr & Hexter 1998; Behr & Guttler, 2007). This inaccessibility and high cost of external financing limit small firms' ability to pay dividends and make them more inclined to retain these funds to finance their future growth.

Several studies confirm a negative relationship between dividend payout ratio and firm size. For example, Talat (2010) and Hafeez Admed (2012) found that large-sized firms prefer investing in their assets to paying dividends to their shareholders whereas, small companies try to improve their ability to raise funds by paying dividends to accumulate required sum of money from issuance of equity shares at better price. It is argued that the bigger the size of the firm, the greater the publicly available information about the firm is, which leads to the lower of the information asymmetry (Eddy & Seifert, 1988).

2.3.2. Growth opportunities

The signaling theory predicts a positive relation between dividend payout and subsequent investment growth as dividend payout is the reflection of firm's future prospect. A survey conducted on Canadian managers also found that investing, financing and dividends decision should be consistent and dependent on each other (Baker, Dutta & Saadi, 2008). Partington (1983) argued that a firm's motivation to pay dividends highly depended on its investment and growth opportunities.

On the other hand, according to the life-cycle theory, slow or non-growth firms tend to pay high dividends at the mature stage, while small and medium firms with huge growth opportunities keep a high level of retained earnings to reinvest. As a result, growth opportunities have negative impacts on the dividend payout policy. This hypothesis is supported by various studies (see Alli, Qayyum & Ramirez, 1993; Kanie & Bacon, 2005; Baker & Powell, 2012 and Imad, 2016).

However, it is argued that the negative relationship is only valid in countries with strong legal protection of shareholders. If the shareholders feel insecure and doubtful about their rights to share the firm's future profits, they will prefer to receive current earnings rather than receive capital gain in the future (La Porta et al., 2000). They will put pressure on the firm to pay dividends, regardless of the growth opportunities available.

2.3.3. Profitability

The free cash flow hypothesis indicated that profitability has a positive relation with dividend payout ratio of the firms. Empirical studies also document a consistent positive link between profitability and dividend payouts (Jensen, Solberg & Zorn, 1992; Fama & French, 2000; Baker & Jabbouri, 2016). Nevertheless, according to Glen et al. (1995), dividend policies vary between developed and developing countries, and with the same profitability, there are also differences between dividend payout in countries with strong legal protection for shareholders and those in countries without (Wang et al, 2002; La Porta et al., 2000; Pandey, 2001; Al-Kuwari, 2007; Al-Malkawi, 2007).

However, the research about the determinants of dividend policy of Polish listed companies showed evidence that there is a significant negative relationship between the profitability of the firm (ROE) and dividend payout ratio (DPO). This can be explained that Polish companies use their profits as capital sources and therefore, are less likely to pay dividend. This difference may stem from the characteristic of the country itself as Poland is a developed country which has a well-organized stock market and a strong legal protection for shareholders.

In Vietnam, there are many studies show that firms' profitability has positive relationship with dividend payout ratio. Ngoc and Cuong (2014) revealed that profitability (measured as ROA) has positive impact on the dividend decision with 1% level of significance. Profitability can be measured as return on assets (ROA) or return on equity (ROE). This study will use ROE as a proxy for profitability as it reveals the lucrativeness of companies by comparing its net income to its average shareholders' equity.

2.3.4. Liquidity

Liquidity measures the ease at which an individual or company can meet their financial obligations with the liquid assets available to them. There are several ratios that express accounting liquidity, but in this research, we use the current ratio as a proxy for the liquidity of the companies.

Liquidity is also perceived as an important factor that affects firms' propensity to pay dividends. With a shortage of cash, dividend will not be paid even if the income statement, based on the accrual basis of accounting, reflects a decent profitability. Prior studies reported that corporate dividend policy is highly dependent on the firm's cash position rather than earnings (Anil & Kapoor, 2008; DeAngelo, DeAngelo & Skinner, 2004). Using a sample of industrial firms in New York Stock Exchange and American Stock Exchange, Deshmukh (2003) documents a positive relationship between dividend payout ratio and cash position. Moreover, in a recent research of Japanese firms, Kato et al. (2002) conclude that changes in dividend policy are mainly due to alternations in firms' liquidity.

2.3.5. Past dividend

Lintner (1956) surveyed 28 managers in the United States and concluded that past dividend is a key factor that influences dividend policy. He pointed out that US firms largely pursued a stable dividend payout ratio. Managers are reluctant to cut cash dividend as it will have negative impacts on the trust of investors and only raise the dividend payout ratio if there are positive and potential prospects. Recently, research has

provided substantial evidence that a stable dividend policy, consistent with smoothed dividends per share, is more common in developed countries (Chateau, 1979; Leithner & Zimmermann, 1993). Various studies that tested Lintner's findings in different markets and over many periods endorse this finding and conclude that past payment affected current dividends (Farrelly, Baker & Edelman, 1986; Baker, Veit & Powell, 2001).

However, several studies show that in developing markets, current dividend payment is independent from its historical pattern and the smoothing effect is less apparent. Since current dividend is based mostly on current profitability, the dividend payment is unstable over the years (Glen et al., 1995; Wang et al., 2002; Adaoglu, 2000).

