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Determinants of Dividend Payments of Non-financial Listed Companies in Hồ Chí Minh Stock Exchange

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Abstract: This research aims to examine the determinants of dividend payments of non-financial listed companies in the Hồ Chí Minh Stock Exchange (HOSE) in the period 2007 to 2012. Using the Pooled Ordinary Least Square and the Fixed effect model (FEM) for panel data, the authors found that in HOSE, the profitability of firms is statistically significant and negatively related to payout ratio (DPR). In other words, companies tend to plow back more earnings when profitability increases. Moreover, leverage has a positive and statistically significant relationship with DPR. There are no statistically significant differences in DPRs among accommodation services, mineral ore exploitation, investment consulting services and related services, supporting services, scientific and technical services and the other services industry. Meanwhile, DPRs in the remaining industries are statistically lower than those of the above-mentioned industries.

Keywords: Dividend policy, listed companies, HOSE.

1. Introduction

Vietnamese companies have been operating in a difficult time since Vietnam joined the World Trade Organization (WTO) in 2007. The year 2007 can be considered as the threshold when Vietnam opened its door to the world market. However, with low competitiveness, it has become harder for Vietnamese companies to compete with their foreign rivals, especially when trade protection barriers have been gradually lowered according to WTO agreements. In such a difficult context, dividend policy, which is part of financing policy, has become more important for Vietnamese companies. The decision of whether a company should pay out all its net income as dividends, or plow back part or all of its net income for reinvestment, is the key decision. If companies decide to keep a high dividend payout ratio, they may please shareholders, especially when other channels of investment such as real estate turn sour and deposit rates plummet. However, a high dividend payout policy can be costly in case the companies have to search for external financing for their investment projects. A low (or even no) dividend payout policy, on the other hand, may save the company from seeking outside financing. Yet a low dividend payout policy may not attract short-term

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investors who have the desire for current income.

In Vietnam, most studies of dividend policy are qualitative in nature. To the best knowledge of the authors, there have been no extensive studies on the dividend policy of Vietnamese listed companies during the 2007-2012 period that use quantitative models to identify the key determinants of dividend payments. This paper fills the gap in the literature review about dividend policy in Vietnam, particularly in HOSE during the 2007-2012 period.

This research aims to examine the determinants of dividend policy of listed companies in HOSE from 2007 to 2012. Regarding this main objective, this paper will aim to answer the following two research questions:

- What are the firm-specific factors that can affect the dividend policy of listed companies in HOSE?

- Are there any differences in the dividend policy among industries?

Besides this section, this paper consists of five more sections. Section 2 presents the theoretical background of dividend policy and summarizes previous empirical studies on determinants of dividend policy. Section 3 investigates the dividend payment practice of listed companies in HOSE. Section 4 introduces the regression model and section 5 presents data analysis and findings from the regression results. Finally, section 6 concludes the paper.

2. Literature review

Dividend policy is an integral part of a firm's financing decision. When a firm's investments generate free cash flow, it must decide how to use that cash. It can reinvest the cash in new investment opportunities and increase the value of the firm. Alternatively, it can hold those funds to pay cash out to shareholders. If the firm decides to follow the latter approach, it has two choices: It can either pay a dividend or it can repurchase shares from current owners.

Dividend is defined by Ross et al. (2007) as the payment made out of a firm's earnings to its owners in the form of either cash or stock. The most common type of dividend is a cash dividend. A public company's board of directors determines the amount of the firm's dividend. The board sets the amount per share that will be paid and decides when the payment will occur.

An alternative way to pay cash to investors is through a share repurchase. In this kind of transaction, the firm uses cash to buy shares of its own outstanding stock. These shares are generally held in the corporate treasury and they can be resold if the company needs to raise money in the future.

Theories on dividend policy are derived from the pioneering work of Miller and Modigliani (M&M). In their seminar paper in 1961, M&M argued that the change in dividend policy does not affect the value of a share of stock. Their arguments were based on the following assumptions: (1) Firms are operating in perfect markets, which means that there are neither taxes nor brokerage fees, and no single participant can affect the market price of the security through his or her trades; (2) All individuals have the same beliefs concerning future investments, profits, and dividends, i.e., these individuals have homogeneous expectations; (3) The investment policy of the firm is set ahead of time, and is not altered by changes in dividend policy. Given those

assumptions, M&M established that a firm's value is affected only by its investment decisions, its earning power and business risks, but not by its dividend policy. The changes the managers make in dividend policy can be undone by investors by either reinvesting dividends or selling off stocks to achieve their desired dividend stream.

However, real world financial markets do not satisfy the strict conditions of perfect capital markets. The presence of market imperfections, such as taxes, asymmetric information, agency costs and transaction costs implies that dividend policy is relevant to the firm's value under several contexts.

