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Impacts of Capital Structure and Dividend Policy on the Financial Performance of Listed Companies on Vietnamese Stocks Market

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Abstract

This study is taken to describe the relationship between the levels of debt, dividend policy and the performance of firms listed in Vietnamese stock market. The dividend policy is proxied by the dividend yield while firm's performance is measured by ROE, ROA, and P/E. The total number of observations is 552, collecting from 92 listed companies on Hochiminh Stock Exchange during 2012 and 2019. The analysis results from generalized least squares (GLS) models report that the choice of firm's performance proxy affects the relationship between firm's performance and leverage as well as dividend policy. While leverage has positive impact on ROE and ROA, it has negative impact on P/E. In contrast, dividend yield ratio is negatively correlated with ROA and P/E but positively correlated with ROE. However, the impact of debt levels on firm's performance is independent with the choice of leverage proxy. The findings of this research are expected to provide better understanding about the connection between debt, dividend and performance of the firm that can support the managers to make relevant decisions.

Keywords: Leverage, Dividend Yield, ROA, ROE, P/E, Financial Performance

1. Introduction

Firm's financial performance is one of the main concerns of firm's managers. Among factors that affecting the firm performance, capital structure is an important factor that relates to the relationship among managers, stockholders and creditors. The firm's managers must give solutions to these questions: how much debt the firm should maintain? Should firm issue debt to fund new projects? The managers should concern about the pros and cons of using debt especially the impact of debt levels to firm's performance.

While there is no specific level of debt that is optimal for a firm, the discussion about debt-to-equity ratio has been the central in corporate finance. Modigliani and Miller (1958, 1961) have explored the relationship between debt levels and firm value as well as firm's cost of capital in the world with tax and without tax. Modigliani and Miller (1958) state that without the existence tax subsidy, the value of a company using debt is the same as the one of that company funded by equity only. However, in the world with tax, the value of the firm rises as the company is more leveraged (Modigliani and Miller, 1961). According to the trade-off theory, the tax shield from taxable interest expense can be offset by the financial distress costs. The financial distress costs may lower the firm's value and increase the firm's cost of capital. Thus, the trade-off theory suggests that the debt level a firm should maintain is the amount that balances the tax benefit from using debt and the additional costs involved.

Jensen and Meckling (1976) discuss the agency costs arising from the conflicts between managers and stockholders to explain firm's capital structure decision. Managers have incentive to use debt as they are forced to pay out cash instead of using equity to finance inefficient investments. However, when a company uses debt, interest conflicts between creditors and stockholders require the managers to pursue selfish strategies. The selfish strategies include taking riskier projects, accepting projects with negative NPV, or making high dividend payout. As a result, the agency costs may lower the firm's value.

The selfish strategies discussion by Jensen and Meckling (1976) suggests other variables such as dividend should be added into the model to provide clearer understanding of the relationship between capital structure and firm's financial performance. Therefore, the incorporating of dividend policy to explain the impact of leverage on firm's performance can be seen in recent literature (Basil, 2011; Ince & Owers, 2012; Banerjee & De, 2015; Abbas et al., 2016, Alex and Tse, 2018). However, there is limited number of reports describing the impact of dividend policy on firm's financial performance as an explanatory factor in the model.

In Vietnam, the development of security markets especially bond market recently provides more capital channels for listed companies besides the traditional source of capital from banks or credit institutions. The availability of debt helps the firm to raise capital easily but the impacts of debt on firm's performance should not be ignored in capital structure decision making. From literature review on agency costs, this research is taken to explore the relationship among dividend policy, debt levels and firm performance which is measured by 3 different variables of ROE, ROA, and P/E of listed companies in Vietnamese stock market. The findings of this paper are expected to bring clearer understanding the relationship between leverage, dividend policy and firm's performance.

Literature review shows that the relationship between debt levels and firm's performance can be positive (Margaritis & Psillaki, 2007; Fosu, 2013; Mujahid, Akhtar, 2014), negative (Salim & Yadav, 2012; Abdul, 2012) or mixed (Abor, 2005; Khan, 2012). In addition, the relationship from those variables depends on the choice of firm performance proxies (Salim & Yadav, 2012; Abor, 2005). There is also evidence on little impact of leverage on firm's performance (Edbaid, 2009) or curvilinear relation between debt and firm's performance (Ju-Ann et al., 2010).