In Vietnam, although the stock market is still developing, the research in firms listed in Ho Chi Minh Stock Exchange showed that past dividend has a positive relationship with dividend payout policy (Ngoc & Cuong, 2014; Ly & Bay, 2015). These results are consistent with Lintner (1956).

2.3.6. Free cash flow

Free cash flow represents the cash which is available for firms to generate after laying out the required money to maintain or expand their asset bases.

In the early stage, free cash flow was considered as an important factor influencing the reason why firm had to pay dividends. Jensen & Meckling (1986) suggested that dividend was used to mitigate agency cost of free cash flow. In their seminal work on the free cash flow hypothesis, the agency problem between insiders and minority shareholders increases as the level of free cash flow increases. In an attempt to serve their goals, managers spend excessive cash on projects with negative present values, which decreases shareholders' wealth. Several studies demonstrate that paying high dividends can be used to lessen agency costs and mitigate information asymmetry problems through the reduction of discretion funds that could be expensed on value-destroying projects (Imad 2016). For instance, using a sample of large and medium corporations in Sweden, Gustav and Gairatjon (2008) found that free cash flow has a positive relationship with dividend

policy. Sawicki (2008) showed that using free cash flow to pay dividends was an efficient tool to build or improve the firm's reputation in the emerging countries since the firms paying dividend was less risky and could lower agency problems.

However, Imad (2016) showed that free cash flow had a surprisingly negative relationship with dividend payout policy. He argued that in the context of emerging countries, where markets are characterized by the absence of corporate governance mechanisms, high information asymmetry, weak legal institutions, and managerial expropriation of shareholders, dividend payments are expected to increase with the decrease of free cash flow.

2.3.7. Volatility

Pruitt and Gitman (1991) in their study observed that risk is also a strong determining factor of a firm's dividend policy. They argued that a firm that has relatively stable earnings is more likely to pay a higher percentage of its earnings than firm with fluctuating earnings. In other studies, Rozeff (1982), Lloyd et. al., (1985) and Colins et. al., (1996), a statistically significant negative relationship was observed to exist between beta and dividend payout. These findings further suggest that firms having higher level of market risk will payout dividends at lower rate.

Cash flow is usually considered as an important indicator of a firm's financial health. The high volatility of cash flow is associated with greater market risks and higher operation costs. The manager's dividend policy should consider the expected cash flow and its volatility, which indicate the ability of a firm to pay out current or future dividends. Two theories have been advocated to explain the relationship between expected cash flow volatility and dividend payout: information signaling theory and agency cost theory. The information signaling theory and agency cost theory provide contrasting explanations between dividend payout and future cash flow volatility. The information signaling theory predicts that dividend payout should be lower when future cash flow is more volatile. The agency cost theory predicts that firms with more volatile cash flows would pay out a greater proportion of their cash flows as dividends. Empirical evidence

supporting the agency cost explanations can be found from Rozeff (1982), Dempsey and Laber (1992), and Wang, Erickson and Gau (1993).

However, many studies (Beaver, Kettler and Scholes, 1970; Miller and Scholes, 1982; Rozeff, 1982 and Keim, 1985) find that firms with higher systematic risk coefficients (betas) offer lower dividend yields. Eades (1982) and Alli, Khan and Ramires (1993) examine the relations between total equity return volatility and dividend yields, with mixed results. Eades finds that dividend yield is negatively related to both total contemporaneous volatility and residual risk, while Alli, Khan and Ramires fail to find a significant relation. Bradley et. al. (1998) explored the role of expected cash flow volatility as a determinant of dividend policy both theoretically and empirically and found that payout ratio is lower for firms with higher expected cash flow volatility.

3. Data collection and model specification

3.1. Data collection

The data used in this study was collected from StoxPlus database including non-financial listed firms on Hanoi and Ho Chi Minh Stock Exchanges of Vietnam from 2010 to 2015. Banks and financial institutions were excluded from this analysis due to their special financial structures, accounting methods and governance. The sample includes both dividend and non-dividend paying firms since the exclusion of the non-dividend paying firms from the analysis may lead to a selection bias. The final sample consists of 3699 firm-year observations from 622 listed firms during the period of 2010 to 2015.

3.2. Variable construction

Dependent and independent variables used in this study are constructed as in the Table 1 (the following page).

Table 1: Variable construction and supporting theories

Variables	Formula	Supporting theories	Expected sign

Dividend payout ratio (Div_payout)	Total dividends paid/Net income		
Firm Size (Size)	$\ln(Total\ assets)$	The life-cycle hypothesis	(+) / (-)
Financial Leverage (Leverage)	$\frac{\text{Total debt}}{\text{Total assets}}$	The agency hypothesis	(-)
Foreign Investors (Foreign_own)	$\frac{\text{Number of foreign shares}}{\text{Total outstanding shares}}$	The agency theory	(+)
Government (State_own)	$\frac{\text{Number of government shares}}{\text{Total outstanding shares}}$	The agency theory	(+)
Growth Opportunities (Growth_rate)	$\frac{Total\ asset_t - Total\ asset_{t-1}}{Total\ asset_{t-1}}$	The signaling theory	(+) / (-)
Profitability (ROA)	$\frac{\text{Net profits}}{\text{Total assets}}$	The Signaling theory	(+)
Past Dividend (Past_div)	$Dividend.payout.ratio_{t-1}$	The Signaling theory	(+) / (-)
Liquidity (Liquidity)	$\frac{\text{Curent assets}}{\text{Current liabilities}}$	The life-cycle hypothesis	(+)
Free Cash Flow (FCF)	(Operating profits before tax + Depreciation & Amortization – Tax paid – Dividend paid)/Total assets	The agency theory	(-)
Volatility (VOLA)	$\frac{sd(EBITDA)}{Total\ assets}$		(-)