There are two theories that support the positive effect of dividend payments on firm value. The first theory is the bird-in-hand theory proposed by Gordon and Walter (1963), which argues that since investors are risk-averse, they prefer the current dividend to a promise of a higher but risky income in the future. In other words, "One bird in the hand is worth more than two in the bush". The second theory that favors dividend payment is the agency cost theory, which was first mentioned by Rozeff (1982) and Easterbrook (1984). The agency theory implies that dividend payments play the role of keeping cash away from managers, and therefore, reduce the agency costs for the company.

Two other theories recognize the relevance of dividend policy under certain conditions. The signaling theory (which was discussed in Bhattacharya (1979, 1980), Ross (1977), Miller and Rock (1985)) argues that in a world with asymmetric information, dividend policy affects stock prices when the dividend policy signals future prospects of the firm. In the context where investors belong to different tax brackets, the tax clientele theory (pointed out in John Graham and Alok Kumar (2006)), establishes that the dividend policy is relevant as long as there remains a difference in the demand and supply of high-dividend paying stocks. As long as the demand for high-dividend-paying stocks has been satisfied, dividend policy becomes irrelevant.

On the contrary, the transaction cost theory argues against dividend payments (Fama (1974), Higgins (1972)). The transaction cost theory argues that firms with high transaction costs of equity or debt issuance should pay less dividends, since it will cost them more to raise external financing to meet investment needs. The pecking-order theory (see Myers (1984), and Myers and Majluf (1984)) asserts that firms with more investment opportunities pay less dividends, since those firms prefer internal financing to issuing securities to finance their investment needs.

Based on various theories, a number of empirical studies have been conducted to research the determinants of dividend policy. A list of dividend policy determinants collected from empirical studies is provided in Table 1.

Table 1: Independent variables-determinants of dividend payout ratio

Independent Variable	Proxy	Expected sign	Explanation	Supporting theory	Authors
Ownership dispersion	Number of common stockholders /Total outstanding shares	(+)	The more dispersed the ownership structure, the more severe the agency problems and thus the need for monitoring managers also increases. If dividends can act as a monitoring mechanism by reducing cash available	Agency theory	Rozeff (1982) Alli et al. (1993) Chen and Dhiensiri

			for managers' perquisite consumption, a positive relationship between dividend-payout ratio and ownership dispersion is expected.		(2009)
Insider ownership	Percentage of common stock held by managers	(-)	One of the ways to reduce the agency conflict between stockholders and managers is to increase managers' common stock ownership in the firm to better align their interest with stockholders' interests. The higher the proportion of common stock held by managers, the lower the agency problem and thus there is a reduction in the role of dividends as a monitoring tool to control agency costs. Thus, an inverse relationship between insider ownership and dividend-payout ratio is expected.	Agency theory	Rozeff (1982) Alli et al. (1993) Chay and Suh (2009) Chen and Dhiensiri (2009)
Free cash flow	FCF/Total assets	(+)	The free cash flow hypothesis suggests that firms with fewer growth opportunities and more free cash flow should pay higher dividends to prevent managers from investing the cash at below cost of capital or spending it on wasteful activities	Agency theory	Amidu and Abor (2006) Ahmed and Javid (2009) Gill et al. (2010) Mehta (2012) Malik et al. (2013)
Collateralisable assets	Net fixed assets/Total assets	(+)	A firm with more collateralisable assets has fewer agency problems between shareholders and bondholders because these assets may serve as collateral against borrowing. The higher the collateralisable assets, the less likely bondholders will impose severe restrictions on the firm's dividend policy, and hence, this will lead to a higher level of dividend payments.	Agency theory	Chen and Dhiensiri (2009)
Cash flow volatility	Standard deviation from the mean of the ratio of operating cash flows to total assets	(-)	Dividends act as a signal for the stability of the firm's future cash flows. If a firm's cash flow is volatile, firms maintain a low dividend payout ratio to avoid having to cut dividends in the future	Signaling theory	Chen and Dhiensiri (2009)
Size	Log of sales	(+)	Larger firms tend to have easier access to capital markets, lower issuing costs and higher agency costs (Smith, 1977; Jensen and Meckling, 1967). Therefore, a positive relationship is expected between size and dividend payout ratio.	Transaction cost theory Agency cost theory	Alli et al. (1993) Eriotis (2005) Naceur et al (2006) Chay and Suh (2009) Chen and Dhiensiri (2009) He et al.

					(2009) Ahmed and Javid (2009) Rafique (2012) Mehta (2012) Malik et al. (2013)
Risk (Beta)		(-)	Higher beta implies that the firm's stock is more risky and volatile in the market, resulting in higher transaction costs of external finance (Rozeff, 1982). Firms with high equity beta will lower the dividend payout to lower the cost of external financing, and hence a negative relationship is expected between beta and payout ratio.	Transaction cost	Rozeff (1982) Chen and Dhiensiri (2009)
Growth	Sales growth	(-)	If past or anticipated future growth is rapid, then managers tend to conserve funds for reinvestment by establishing a lower payout ratio (Rozeff, 1982). Hence a negative relationship is expected between growth rate and dividend payout.	Transaction cost	Rozeff (1982) Lloyd et al. (1985) Alli et al. (1993) Collins et al. (1996) D'Souza (1999) Amidu and Abor (2006) Chen and Dhiensiri (2009) He et al. (2009) Gill et al. (2010) Rafique (2012) Malik et al. (2013)
Profitability	Earnings before interest and taxes/Total assets	(+)	Since it is expensive to finance investment with new risky securities, dividends are low for firms with less profitability. Thus, controlling for other effects, more profitable firms pay more dividends.	Pecking-order theory	Lintner (1986) Jensen et al. (1992) Han et al. (1999) Fama and French (2000) Naceur et al (2006) He et al. (2009) Ahmed and Javid (2009) Al-Kuwari (2009) Gill et al.