Margaritis & Psillaki (2007) report the positive relationship between leverage and firm's performance in their research on 12,240 companies in New Zealand. Fosu (2013) collects total debt-to-total asset ratio as a proxy of leverage and ROA as a measure of performance from 257 companies in South Africa. Fosu (2013) also pays attention to the competition level of the industry while assessing the relationship between leverage and firm's performance. The results report that leverage has a positive effect on firm performance measured by ROA. Salim & Yadav (2012) apply 4 proxies for performance of the firm including ROA, ROE, Tobin's Q, and EPS to illustrate their relationships with leverage while leverage is measured by not only the debt ratio but also the debt growth rate. Dividing data into six different sectors, the analysis outputs emphasize the positive relationship between short-term and long-term debt and Tobin's Q in all sectors. Mujahid, Akhtar (2014) produces similar results when he conducts the regression analysis on data from several textile companies during 2006-2011 in Pakistan. There is also an evidence on positive impact of capital structure on ROA, ROE and EPS calculated for firms in textile sector.

Vătavu (2015) reports that 196 listed companies in Romania are more profitable if they rely more on equity rather than debt during 2003 and 2010. Abdul (2012) conducts a similar research to determine the relationship between capital structure and financial performance of Pakistan companies, proxied by ROA, GM and Tobin's Q. The level of short-term debt and total debt are used to present company's leverage. The analysis shows that firm's leverage and ROA and GM and Tobin's Q are negatively correlated while the relationship between debt level and ROE is insignificant. The relationship between ROE and debt levels is also reported to be negative in the work of Salim & Yadav (2012). Majumdar & Chhibber (1999) examine the sample of firms operating in India having short-term and long-term loans provided by Government-owned institutions. The study suggests that the source of loans from Government-owned entities in India may be the reason for the negative relationship between debt levels and firm's performance in India. According to Abor (2005), there are negative correlation between long-term debt and ROE and a positive relationship between total debt and ROE.

The theories around capital structure decisions such as agency theory and trade-off theory give rise to studies that incorporate other factors for modelling the relationship between financial performance of the firm and the debt levels. Those factors can be ownership dominance (Hess et al., 2010), institutional ownership (Pirzada et al., 2015), cash flow (Kwangmin, 2013) and ownership structure (Margaritis & Psillaki, 2010). Especially, several efforts have been put on examining the interaction between dividends, capital structure, and company's performance.

Alex and Tse (2018) develop an optimal model for dividend policy and capital structure that connects to financial performance indicators. A firm having high level of debt prefers to maintain higher dividend payout as an action to protect stockholders. In order to offset the equity's decrease, the company borrows more to improve its income. Fliers (2016) on the other hand, investigate company's ability to change capital structure as an explanatory of dividend paying behaviour. It is stated in his work that firm which is flexible in changing debt levels and equity is more likely to produce smooth dividend. Similarly, Abbas et al., (2016) provides evidence that profitability and company's leverage are determinants of dividend payout. The impact of capital structure on dividend policy is also found in the work of Augusto et al. (2011).

The interaction of capital structure and dividend policy can be examined if the tax rate change (Ince & Owers, 2012.). Banerjee & De (2015) conduct a research to examine the determinants of dividend payout ratio in the periods before and after the global recession. Basil (2011) explores the interaction among profitability, capital structure and dividend payout ratio. He concludes that the relationship between capital structure and profitability is negative while the relationship between dividend payout ratio and profitability is positive. Mcknight & Weir (2009) explore the relationship between capital structure and firm's performance by assessing the debt levels and agency costs. The results show that increasing debt can reduce the agency costs. Using the best-practice firm as benchmark to measure the firm profitability, Berger & Patti (2003) show that an increase in agency costs as the result of using more debt can reduce the firm's performance. Alex & Tse (2020), connects to agency theory when he concludes that an enterprise has incentive to maintain high dividend payout as a channel to transfer firm's value to the equity. To offset the decrease in equity, the company issues more debt to improve the return. Fliers (2016) makes a regression of dividend on the capital structure of the firm and detects that the dividend smoothing payment behaviour is correlated with capital structure policy.