3.3. Model specification

Many studies have pointed out that the disadvantage of using the OLS model in panel data structure is that the OLS model ignores the systematic differences between cross-section units (firm-specific effects) and over time. Thus, the regression results may be biased and inaccurate. On the other hand, fixed effect (FE) model is a standard approach to account for unit-specific effects. The idea is that each entity has a specific feature that may affect independent variable, the fixed effect model examines this feature to control and separate this, and thus, the regression result reflects the net effects of the independent variable on the dependent variable. Moreover, the fixed effect model can solve the problem omitted variable bias. Therefore, fixed effect model is used as the main model in this study to examine the relationship between leverage, state and foreign structure and dividend payout ratio. The FE model is presented as follows:

$$\text{Div\_payout}_{it} = \alpha_1 \text{Leverage}_{it} + \alpha_2 \text{State\_own}_{it} + \alpha_3 \text{Foreign\_own}_{it} + X_{it}\beta + \sum_i \rho_i F_i + \sum_t \delta_t T_t + u_{it}$$

Where:

the index i denotes a firm, t denote a year; leverage is calculated as total debt/total assets; ownership structure is captured by two proxies as state_own and foreign_own in which state_own is measured as number of government shares/total number of outstanding shares and foreign_own is calculated as number of foreign shares/total number of outstanding; X_{it} is a vector containing standard control variables such as: firm size (measured as ln(total assets)); growth rate (measured as: (total asset at time t – total assets at time t-1)/total assets at time t); ROA (calculated as net profit/shareholders' equity/total assets); liquidity (measured as current assets/current liabilities); past dividend (calculated as dividend payout ratio at time t-1); FCF denotes free cash flow and is measured as (Operating profits before tax + Depreciation & Amortization – Tax paid – Dividend paid)/Total assets; Volatility is measured as sd(EBITDA)/Total assets; Fi and Tt are dummy variables for firm- and time-fixed effects, respectively.

4. Empirical findings

Table 2 shows us the descriptive statistics of dependent variable and independent variables used in this study. The mean value of dividend payout ratio is 79% with the standard deviation of 16.04%. This result shows that many firms choose to pay significant amount of dividend to shareholders. Under 25 percentiles of the firms do not pay dividends while under 75 percentiles of the firms pay 65% out of net income as dividends to shareholder. Thus, most the non-financial listed firms pay out a large amount of total net income as dividends. Thus, it is implied that due to the preference to receive dividends as the shareholders' income, many companies pay out a great number of dividends to satisfy their shareholders' demand.

4.1. Data analysis and descriptive statistics

Table 2: Descriptive statistics

Variable	Obs	Mean	S.D	p25	p50	p75
Div_payout	3570	0.79	16.04	0.00	0.33	0.65
Leverage	3692	0.51	0.22	0.34	0.53	0.68
State_own	3396	0.24	0.24	0.00	0.19	0.50
Foreign_own	3366	0.08	0.12	0.00	0.02	0.11
ROA	3691	0.06	0.08	0.01	0.04	0.09
Size	3692	26.88	1.47	25.95	26.80	27.83
Liquidity	3692	3.03	35.55	1.12	1.47	2.29
Volatility	3692	0.19	0.08	0.10	0.15	0.22
FCF	3574	0.06	0.08	0.02	0.05	0.10

Past_div	3035	0.83	17.37	0.00	0.34	0.66
Growth_rate	3064	0.16	0.76	-0.04	0.05	0.19

The mean value of leverage accounts for 51% of the total assets with the standard deviation of 22%. Vietnamese firms seem to use quite high leverage ratio. The percentage of state ownership accounts for 24% on average. Under 75 percentiles of the firms have 50% of state ownership in their ownership structure. Meanwhile, foreign ownership structure accounts for 8% on average with the standard deviation of 12%.

The average ROA accounts for 6%. With the high level of leverage and the low value of ROA, it seems that firms' performance is not very efficient. However, the average liquidity ratio remains at 3.03 times with a large deviation of 35.55%. With such a large deviation, the result shows that some firms may face liquidity problems. Free cash flow accounts for 6% on average which is reasonable since dividend payout ratios are significant.

4.2. Research results

4.2.1. FE regression results

Table 4 reports the regression results for fixed effect model. We document a negative relationship between leverage and dividend payout ratio at 1% level of significance. Firms with high debt are more likely to be financially constrained and carry a large burden of transaction costs related to external financing. Therefore, firms need to maintain internal fund to meet their obligations and consequently, firms should be less able to pay dividends to their shareholders. This finding is consistent with our hypothesis and the study of Crutchley & Hansen (1989), Al-Twaijry (2007) anda Al-Kuwari (2009).