					(2010) Rafique (2012) Mehta (2012) Malik et al. (2013)
Financial leverage	Debt/Equity	(-)	-Firms that are highly levered tend to have high transaction costs, which then lead to a reduction in dividend payments in order to avoid the cost of external financing (Rozeff, 1982; Myers, 1984) -When a firm obtains debt, it makes a fixed commitment to creditors, which then reduces the discretionary funds available to managers and subjects them to the scrutiny of debt-suppliers. As a result, highly leveraged companies will pay lower dividends (Jensen, 1986)	Pecking order theory Transaction cost theory Agency cost theory	Lloyd et al. (1985) Crutchley and Hansen (1989) Jensen et al. (1992) Agrawal and Jayaraman (1994) Collins et al. (1996) D'Souza (1999) Faccio et al. (2001) Gugler and Yurtoglu (2003) Al-Malkawi (2008) Naceur et al (2006) Al-Kuwari (2009) He et al. (2009) Ahmed and Javid (2009) Gill et al. (2010) Rafique (2012) Mehta (2012) Malik et al. (2013)

Source: Authors' summary.

3. Dividend payment of listed companies in HOSE in the period of 2007-2012

Data related to the dividend payments of 286 non-financial listed companies in HOSE was collected for the period from 2007 to 2012. From the database, we make the following observations on forms of dividend payments and dividend payout ratios.

Figure 1 shows that most firms listed in HOSE paid a cash dividend during 2007-2012. On average, 66.1% of the total number of listed firms in HOSE paid a cash dividend in the study period. However, the proportion declined in recent years, from 75.8% in 2008 to 46.8% in 2012. Meanwhile, the proportion of firms not paying any type of dividends increased from 1.9% in 2007 to 45.4% in 2012. As a result, in 2012, the proportion of firms that did not pay

any type of dividends approximately equaled the proportion of firms that paid cash dividends. Firms also tended to pay less stock dividends. The number of firms paying stock dividends accounted for 14.4% in 2007, however, this proportion fell to 2.8% in 2012. The proportion of firms paying both cash dividends and stock dividends also declined from 16.3% in 2007 to 4.9% in 2012 (Data file provided by Vietstock company).

As can be observed from Figure 2, the cash dividend payout ratio, defined as the cash dividend per share divided by earnings per share, climbed up and down during 2007-2009 before steadily increasing in the period of 2009-2012. In particular, DPR rose from 30.1% in 2009 to 46% in 2012. The increasing trend in DPR is due to the fact that earnings per share (EPS) in HOSE was declining at a faster rate than the decrease in dividend yield. Figure 3 indicates that EPS was on a downward trend since 2009 and fell by more than half, from VND 4,433 per share in 2009 to VND 2,097 per share in 2012. (Data file provided by Vietstock). Meanwhile, the cash dividend yield, defined as cash dividend per share divided by par value, increased in the 2009-2010 period before declining gradually from 14.6% in 2010 to 9.6% in 2012 (see Figure 4). EPS in HOSE went down by 2.11 times from 2009 to 2012, while dividend per share declined by 1.38 times in the same time period.

In conclusion, the dividend payment practices of non-financial listed companies in HOSE in 2007-2012 can be characterized as follows:

- Most firms paid dividends in the form of cash dividends. However, the proportion of firms paying cash dividends tended to decline, while the proportion of firms that paid no dividends rose. The proportion of firms paying stock dividends also decreased.

- EPS declined dramatically, but dividend yield (calculated on par value) declined at a slower pace, hence cash DPR was still rising.