In another approach to explore the relationship among dividend, capital structure and firm's performance, Abbas et al. (2016) treat firm's financial performance as an explanatory variable of dividend policy and capital structure. Augusto et al., (2011) reveal that the interactions between capital structure and dividend policy have impact on the value of the firm. Banerjee & De (2015) reports that the dividend payment of the firm is affected by capital structure decision and the profitability of the firm during the period before and after recession in India. Basil (2011) shows that dividend payout ratio is positively correlated with profitability while the relationship between debt levels and profitability is negative. Wang et al., (2014) combine the free cash flow and leverage to explain the changes in profitability of a firm in China. They conclude that when the firms are more leveraged, the profitability ratios fall.

In Vietnam, there have been evidence of a negative correlation between capital structure and financial efficiency. Fu-Min et al. (2014) collect data from companies listed in Vietnam stock exchanges during 2007-2011. They

report that long-term leverage is negatively correlated with firm financial performance computed by market basis. The study also focuses on the enterprises with state ownership and reveals an insignificant role of state ownership on firm performance. Loc, Lanjouw, & Lensink (2004) measure the change of company leverage and firm's profitability as results of privatization process in Vietnam. Nguyen & Nguyen (2020) recently evaluate the relationship between ROE, ROA, and EPS with debt levels in different industries in Vietnam. The results report that short-term and long-term debt levels negatively related to the firm's performance. Regarding to industry classification, relationship between leverage and firm's performance is higher in industries providing medical and consumer goods.

Although the relationship between capital structure and firm's financial performance has been investigated in Vietnam, there is lack of research on the interaction of debt levels, dividend policy and firm's performance. Therefore, this research is taken to test the following hypothesis:

- H₀₁: There is a negative relationship between levels of debt and firm's ROE
- H₀₂: There is a negative relationship between levels of debt and firm's ROA
- H₀₃: There is a negative relationship between levels of debt and firm's P/E
- H₀₄: There is a positive relationship between dividend policy and firm's ROE
- H₀₅: There is a positive relationship between dividend policy and firm's ROA
- H₀₆: There is a positive relationship between dividend policy and firm's P/E

2. Method

Describe variables

In the study, the dependent variable is the firm's financial performance (PERFORMANCE). This variable is described in accounting basis (ROA and ROE) and market measure (P/E). The independent variables are leverage and dividend policy. The leverage uses 2 proxies of Total debt on total assets ratio (TDTA) and long-term debts on total assets ratio (LDTA) while dividend policy is dividend yield (DY). The size of company (total assets-SIZE), the company's growth (sale growth rate-GROWH) and tangible assets size (TANG) are the control variables in the models.

Sample consists of firms in VN100 index including the 100 largest and most liquid listed firms on Hochiminh stock Exchange (HOSE) during 2014-2019. After removing firms operating in financial sector, the sample consists of 92 companies. Therefore, the total number of observations is 553.

Research Design

Model (*) below describes the relationship between financial performance and independent variables. From model (*) specific models from 1 to 6 are constructed.

$$PERFORMANCE_{i,t} = \alpha + \beta LEVERAGE_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (*)$$

$$ROE_{i,t} = \alpha + \beta TDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (1)$$

$$ROA_{i,t} = \alpha + \beta TDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (2)$$

$$P/E_{i,t} = \alpha + \beta TDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (3)$$

$$ROE_{i,t} = \alpha + \beta LDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (4)$$

$$ROA_{i,t} = \alpha + \beta LDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (5)$$

$$P/E_{i,t} = \alpha + \beta LDTA_{i,t-1} + \gamma DY_{i,t} + \delta CONTROL_{i,t} + \mu_{i,t} \quad (6)$$

FEM and REM models are supposed to be appropriate for panel data collected in this research. In the first step, the selection of FEM or REM depends on the result of Hausman test. For model chosen, several tests to detect multicollinear, autocorrelation, heteroscedasticity errors are taken. In step 2, FEM or REM model contains any errors, GLS is recommended.