State ownership is found to have positive partial impact on dividend payout ratio which implies that if firms have more higher state ownership, they are likely pay out higher dividend. Especially in the country such as Vietnam, in which the government owns a big portion of shares. However, our finding is not statistically significant. Foreign ownership

is also found to be positively related to dividend payout ratio. However, since the result has no statistically explanatory power, we cannot give further conclusion.

Regarding the group of control variables, we document a significant negative relationship between past dividend and dividend payout ratio. This result does not support the stable dividend policy. It also contradicts the research result of Ngoc & Cuong (2014) and Ly & Bay (2015) in which they conclude that listed firm in Ho Chi Minh Stock Exchange have smooth dividend policy

Table 4: Regression results

	FE model	**OLS model**
Leverage	-0.698*** (0.198)	0.143** (0.066)
State_own	0.171 (0.144)	0.173*** (0.042)
Foreign_own	0.131 (0.189)	-0.123 (0.081)
ROA	-2.681*** (0.513)	0.789** (0.308)
Firm size	0.159*** (0.073)	-0.019 (0.011)
Liquidity	-0.002 (0.019)	0.019** (0.009)

Volatility	-0.013 (0.014)	-0.008** (0.004)
FCF	-0.484 (0.401)	-0.261 (0.290)
Past dividend	-0.166*** (0.021)	0.164*** (0.024)
Growth rate	-0.157** (0.075)	-0.136*** (0.051)
Constant		0.804** (0.322)
R-squared	0.07	0.05
Firms	622	
Observations	2874	2874

Note: ***, **, * are significance levels at 1%, 5% and 10% level, respectively. Firm and time fixed effects are omitted in this table.

ROA, which presents firms' profitability is found to be significantly negatively related to dividend payout ratio at 1% level of significance. Our finding implies that firms with high profitability tend to pay fewer dividends to their shareholders. On the contrary, firms with low profitability tend to pay higher dividends to shareholders. This result is consistent with our descriptive statistics which shows that Vietnamese listed firms with low profitability remain high dividend payout ratios. The possible reason for this is that firms want to please their shareholders with dividends despite their low profitability. Paying dividends signals to their shareholders that the company is still in its good performance. Therefore, firms want to use dividends as a tool to send good signals to their shareholders. The findings imply that there may exist information asymmetry between firms and their shareholders.

Firm size is found to have significant positive partial impact on dividend payout ratio. This result is consistent with the life cycle theory which implies that large firms with high free cash flow tend to pay dividends more often than small ones. Besides, a high dividend payout ratio would help these firms send positive signals about the prospects of the firm, the good faith of management, and share the firm's profit to their shareholders (Lloyd, Jahera & Page 1985; Sawicki, 2005). With the high dividend payout ratios of Vietnamese listed firms like present, information signaling is the main reason. In contrast, small firms pay lower dividend because of the high transaction cost they have to bear if they need to raise fund externally (Holder, Langrehr & Hexter 1998). In addition, due to the lack of diversification of production and distribution, small firms face more financing constrains in comparison with large firms (Behr & Guttler, 2007). This inaccessibility and high cost of external financing limit small firms' ability to pay dividends and make them more inclined to retain these funds to finance their future growth.

Growth opportunities are negatively related to dividend payout ratio at 5% level of significance. This result documents the life-cycle theory in a way that slow or non-growth firms tend to pay high dividends at the mature stage, while small and medium firms with large growth opportunities tend to maintain high level of retained earnings to reinvest. Therefore, growth opportunities should be negatively related to the dividend payout ratio. Our result is consistent with the findings of many previous studies such as Alli, Qayyum & Ramirez (1993) Kanie & Bacon, 2005; Baker & Powell, 2012 and Imad, 2016).

Other control variables do not have statistical explanatory powers so we cannot make further conclusions. The model is robust to heteroskedasticity using Huber-White sandwich estimator. However, the R-squared is only 7% which means the goodness of fit of the model is quite low. Put differently, explanatory variables only explain 7% of the dividend policy. Empirical finance suggests that if the model has a low R-squared, it means there are more variables that could explain the dependent variable. We will confirm our findings in the next section in which we carry out some post-estimation tests to conclude the robustness of the research.

4.2.2. Robustness tests and results

In this research, the Modified Wald test was employed to find out whether heteroskedasticity exists in the model. The null hypothesis of homoscedasticity is tested. The result of the test showed that the Prob > chi2 = 0.000 <0.05, so we reject the null hypothesis of homoscedasticity. Thus, we conclude that there is a presence of heteroskedasticity in our model. To control for heteroskedasticity in our model, we run the robust option for fixed effect model. Therefore, our findings are controlled for heteroskedasticity using Huber-White sandwich estimator.

Regarding multicollinearity, we constructed a correlation matrix of all independent variables used in this research (see Table 5 in the Appendix). The result showed that the correlations between independent variables are under 0.85; thus, we concluded that our model is free from multicollinearity. To further confirm our result, we tested variance inflation factor (VIF) for multicollinearity. The result showed that VIF is lower than 5; hence, the same conclusion was reached.