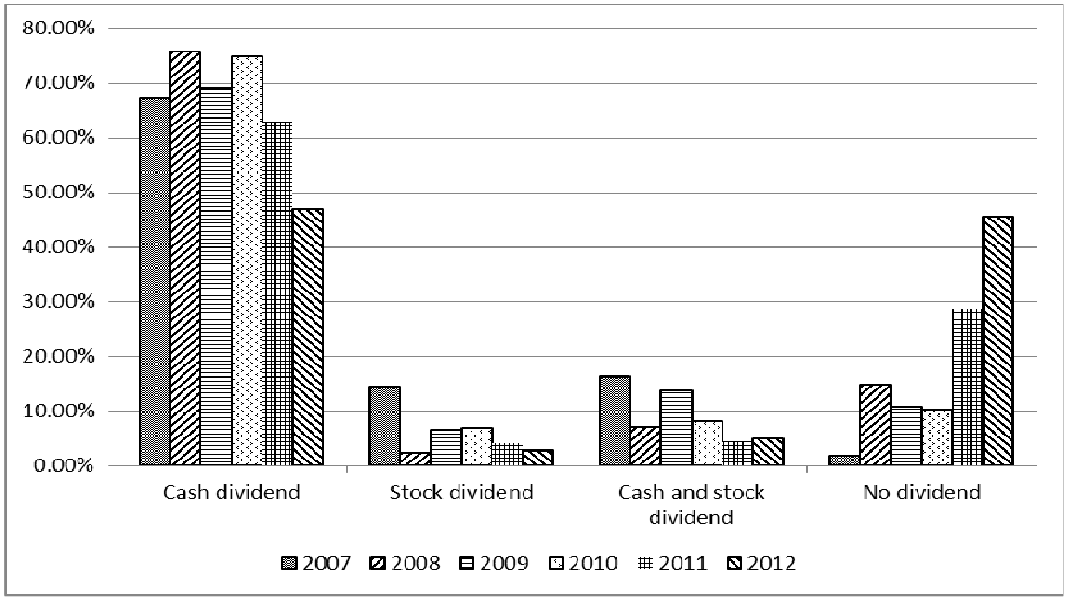

Figure 1: Proportions of firms with various forms of dividend payments in HOSE over the 2007-2012 period.
Source: Data file provided by Vietstock.

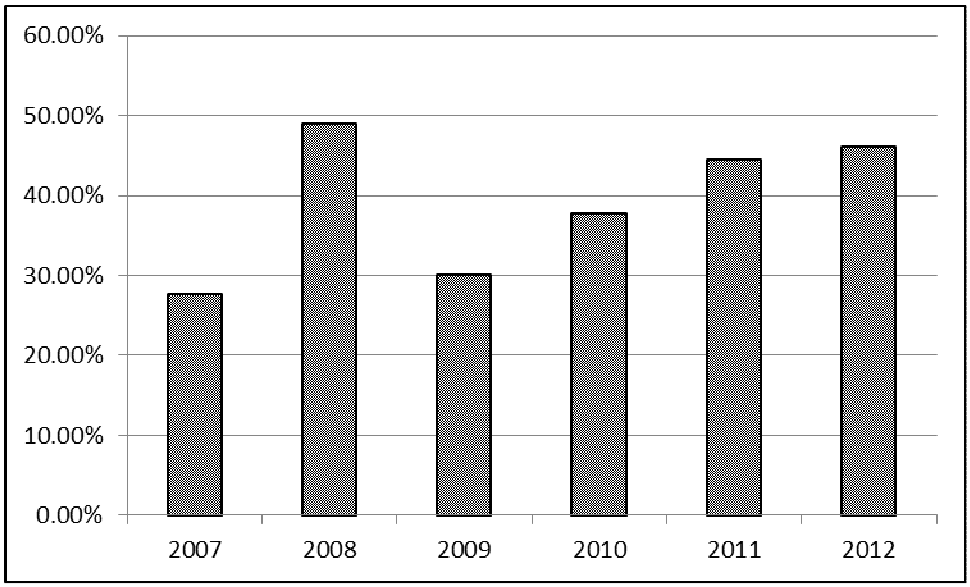

Figure 2: Average cash dividend payout ratio of companies listed in HOSE (2007-2012).
Source: Data files provided by Vietstock.

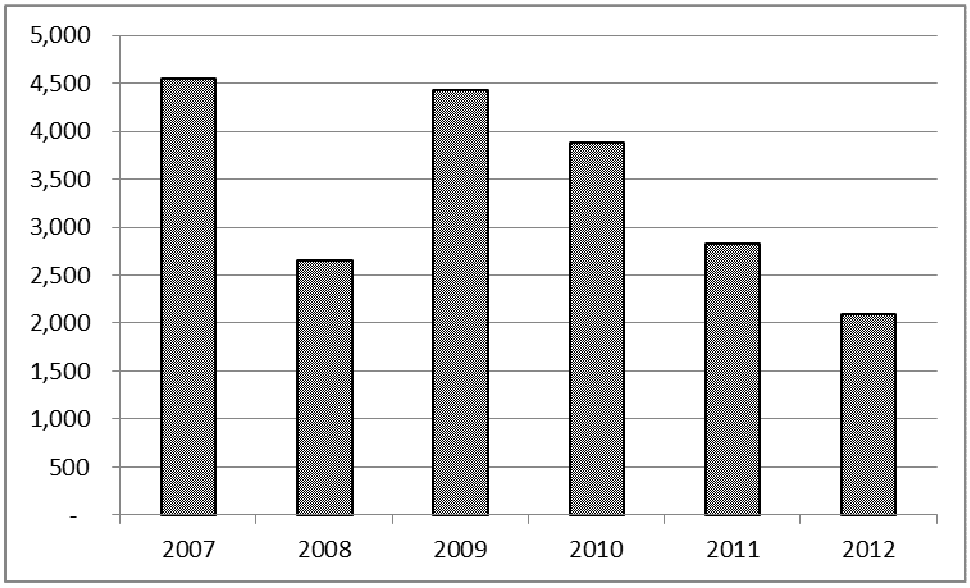

Figure 3: Average EPS of companies listed in HOSE (2007-2012).
Source: Data file provided by Vietstock.