3. Model's results

Before taking Hausman test to select FEM or REM model, the statistic description of variables is shown in Table 1 to provide overall understanding about the data.

Table 1: Summary of descriptive statistics

Variables	Mean	Std. Dev	Minimum	Maximum	Median	Skewness	Kurtosis
ROE	0.126	0.359	-7.32421	0.9539	0.134	-16.796	339.624
ROA	0.086	0.082	-0.39897	0.416	0.073	0.536	8.111
P/E	20.817	78.043	-4.42	1.255	9.700	11.887	161.643
LDTA	0.089	0.122	0.000	1.000	0.029	1.721	5.347
TDTA	0.421	0.225	0.0027	1.000	0.417	0.232	2.526
DY	5.561	4.606	0.000	24.100	5.210	0.861	3.978
TANG	0.228	0.208	0.000	0.940	0.170	1.422	4.665
SIZE	28.054	1.465	24.6191	32.254	27.846	0.559	2.937
GROWTH	0.133	0.413	-0.8824	4.113	0.081	4.434	36.604

The decision of choosing FEM or REM depends on the results of Hausman test (Table 2). Accordingly, FEM is chosen for models 1,2,4, and 5 as the P-values are smaller than 0.05 while REM is chosen for models 3 and 6 because the P-value are bigger than 0.05.

Table 2: Results of Hausman tests

	model 1	model 2	model 3	model 4	model 5	model 6
chi2 (5)	13.230	18.730	3.090	14.430	13.900	8.200
Prob>chi2	0.021	0.002	0.686	0.013	0.016	0.145

FEM (models 1,2,4,5) and REM (models 3,6) are tested problems of multicollinearity, autocorrelation, and heteroskedasticity. The multicollinearity errors are diagnosed by the VIF estimates shown in table 3. All VIFs just above 1 indicate that there is no multicollinearity among predictors.

Table 3. Results of multicollineary

	model 1	model 2	model 3	model 4	model 5	model 6
<i>Variable</i>	<i>VIF</i>	<i>VIF</i>	<i>VIF</i>	<i>Variable</i>	<i>VIF</i>	<i>VIF</i>
SIZE	1.150	1.150	1.150	SIZE	1.410	1.410
TDTA	1.140	1.140	1.140	LDTA	1.240	1.240
DY	1.030	1.030	1.030	DY	1.180	1.180
GROWH	1.020	1.020	1.020	GROWH	1.030	1.030
TANG	1.000	1.000	1.000	TANG	1.020	1.020
VIF	1.070	1.070	1.070	VIF	1.170	1.170

According to Wooldridge test rule for autocorrelation, there is no autocorrelation in each model if P-value is smaller than 0.05. However, autocorrelation exists if P-value is bigger than 0.05 in each model. According to table 4, autocorrelation can be found in models 1,2,3 that include long-term debt on total assets as proxy for leverage.

Table 4: Results of autocorrelation

	model 1	model 2	model 3	model 1	model 2	model 3
F(1,91)	0.825	0.112	1.384	8.80E+06	1.50E+05	5.660
Prob > F	0.366	0.738	0.243	0.000	0.000	0.009

For heteroskedasticity, Wald test is run in each of six models. If P-value is smaller than 0.05, heteroskedasticity is problem in each model as the null hypothesis of no heteroskedasticity is rejected. As shown in table 5, all P values are under 0.05, thus, heteroskedasticity problem is existing in each model.

Table 5: Results of heteroskedasticity testing

	model 1	model 2	model 3	model 4	model 5	model 6
Chi ² (92)	13.230	18.730	1.50E+05	6.20E+06	2.30E+05	6.510
Prob	0.021	0.002	0.000	0.000	0.000	0.005

GLS models are run to test the relationship among firm's financial performance and leverage, dividend policy and control variables because the the existence of heteroskedasticity detected in FEM and REM models. Table 6 below presents the coefficients of independent variables in 6 models and the significance of relationships between independent variables and dependent variable. Table 7 summarize all the signs of correlations among leverage, dividend policy, and firm's performance.