The Wooldridge test was used to detect autocorrelation in panel data. The Wooldridge's method uses the residuals from a regression in first- to test the null hypothesis that there is no serial correlation in the model differences (Wooldridge, 2002). The test result shows that the Prob>F is 0.799 > 0.05, so we fail to reject the null hypothesis that there is no first-order autocorrelation. Put differently, autocorrelation exists in our model.

Hausman test was executed to examine whether fixed effect or random effect model more appropriate for our research. The result shows that fixed effect fixed effect model should be used instead of random effect model. Therefore, we employed fixed effect model in our study.

We also tested omitted variable problem using Ramsey RESET test. The result shows that the study fails to reject the null hypothesis that there are no omitted variables in the model. Nevertheless, by using fixed effect model, the average differences across the firms in any observable or unobservable predictors are controlled. Therefore, fixed effect

model removes the omitted variable problem. However, the goodness of fit of the model remains quite low. Thus, dividend payout ratio might be explained by more variables than the variables that we have used in our model. This is a limitation of the research and a research gap for future studies.

Table 3 and 4 reports regression results using different models as: OLS regression and systematic GMM one-step and two-step estimators to compare with fixed effect regression results for robust findings. Fixed effect model shares similar results with system GMM 1-step and 2-step estimators in terms of correlation signs and coefficients while OLS regression mainly provides opposite results in comparison with the other 3 models. This is not unexpected since OLS regression's validity have been put under suspicion since many biases related to modelling issues remain unresolved. Therefore, our conclusions will be based on the results of fixed effect and system-GMM 1-step and 2-step models.

The lagged values of dividend payout ratio in system GMM1 and GMM2, which are the same as past dividend in fixed effect model, are positively related with the current dividend payout ratios. The findings show evidence that Vietnamese listed companies use dividend as a tool to send positive signal to investors. These results seem to be more reasonable in explaining the fact that most total net income is paid out as dividends to shareholders. This also implies that most of the shareholders are risk-averse investors and they prefer to receive dividends. The positive relationship between past dividend and current dividend payout ratio reports the smoothing effect of dividend policy over years and that firms tend to maintain a stable dividend policy to send positive information signal to shareholders. These findings are consistent with the results in the research of Ngoc & Cuong (2014) and Ly & Bay (2015).

Table 4: Robust results using different models

	FE model	**System GMM 1-step**	**System GMM 2-step**
l.Div_Payout		0.080	0.104**

		(0.178)	(0.184)
Leverage	-0.698*** (0.198)	-0.987 (0.684)	-0.908 (0.687)
State_own	0.171 (0.144)	0.310*** (0.086)	0.301*** (0.086)
Foreign_own	0.131 (0.189)	-0.298* (0.172)	-0.277 (0.171)
ROA	-2.681*** (0.513)	-1.025 (0.784)	-0.950 (0.786)
Firm size	0.159*** (0.073)	0.041** (0.018)	0.038** (0.018)
Liquidity	-0.002 (0.019)	-0.061 (0.053)	-0.055 (0.053)
Volatility	-0.013 (0.014)	-0.004 (0.004)	-0.004 (0.005)
FCF	-0.484 (0.401)	-0.190 (0.388)	-0.182 (0.388)
Past dividend	-0.166*** (0.021)		
Growth rate	-0.157** (0.075)	-0.027 (0.087)	-0.028 (0.089)
R-squared	0.07		
Firms	622	622	622
Observations	2874	2874	2874

Note: ***, **, * are significance levels at 1%, 5% and 10% level, respectively.

Consistent with the main model's result, system GMM1 and 2 report the same negative relationship between leverage and dividend payout ratio. Firms with significant financial leverage are more financially constrained, thus, is likely to pay dividends to their shareholders. Under the pressure of creditors, these firms tend to lower or cut dividends to retain enough earnings to meet their debt obligations. Our finding is consistent the results of many previous studies as Crutchley & Hansen (1989), Al-Twaijry (2007), Al-Kuwari (2009) and Imad (2016).

System GMM1 and GMM2 share the same positive relationship between state ownership and dividend payout ratio with 1% level of significance. Our findings are consistent with the study by Kevin et al. (2012) and Ly and Bay (2015). The results imply that those firms which have major shares held by the government tend to have a stable dividend policy and a high payout ratio. However, system GMM1 and GMM2 result in opposite results in comparison with fixed effect model. We document a significant negative relationship between foreign ownership and dividend payout ratio. The result implies that foreign investors can monitor the managers themselves, therefore, they do not need to use dividend as a tool to monitor managers. Our finding is similar to the result of a study by Kevin et al. (2012).

5. Conclusions

This research examines the three significant mechanisms and their interrelationship in controlling the free cash flow problem such as: dividends, leverage and ownership structure in Vietnam stock exchanges (HOSE and HNX exchange) during the period between 2010 and 2015. Our sample consists of 3699 firm-year observations from 622 non-financial listed firms during the period of 2010 to 2015.

We document that most Vietnamese listed firms pay out a large portion of dividends over total net income. This result shows that investors prefer dividends and perceive dividends as a signal of firms' good performance. Thus, firms are inclined to dividend as an efficient tool to send positive signal to investors. Past dividend is found to have positive partial impact on current dividend payout ratio, which document he smoothing effect of

dividend policy over years. Firms seem to maintain a stable dividend policy to send positive information signal to shareholders. These findings are consistent with the results of Ngoc & Cuong (2014) and Ly & Bay (2015) in the same market.