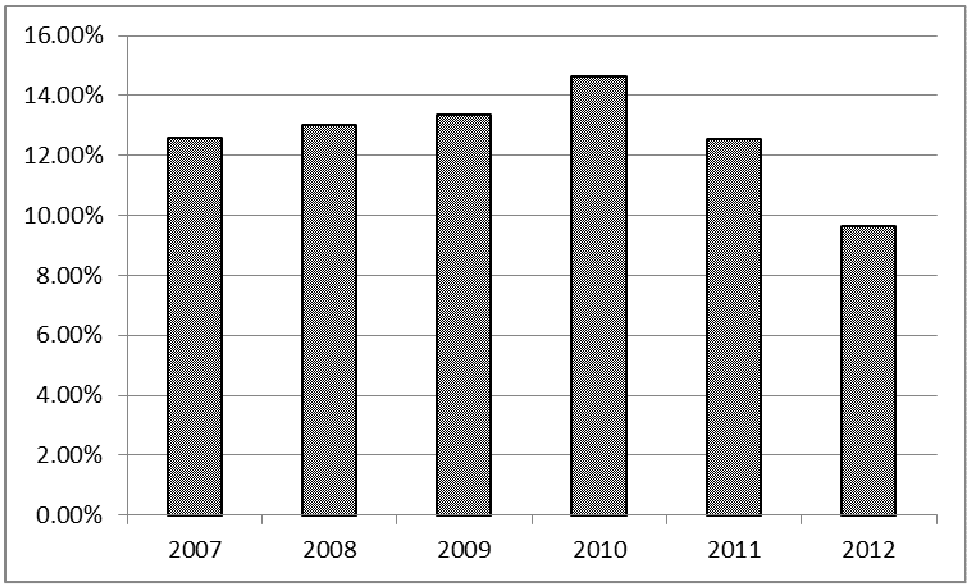

Figure 4: Average cash dividend yield (on par value) of companies listed in HOSE.
Source: Data file provided by Vietstock.

4. Regression model

In this section, we conduct an empirical study on the determinants of cash dividend payout ratio of non-financial listed companies in HOSE. Only the cash dividend payout ratio is considered since cash dividend is the most popular form of dividend payments in HOSE in the period 2007-2012 as discussed in section 3. In addition, beside the inaccuracy and complexity of converting value of stock dividend into cash, stock dividend is not considered for analysis because of the inconsistency in the way of calculating stock dividend values among firms.

The limitation of relevant information and the stability in dividend policy of financial firms explain why this study only concentrates on non-financial firms. For financial institutions, such as banks and insurance companies, the stability, including the stability in dividend payment, is the priority to win the trust of their customers. The cut or reduction in dividend payment may result in unfavorable reactions from the market. Hence, the dividend payout ratios of financial firms do not show much volatility compared with those of non-financial firms. Thus, we find it more interesting to research the dividend payments of non-financial listed firms.

4.1. Hypothesis

Due to information unavailability for ownership dispersion and cash flow volatility, the study only includes eight firm-specific factors assumed to have effects on cash DPR of listed companies in Vietnam, which are insider ownership, free cash flow, collateralisable assets, firm size, firm risk, growth opportunities, profitability and financial leverage. Based on the theoretical arguments presented in the literature review, the corresponding hypotheses about the relationship between each independent variable and the dependent variable are as follows:

H_1: There is a negative relationship between insider ownership and DPR

H_2: There is a positive relationship between free cash flow and DPR

H_3: There is a positive relationship between the level of collateralisable assets and DPR

H_4: There is a positive relationship between firm size and DPR

H_5: There is a negative relationship between firm risk and DPR

H_6: There is a negative relationship between growth opportunity and DPR

H_7: There is a positive relationship between profitability and DPR

H_8: There is a negative relationship between financial leverage and DPR

4.2. Methodology

In investigating the determinants of dividend payout ratio, data was collected on 286 non-financial listed companies in HOSE during the 2007-2012 period.

Our data set is panel data, which contains observations on multiple companies observed over a 6 year period. One appropriate method for panel data is to use the Pooled Ordinary Least Square (Pooled OLS) regression model. However, since the Pooled OLS assumes the intercept value of all cross-sectional unit are the same, and that the slope coefficients of the independent variables are identical for all the individuals, it may distort the true picture of the relationship between the dependent variables and the independent variables across the individuals.

In order to take into account the specific nature of each individual, the fixed effect model (FEM) can also be used. First, FEM will be run in terms of cross section and time, allowing for differences across individuals and differences in time effect, respectively. Then, we take into account both the individual and the time effects by running the FEM in both cross section and time concurrently.