Table 6: Results of GLS models

	Coef.	Std.Er.	T	p> t		Coef.	Std.Er.	T	p> t
<i>Model 1</i>					<i>Model 2</i>				
<i>Dependend variable: ROE</i>					<i>Dependend variable: ROA</i>				
TDTA	0.033	0.026	1.270	0.204	TDTA	-0.102	0.041	-2.490	0.015
DY	0.003	10.996	2.680	0.008	DY	-0.002	0.001	-2.880	0.005
SIZE	0.007	0.004	1.830	0.067	SIZE	-0.011	0.012	-0.890	0.375
GROWTH	0.110	0.018	6.070	0.000	GROWTH	0.020	0.006	3.190	0.002
TANG	0.025	0.026	0.990	0.321	TANG	0.024	0.052	0.470	0.641
_cons	-0.110	0.109	-1.010	0.315	_cons	0.429	0.327	1.310	0.192
<i>Model 3</i>					<i>Model 4</i>				
<i>Dependend variable: P/E</i>					<i>Dependend variable: ROE</i>				
TDTA	17.282	10.415	1.660	0.098	LDTA	0.400	0.159	2.150	0.012
DY	-0.167	0.529	-3.150	0.002	SIZE	-0.077	0.014	-5.430	0.000
SIZE	1.591	1.511	1.050	0.293	GROWTH	0.821	0.060	13.690	0.000
GROWTH	1.764	5.358	0.330	0.742	DY	0.028	0.005	6.120	0.000
TANG	-2.965	10.620	-0.280	0.780	TANG	0.069	0.105	0.660	0.512
_cons	-22.357	39.574	-0.560	0.572	_cons	1.968	0.403	4.890	0.000
<i>Model 5</i>					<i>Model 6</i>				
<i>Dependend variable: ROA</i>					<i>Dependend variable: P/E</i>				
LDTA	-0.202	0.027	-7.520	0.000	LDTA	56.531	27.322	2.070	0.039

SIZE	0.005	0.002	2.200	0.028	DY	-1.625	0.426	-3.820	0.000
DY	0.003	0.001	3.590	0.000	SIZE	0.459	1.509	0.300	0.761
GROWTH	0.038	0.008	4.460	0.000	GROWTH	6.433	4.299	1.500	0.135
TANG	0.089	0.016	5.480	0.000	TANG	-9.694	11.016 9	-0.880	0.379
_cons	-0.091	0.069	-1.320	0.187	_cons	12.705	41.466	0.310	0.759

Table 7: The summary of coefficient signs

	ROE	ROA	P/E
TDTA	+	+	+
LDTA	+	+	-
DY	+	-	-

(+) positive impacts; (-) negative impact;

4. Discussion

According to the analysis results of 6 models, the relationships among capital structure, dividend and firm's performance depend on the choice of firm's financial performance proxies. Both TDTA and LDTA have positive impact on ROE and ROA (H_{01} and H_{02} are rejected). However, these two variables are negatively correlated with P/E (H_{03} is accepted). The difference of relationship signs reported in these models can be seen is consistent with the results from the works of Salim & Yadav (2012) and Abor (2005).

Dividend yield is statistically significant in all 6 models. Like the capital structure, the relationships between dividend yield and firm's performance are not the same if the firm's performance differs in the models. Dividend yield has a positive impact on ROE (H_{04} is accepted) but negative impact on ROA and P/E (H_{05} and H_{06} are rejected).

From the results in 6 models, the choice of financial performance measure plays an important role in deciding the relationship among capital structure and dividend policy of the firm. However, despite using long-term debt or total debt to measure the debt levels, findings about the relationship between capital structure and firm's performance are unchanged.

The positive coefficient signs of dividend yield and capital structure in models 1 and 4 show that company's return on total assets ratio increases when the company uses more debt and makes more dividend payout. In contrast, as shown in models 2 and 4, the company's ROE can be affected as firm increases debt level and dividend yield. In addition, the debt level and dividend yield have inverted effects on P/E.

The findings of this paper provide that a change in capital structure and dividend policy may have unexpected consequences on the financial performance of a firm. Therefore, the findings can support firm's managers in making important decisions relating the choice of debt levels and dividend payment. For future research, the impact of capital structure on dividend policy should be tested to detect the existence of selfish strategies in Vietnamese companies before examining the effects of these variables to firm's performance.

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