In addition, consistent with many previous studies, we report a negative relationship between leverage and dividend payout ratio (see Crutchley & Hansen,1989; Al-Twaijry, 2007; Al-Kuwari, 2009; and Imad, 2016). Firms that use high level of debt are more constrained with finance. Therefore, they tend to cut down dividend to meet their debt obligation.

Regarding ownership structure, state ownership is positively related to dividend payout ratio. This result affirms the stable dividend policy because firms with major shares held by the government are likely to pay higher dividend and smooth their dividend payout over years. Besides, we find a significant negative relationship between foreign ownership and dividend payout ratio. The result implies that foreign investors have the power to monitor the managers themselves. Consequently, foreign investors do not need to use dividend as a tool to monitor managers. Our finding is consistent with the result of a study by Kevin et al. (2012).

In conclusion, this research studies the dividend policy of Vietnamese non-financial listed firms on both stock exchanges (HOSE and HNX) and its relationship with leverage and ownership structure. From the findings of this research, firms with the higher use of debt tend to pay less dividend to shareholders. Additionally, firms with many shares held by the government are likely to pay out more dividends and tend to have a stable dividend policy. In contrast, foreign investors do not rely on dividend as a tool to control the free cash flow problem. Instead, they have the power to monitor managers themselves However, we also find out that there are more explanatory variables that can explain the dividend policy of firms. These variables could represent corporate governance or behavioral finance. This could be potential direction for future research.

REFERENCES

Adaolu, C 2000, 'Instability in the dividend policy of the Istanbul Stock Exchange corporations: evidence from an emerging market', *Emerg. Mark. Rev.*, pp. 252-270.

Afza, T & Hammad, M 2011, 'Do mature companies pay more dividends? Evidence from Pakistani stock market', *Mediterr. J. Soc. Sci. 2*, pp. 2-2.

Agrawal, A & Jayaraman, N 1994, 'The dividend policies of all-equity firms: a direct test of the free cash flow theory', *Manag. Decis. Econ. 15*, pp. 139-148.

Agrawal, A & Jayaraman, N 1994, 'The dividend policies of all-equity firms: A direct test of the free cash flow theory', *Managerial and Decision Economics 15*, pp. 139-148.

Agrawal, A & Knoeber, CR 1996, 'Firm performance and mechanisms to control agency problems between managers and shareholders', *J. Financ. Quant. Anal.*, pp. 377-397.

Al-Kuwari, D 2009, 'Determinants of the Dividend policy in Emerging Stock Exchanges: The Case of GCC countries', *Global Economy & Finance Journal*, pp. 38-63.

Alli, L, Qayyum, KA & Ramirez, GG 1993, 'Determinants of corporate dividend policy: a factorial analysis', *Financ. Rev.*, pp. 523-547.

Al-Malkawi, HN 2007, 'Determinant of Corporate Dividend Policy in Jordan', *Journal of Economic and Administrative Since 23*, pp. 44-71.

Al-Twaijry, A 2007, 'Dividend policy and payout ratio: Evidence from Kuala Lumpur stock exchange', *J. Risk Financ.*, pp. 349-363.

Anil, K & Kapoor, S 2008, 'Determinants of dividend payout ratios - a study of Indian information technology sector', *Int. Resour. J. Financ. Econ. 15*, pp. 1-9.

Ayub, M 2005, 'Corporate Governance and Dividend Policy', *Pakistan Economic and Social Review*, pp. 115-128.

Baker, HK, Dutta, S & Saadi, S 2008, 'How managers of financial versus non-financial firms view dividends: the Canadian evidence', *Glob. Financ. 19*, pp. 171-186.

Baker, HK & Jabbouri, I 2016, 'How Moroccan managers view dividend policy', *Manag. Financ.*

Baker, HK & Powell, GE 2012, 'Dividend policy in Indonesia: Survey evidence from executives', *J.Asia Bus. Stud.*, pp. 79-92.

Baker, HK, Saadi, S, Dutta, S & Gandhi, D 2007, 'The perception of dividends by Canadian managers: New survey evidence', *Int. J. Manag. Financ. 3*, pp. 70-91.

Baker, HK, Singleton, JC & Veit, ET 2011, 'Survey Research in Corporate Finance', *Oxford University Press*.

Baker, HK, Veit, ET & Powell, GE 2001, 'Factors influencing dividend policy decisions of Nasdag Firms', *Financ. Rev. 36*, pp. 19-38.

Behr, P & Guttler, A 2007, 'Credit rish assessment and relationship lending: an empirical analysis of German small and medium-sized enterprises', *J. Small. Bus. Manag. 45*, pp. 194-213.

Bhat, R & Pandey, IM 1994, 'Dividend decision: A study of managers' perceptions', *Decision 21*, pp. 67-86.

Black, FS 1974, 'The effects of dividend yield and dividend policy on common stock prices and returns', *Journal Financial Econ. 1*, pp. 1-22.

Black, F 1976, 'The dividend puzzle', *Journal Port. Manag. 2*, pp. 5-84.