In order to choose between the Pooled regression model and the FEM, we check the statistical significance of the estimated coefficients, the R^2 value and the Durbin-Watson value. We can also use the restricted F test to check the validity of the restricted model (the Pooled OLS). If F value is highly significant, it means that the Pooled OLS is invalid, and we may prefer the FEM to the Pooled OLS.

Although straightforward to apply, fixed effects modeling can be expensive in terms of degrees of freedom if we have several cross-sectional units. We use FEM in case there are relevant explanatory variables that do not change over time, and those unobserved variables may have correlation with the explanatory variables. However, if there is no correlation between the error term and the explanatory variables, we use the Random effect model (REM) to run the regression. In order to choose between FEM and REM, we conduct a test developed by Hausman (1978). The null hypothesis underlying the Hausman test is that the FEM and REM estimators do not differ substantially. If the null hypothesis is rejected, the conclusion is that REM is not appropriate and that we may be better off using FEM.

4.3. Regression model and variable definitions

Our model can be written as:

$$DPR_{it} = \beta_0 + \beta_1 INSIDER_{it} + \beta_2 FCF_{it} + \beta_3 NFA_{it} + \beta_4 SIZE_{it} + \beta_5 BETA_{it} + \beta_6 GROWTH_{it} + \beta_7 ROA_{it} + \beta_8 LEVR_{it} + \varepsilon_i \quad (1)$$

The extended model includes eight non-dummy explanatory variables and industry dummies can be specifically expressed as:

$$DPR_{it} = \beta_0 + \beta_1 INSIDER_{it} + \beta_2 FCF_{it} + \beta_3 NFA_{it} + \beta_4 SIZE_{it} + \beta_5 BETA_{it} + \beta_6 GROWTH_{it} + \beta_7 ROA_{it} + \beta_8 LEVR_{it} + \Sigma \lambda_j (INDS_j)_i + \varepsilon_i \quad (2)$$

where j denotes industry dummies.

The variables with their definitions are summarized in Table 2.

Table 2: Variable definitions

Variable's name	Definition
Dependent Variable	
DPR	Defined as cash dividends per share divided by EPS
Independent Variables	
INSIDER	Defined as number of shares owned by the top manager divided by total number of shares outstanding
FCF	Defined as free cash flow divided by total assets
NFA	Defined as net fixed assets divided by total assets
SIZE	Defined as the natural logarithm of total sales
RISK	Defined as the company stock's beta
GROWTH	Defined as the percentage of change in a firm's sales
PROF	Defined as net income divided by total assets
LEV	Defined as total debts(1) divided by total shareholders' equity
INDS	1 if the firm belongs to the industrial sector otherwise

Source: Authors' variable definitions.

5. Data analysis and findings

5.1. Descriptive statistics

Table 3 shows the descriptive statistics for dependent and independent variables used in the regression for companies listed in HOSE. The dividend payout ratio of 286 non-financial listed firms has a mean value of 57% with a standard deviation of 59%. This means, on average, listed firms in HOSE use 57% of their earnings to pay dividends to shareholders. The high gap between the maximum and the minimum DPRs reflects the wild fluctuations in the dividend payment practices of listed firms in HOSE. The minimum DPR is a negative number, which reflects the case that the company maintains its dividend payment despite a negative EPS. Like the dependent variable, independent variables have their mean and median relatively close to each other, therefore eliminating the problem of outliers.

(1) The total debts exclude account payables and other payables.

Table 3: Descriptive statistics for listed firms in HOSE

Variable	DPR	INSIDER	FCF	NFA	SIZE	BETA	GROWTH	ROA	LEV
Mean	0.57	0.05	0.01	0.29	11.88	0.84	0.32	0.09	1.36
Median	0.52	0.01	0.01	0.25	11.86	0.84	0.19	0.07	1.01
Maximum	10.37	0.60	0.45	0.95	13.42	10.05	23.14	0.50	22.77
Minimum	-6.49	0.00	-0.48	0.01	9.24	-7.80	-0.73	-0.06	0.00
Std. Dev.	0.59	0.10	0.09	0.20	0.52	0.83	1.06	0.08	1.62
Skewness	5.04	3.26	-0.16	1.14	-0.22	0.00	15.17	1.65	5.96
Kurtosis	144.08	13.86	8.16	4.13	5.11	57.06	310.95	6.62	65.02
Jarque-Bera	575964.80	4619.22	768.32	187.02	133.52	84130.83	2756931.00	688.57	114836.40
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	393.39	31.16	8.49	197.05	8209.67	579.51	224.28	65.16	937.39
Sum Sq. Dev.	240.78	6.94	5.80	26.95	188.57	471.95	780.76	4.00	1813.04
Obs	691	691	691	691	691	691	691	691	691

Source: Table extracted from Eviews software.

5.2. Multicollinearity test

Table 4 shows the correlation coefficient among variables of listed companies in HOSE. The table reveals that most of the independent variables had low correlation with the others, at the highest absolute value of 0.392. The low correlations among independent variables are a great signal for eliminating multicollinearity. The correlations between the dependent variables and the independent variables will be tested with the regression models in later parts.

Table 4: The correlation coefficients between variables of listed companies in HOSE

	DPR	INSIDER	FCF	NFA	SIZE	BETA	GROWTH	ROA	LEV
DPR	1								
INSIDER	0.066	1							
FCF	-0.091	-0.004	1						
NFA	0.047	-0.057	-0.077	1					
SIZE	-0.014	0.081	0.055	-0.066	1				
BETA	0.003	0.020	-0.033	-0.067	-0.001	1			
GROWTH	-0.032	0.041	0.042	-0.036	0.000	0.089	1		
ROA	-0.201	-0.111	0.147	-0.064	-0.045	-0.043	0.062	1	
LEV	0.059	0.018	-0.011	-0.053	0.243	0.028	-0.003	-0.392	1

Source: Table extracted from Eviews software.

5.3. Regression analysis

First, the Hausman test is conducted to determine whether FEM or REM is a more appropriate model. The Chi-Square Statistic and Probability in Table 5 indicate that we should reject the null hypothesis and choose the Fixed Effect Model.

Table 5: Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	24.610876	8	0.0018

Source: Table extracted from Eviews software.

Table 6: Regression results for Pooled OLS and FEMs

Method	Pooled OLS	FEM (fixed cross section)	FEM (fixed period)	FEM (fixed cross section and period)
Variables				
C	0.9277*	-2.5182	1.1204**	1.9842
INSIDER	0.2898	-0.3806	0.2942	-0.5884
FCF	-0.3773	-0.4072	-0.2447	-0.2659
NFA	0.0926	-0.0494	0.1007	-0.0118
SIZE	-0.0204	0.2701	-0.0383	-0.1159
BETA	-0.003	0.0015	0.0084	0.0051
GROWTH	-0.0104	-0.0162	-0.0067	0.0228
ROA	-1.4695***	-2.8737***	-1.4381***	-2.4436***
LEV	-0.0039	0.1393***	-0.0027	0.1581***
R squared	0.0483	0.4487	0.0625	0.461
AdjustedR-squared	0.0372	0.151	0.0445	0.1605
F stat	4.3332	1.5072	3.4765	1.534
Prob (F-stat)	0.000041	0.000104	0.00003	0.000052
DW value	1.0351	1.7813	1.0328	1.7928

*, **, *** *Correlation is significant at the 0.1, 0.05 and 0.01 levels.*
Source: Table extracted from our regression results using Eviews software

From Table 6, FEM is better than the Pooled OLS since R-squared is higher in all three FEMs. Among the three FEMs, the FEM with fixed cross section and fixed period is chosen since this model has higher R-squared than FEM with fixed cross section and FEM with fixed period; and has more variables with statistical significance than the FEM with fixed period.

The Breusch-Pagan test is then conducted to check for heteroskedasticity problem in the chosen model. The R-squared of the residual regression model is 0.0193. With k = 8 and n = 691, the F statistic = 1.679, which is smaller than the critical value at 5% significance level F = 1.94. Therefore we cannot reject the null hypothesis of homoskedasticity. It means there is no heteroskedasticity in the model.

From Table 6, the FEM with fixed cross section and fixed period indicates that ROA is statistically significant and negatively related to DPR. In addition, LEV has a positive and statistically significant relationship with DPR.

Specifically, the regression result shows that when ROA increases by 1%, DPR decreases by 2.44%. The result obtained from our model is contrary to theoretical predictions. According to the pecking-order theory, dividends are lower for firms with less profitability, since it is expensive to make financial investments with new risky securities. In other words, more profitable firms will pay more dividends.

Our model also indicates that when financial leverage increases by 1%, DPR increases by around 0.16%. This result is unexpected from the transaction cost theory's point of view. According to Rozeff (1982), and Myers (1984), firms that are highly levered tend to have high transaction costs, which then lead to a reduction in dividend payments. Jensen (1986) also argued that when a firm obtains debt, it makes a fixed commitment to creditors, which then reduces the discretionary funds available to managers and subjects them to the scrutiny of debt suppliers. As a result, highly leveraged companies will pay lower dividends.

The regression results indicate some unique features of listed companies in HOSE in the 2007-2012 period. Those companies tend to plow back more earnings when profitability increases. One possible explanation for this is that since the study period is between 2007 and 2012, in which the Vietnamese economy is under enormous fluctuations due to external economic shocks and internal economic problems, it becomes harder for firms to earn profits. As a result, firms tend to retain more earnings when their ROA increases to backup for a later time when the business may run into difficulties.

The positive relationship between financial leverage and DPR is also unique in the case of Vietnam. The financial leverage is calculated by taking short-term debt (excluding account payables and other payables) plus long-term debt divided by equity. According to our data file, short-term debts on average account for 78.6% of total debts of listed firms in HOSE. We have conducted interviews with financial experts and asked for their explanation for the positive relationship between financial leverage and DPRs of non-financial listed firms in HOSE. They confirm the fact that companies may borrow to pay dividends since it is not prohibited in Vietnam's Law on Enterprises. In addition, there are a number of firms whose managers are also investors in the stock market, and when the stock price is declining, they borrow money to pay dividends for shareholders (including themselves) to offset their loss in their stock investment. Also, firms that incur loss tend to borrow to maintain the dividend payments because they want to preserve their reputation in the market.