Chateau, J 1979, 'Dividend policy revisited: Within- and out-of-sample tests', *Journal of Business Finance and Accounting 6*, pp. 355-372.

Crutchley, C & Hansen, R 1989, 'A test of the agency theory of managerial ownership, corporate leverage and corporate dividends', *Financ. Manag. 18*, pp. 36-46.

DeAngelo, H, DeAngelo, L & Skinner, DJ 1996, 'Reversal of fortune: Dividend signalling and the disappearance of sustained earnings growth', *Journal of Financial Economics 40*, pp. 341-371.

DeAngelo, H, DeAngelo, L & Skinner, D 2004, 'Are dividends disappearing? Dividend concentration and the consolidation of earnings', *J. Financ. Econ. 72*, pp. 425-456.

DeAngelo, H, DeAngelo, L & Stulz, RM 2006, 'Dividend policy and the earned/contributed capital mix: A test of the life-cycle theory', *Journal of Financial economics 81*, pp. 227-254.

Deshmukh, S 2003, 'Dividend initiations and asymmetric information: a hazard model', *Financ. Rev 38*, pp. 351-368.

Easterbrook, FH 1984, 'Two agency-cost explanations of dividends', *American Economic Review*, pp. 650-659.

Eddy, A & Seifert, B 1988, 'Firm size and dividend announcements', *Journal Financ. Res.*, pp. 295-302.

Faccio, M, Lang, LHP & Young, L 2001, 'Dividends and expropriation', *Am. Econ. Rev. 91*, pp. 54-78.

Fama, EF & French, K 2000, 'Forecasting profitability and earnings', *J. Financ. 55*, pp. 389-406.

Fama, FE & French, KR 2001, 'Disappearing Dividends: Changing firm characteristics or lower propensity to pay?', *Journal of Financial Economics 60*, pp. 3-43.

Farrelly, GE, Baker, KH & Edelman, RB 1986, 'Corporate dividends: views of policy makers', *Akron Bus. Econ. Rev.*, pp. 62-74.

Fleming, G, Heaney, R & McCosker, R 2005, 'Agency costs and ownership structure in Australia', *Pac. Basin Financ. J*, pp. 29-52.

Frankfurter, GM & Wood Jr., BG 2002, 'Dividend policy theories and their empirical tests', *Int. Rev. Financ. Anal.*, pp. 111-138.

Glen, J, Karmokolias, Y, Miller, R & Shah, S 1995, 'Dividend policy and behavior in emerging markets', *IFC Discussion Paper no 26*.

Gordon, MJ 1963, 'Optimal Investment and Financing Policy', *Journal of Finance 18*, pp. 264-272.

Gustav & Gairatjon 2008, 'Determinants of dividend payout ratio - a study of Swedish Large and medium caps', University of Umea.

Hafeez, A & Attiya, YJ 2012, 'The determinants of dividend policy in Pakistan', *Munich Personal Repec Archive Paper*.

Holder, M, Langrehr, F & Hexter, J 1998, 'Dividend Policy Determinants: An investigation of the Influences of Stakeholder theory', *Financial Management 27*, pp. 73-82.

Imad, J 2016, 'Determinants of corporate dividend policy in emerging markets: Evidence from MENA stock markets', *Research in International Business and Finance 37*, pp. 283-298.

Jakob, SH & Johannes, R 2008, 'Dividend determinants in Denmark Management Working Paper', University of Aarhus, Denmark.

Jensen, M & Meckling, W 1976, 'Theory of firm: managerial behaviour, agency cost, and ownership structure', *Journal of Financial Economics 3*, pp. 305-360.

Jensen, MC & Meckling, WH 1986, 'Agency cost of free cash flows corporate finance and takeovers', *Am. Econ. Rev.*, pp. 323-329.

Jensen, G, Solberg, D & Zorn, T 1992, 'Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies', *Journal of Financial and Quantitative Analysis 27*, pp. 263-274.

Jeong, J 2013, 'Determinants of dividend smoothing in emerging market: The case of Korea', *Emerging Market Review 17*, pp. 76-88.

Jian, Z & Khoa, CP 2014, 'Market efficiency in emerging stock markets: A case study of the Vietnamese stock market', *IOSR Journal of Business and Management 16*, pp. 61-73.

Kania, SL & Bacon, FW 2005, 'What factors motivate the corporate dividend decision', *ASBBS E J.*, pp. 97-107.

Kato, KH, Loewenstein, U & Tsay, W 2002, 'Dividend policy, cash flow,and investment in Japan', Pac.-Basin Finance. J., pp. 443-473

La Porta, R, Lopez-de-Silanes, F, Shleifer, A & Vishny, R 2000, 'Investor Protection and Corporate governance', *J. Financ. Econ. 58*, pp. 3-27.

Lai, TPN 2015, 'Corporate Finance and State Ownership in Vietnam: Capital Structure, Investment behavior and Profitability of Listed Companies', Thesis, Hitotsubashi University, Tokyo.

Lang, LH & Litzenberger, RH 1989, 'Dividend annoucements: Cash flow signalling vs. free cash flow hypothesis?', *Journal of Financial Economics 24*, pp. 181-191.