Next, we run the regression for the Equation (2) in section 4.3. Table 7 shows the Pooled OLS regression model for 8 independent variables and the dummy variables.

Table 7: Regression result with dummy variables

Method	**Pooled OLS**
Variables	
C	1.7417***
INSIDER	0.1992
FCF	-0.4247*
NFA	0.0856

SIZE	-0.0279
BETA	-0.0031
GROWTH	-0.0057
ROA	-1.7768***
LEV	-0.0014
Dmanuf	-0.6409*
Dagr	-0.6489*
Dreal	-0.8056**
Dutility	-0.6256*
Dmineral	-0.5464
Dcom	-0.7251**
Dconstruct	-0.7597**
Dtech	-0.8314*
Dtransport	-0.8877**
Daccom	-0.4347
Dinvestconslt	-0.791
Dsupport	-0.7242
Dscientech	-0.6265
R squared	0.0738
AdjustedR-squared	0.0448
F stat	2.5417
Prob (F-stat)	0.000186
DW value	1.0571

**, ** Correlation is significant at the 0.1, and 0.05 levels.*
Source: Table extracted from our regression result using Eviews software.

In Table 7, Dmanuf, Dagr, Dreal, Dutility, Dmineral, Dcom, Dconstruct, Dtech, Dtransport, Daccom, Dinvestconslt, Dsupport and Dscientech are dummy variables for the manufacturing industry, agricultural-forestry-fishery industry, real estate industry, public utility industry, mineral ore exploitation industry, commerce industry, construction industry, technology and telecommunication industry, transportation and storage industry, accommodation service industry, investment consulting services and related services, supporting services industry, and the scientific and technical services industry. The base industry which is not included in the model is the "other services" industry[(2)].

The regression result in Table 7 indicates that there are no statistically significant differences in the DPRs among accommodation services, mineral ore exploitation, investment consulting services and related services, supporting services, scientific and technical

[(2)] The companies classified in the "other services" industry in HOSE include Western Bus Station Joint-Stock Company and Electrical and Technical Service Joint-Stock Company. The former was listed in 2010 and the latter was listed in 2011. Therefore data are not available for the years before 2010.

services and the other services industry. Meanwhile, the DPRs in the remaining industries are statistically lower than the DPRs in the other services industry.

Based on the regression result, Table 8 classifies industries into three groups according to the cash DPRs. Group 1 consists of industries that have high DPRs, including accommodation services, mineral ore exploitation, investment consulting services and related services, supporting services, scientific and technical services and the other services industry. Group 2 includes industries that have DPRs around 60% lower than the DPRs of the other services industry, which are utility, manufacturing, and agricultural-forestry-fishery industry. Finally, Group 3 lists those that have DPRs that are more than 70% lower than the DPRs of the other services industry, including commerce, construction, real estate, technology and telecommunication, transportation and storage.

Table 8: Groups of industries based on rankings of cash DPRs

Group	Industries
1	Other services, Mineral ores, Investment consulting, Supporting services, Scientific and technical services, Accommodation
2	Utility, Manufacturing, Agricultural-Forestry-Fishery
3	Commerce, Construction, Real estate, Technology and telecommunication, Transportation and storage

Source: Authors' rankings of industries based on the regression results

6. Conclusion

This paper investigates the dividend payments of non-financial listed companies in HOSE in the 2007-2012 period. The qualitative discussion reveals that companies tend to reduce or even pay no dividends in difficult times for the economy. Between cash dividend and stock dividend, cash dividend is the major form of dividend payments, indicating the attractiveness of cash in the context of economic hardship and stock market slump.

The regression models using panel data identify that ROA is statistically significant and negatively related to DPR. In other words, firms tend to plow back more when profitability increases. In addition, financial leverage has a positive relationship with DPR, which is different from the theoretical prediction of the relationship between financial leverage and dividend payment. Other firm-specific variables have no effects on DPR.

In the period of study, the Vietnamese economy experienced major ups and downs due to both the international economic crisis and domestic economic problems. As a result, firms tend to be more cautious in their dividend payments. According to some financial experts that we interviewed, when the economy gets tough, firms tend to reserve funds to backup for future uses. This is reflected in the negative relationship between ROA and DPR. On the other hand, the positive relationship between financial leverage and DPR reflects the fact that firms tend to borrow money to pay dividends for various reasons, including keeping the company's reputation, or offsetting the managers' loss in their stock investment.

Finally, the regression result shows that there are statistically significant differences in the DPRs among industries. Mineral ores, accommodation and service industries are among those that have high DPRs. Meanwhile, construction, real estate,

commerce, technology and telecommunication, and transportation and storage industries are those that maintain lower DPRs.

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