Leithner, S & Zimmermann, H 1993, 'Market value and aggregate dividends: A reappraisal of recent tests, and evidence from European markets', *Swiss Journal of Economics and Statistic*, pp. 99-122.

Lintner, J 1956, 'Distribution of Incomes of Corporations among Dividends, Retained Earnings and Taxes', *American Economic Review*, pp. 97-113.

Lintner, J 1962, 'Dividends, Earnings, Leverage, Stock Prices and Suppy of Capital to Corporations', *The Review of Economics and Statistics 64*, pp. 243-269.

Lloyd, W, Jahera, J & Page, D 1985, 'Agency costs and dividend payout ratios', *Q. J. Bus. Econ. 24*, pp. 19-29.

Ly, TH & Bay, DT 2015, 'Cấu trúc sở hữu và chính sách cổ tức của các doanh nghiệp niêm yết: Bằng chứng tại Việt Nam', *Nghiên cứu và Trao đổi*, pp. 72-78.

Manos, R 2002, 'Dividend Policy and Agency Theory: Evidence on Indian Firms', Working Paper, University of Manchester, Manchester.

Miller, MH & Modigliani, F 1961, 'Dividend policy, Growth, and the Valuation of shares', *Journal of Business 34*, pp. 411-433.

Mollah, S, Keasey, K & Short, H 2002, 'The influence of Agency Costs on Dividend Policy in an Emerging Market: Evidence from the Dhaka Stock Exchange', Working Paper, Bath University.

Newton, H 2003, 'Testing for serial correlation in linear panel-data models', *The Stata Journal*, vol 3, pp. 168-177.

Ngoc, DB & Cuong, NC 2014, 'Các nhân tố ảnh hưởng đến chính sách cổ tức của các doanh nghiệp niêm yết trên thị trường chứng khoán Việt Nam', *Phát Triển Kinh Tế 290*, pp. 42-60.

Nikkei company 2015, 'Vietnam opens its stock market further', Business Department, Nikkei Asian Review, Tokyo.

Pandey, I 2001, 'Corporat Dividend Policy and Behaviour: The Malaysian Experience', Working Paper, Indian Institute of Management, Ahmadabad.

Partington, GH 1983, 'Why firms use payout target: a comparative study of dividend policies', In: Paper presented at AAANZ Conference, Brisbane.

Ranti 2013, 'Determinants of dividend policy - a study of selected listed firm in Nigeria', *Manager - Change and leadership*.

Redding, L 1997, 'Firm Size and Dividend Payouts', *Journal of Financial Intermediation 6*, pp. 224-248.

Sawicki, J 2005, 'An investigation into the dividend of the firms in east asia', Working Paper, Nanyang technological University, Singapore.

Sawicki, J 2008, 'Corporate governance and dividend policy in Southeast Asia: pre- and post- crisis', *Eur. J. Financ.*, pp. 211-230.

Talat, A 2010, 'Ownership Structure and Cash flows as determinants of Corporate Dividend Policy in Pakistan', *International Business Research*, pp. 210-221.

Tran, TTN 2011, 'Toward practical and effective solutions for Vietnam stock market's asymmetric information problem', Thesis, Waseda University, Tokyo.

Wang, M, Gao, S & Guo, G 2002, 'Dividend policy of China's listed companies', Working paper.

Watts, R 1973, 'The information content of dividend', *Journal of Business 46*, pp. 191-211.

Woolridge, JM 2002, 'Econometric analysis of cross section and panel data', *The MIT press*.

Appendix:

Table 5: Correlation matrix of variables

	Div-payout	Lev	State_own	Foreign_own	ROA	Size	Liquid	VOLA	FCF	Past_div	Growth_rate
Div_payout	1.000										
Lev	0.150	1.000									
State_own	0.116	0.097	1.000								
Foreign_own	-0.048	-0.196	-0.114	1.000							
ROA	0.042	-0.475	0.130	0.246	1.000						
Size	-0.023	0.341	0.012	0.310	-0.062	1.000					
Liquid	0.015	-0.664	-0.059	0.156	0.324	-0.171	1.000				
VOLA	-0.005	-0.334	0.006	-0.159	0.040	-0.801	0.216	1.000			
FCF	0.001	-0.269	0.123	0.212	0.693	0.051	0.158	-0.067	1.000		
Past_div	0.176	0.034	0.117	-0.053	-0.002	-0.054	-0.010	0.029	-0.059	1.000	
Growth rate	-0.070	0.061	-0.144	0.081	0.170	0.179	0.002	-0.166	0.209	-0.108	1.000

Note: Div_payout is dividend payout ratio (dividend/net income); leverage is calculated as total debt/total assets; ownership structure is captured by two proxies as state_own and foreign_own in which state_own is measured as number of

government shares/total number of outstanding shares and foreign_own is calculated as number of foreign shares/total number of outstanding; Size is the firm size (ln(total assets)); Growth rate is measured as sd(EBITDA)/total assets; ROA (calculated as net profit/shareholders' equity/total assets); liquid (measured as current assets/current liabilities); past dividend (calculated as dividend payout ratio at time t-1); FCF denotes free cash flow and is measured as (Operating profits before tax + Depreciation & Amortization – Tax paid – Dividend paid)/Total assets and vola is measured as sd(EBITDA)/Total assets.