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THE EFFECT OF CAPITAL STRUCTURE ON CORPORATE PERFORMANCE: EVIDENCE IN VIETNAM

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Keywords:

Capital Structure
Corporate Performance
Manufacturing Firms
Vietnam

Abstract. This article aims to investigate the influence of capital structure on corporate performance by using data from 150 Vietnamese listed manufacturing firms from 2008 to 2012. Comparing the results of random effects model (REM) and fixed effects model (FEM), the more appropriate model will be discussed some empirical results. The study found that the capital structure has significant and positive relationship with corporate performance in associated with debt to assets and short-term debt to assets. In contrast, corporate performance is insignificantly influenced by long-term debt to assets. On this basis, the article establishes the policy implications for companies, including: increased use of financial leverage, attention to effective exploitation of assets, interest in the conflict of interest between shareholders and creditors.

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INTRODUCTION

The connection between the level of equity in financial leverage and corporate performance has been considered as an important theme in the corporate governance literature (Williamson, 1988; Short, 1994; Shleifer & Vishny, 1997). The argument goes back to Modigliani and Miller classic theory in 1958, which indicated that the relationship between capital structure and corporate value is independent under some unreasonable assumptions in the real world. In contrast, based on these illusive assumptions, a number of researchers have claimed that the corporate performance and behavior might be affected by the level of debt (Kraus & Litzenberger, 1973; Jensen & Meckling, 1976) however, their statements may be opposite. Many empirical studies have been conducted to examine the influence of capital structure on corporate performance. A number of previous studies have claimed that capital structure have a statistical and significant negative effect on corporate performance (Pushner, 1995; Majumdar & Chhibber, 1999; Zeitun & Tian, 2007; Soumadi & Hayajneh, 2008). Nevertheless, a number of studies found that capital structure is positive related to corporate performance (Nickell, Nicolitsas & Dryden, 1997; Margaritis & Psillaki, 2010; Gill, Biger & Mathur, 2011) while there is some evidence that capital structure and corporate performance is independent (Krishnan & Moyer, 1997; Weill, 2007; King & Santor, 2008).

Mostly, the studies above are only limited to considering the influence of the ratio of total debt to corporate performance, but

few studies have analyzed the impact of capital structure as short-term and long-term debts to corporate performance. In addition, the studies of Vietnam, in the context of corporate debt structure changes due to changes in the macro environment, are still very limited. Thus, this study aims to fill the gap in the literature and contribute to identifying the potential problems in corporate performance, increasing its performance as well as how the firm is financed. Particularly, this study investigates:

The influence of firm's capital structure on its performance.

Finding out the firm characteristics factors which also influence on corporate performance.

For this reason, the study answers following questions:

Does capital structure have significant in related with corporate performance?

How do the impact of firm characteristics factors on corporate performance?

LITERATURE REVIEW

A number of previous empirical studies have considered the influence of capital structure on corporate performance. However, the major difference among them seems to have conflicting results.

Many studies have claimed that capital structure have a statistical and significant negative effect on corporate performance. Pusher (1995) analyzes the link between firm's capital structure and its performance in combination with the affect by equity ownership

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in firms in Japan. In this study, corporate performance is estimated by total factor productivity through a production frontier which corporate performance is equivalent to OLS residual estimate. The author shows that a negative link exists between capital structure and corporate performance. Majumdar and Chhibber (1999) examine the relationship between firm's capital structure and its performance for Indian corporations.

Analysis of the sample exposes the connection for Indian corporations to be statistically significantly negative.

Zeitun and Tian (2007) investigate the influence which financial leverage has had on firm performance for 167 Jordanian companies using a longitudinal data sample during 1989-2003. Findings show that a company's financial leverage has a significantly negative effect on the company's performance measured in both the market and accounting's measures. This study finds that the level of STDTA has a dramatically positive impact on performance that is measured market measure. Soumadi and Hayajneh (2008) analyses the impacts of leverage on the corporate performance of the public firms listed in Jordanian's Amman stock market. The findings of this study concluded that leverage has negatively and statistically relationship with firm performance in generally. In addition, the research finds out that there is no important difference to the effects of the capital structure among high financial leverage corporations with low financial leverage corporations on their performance.

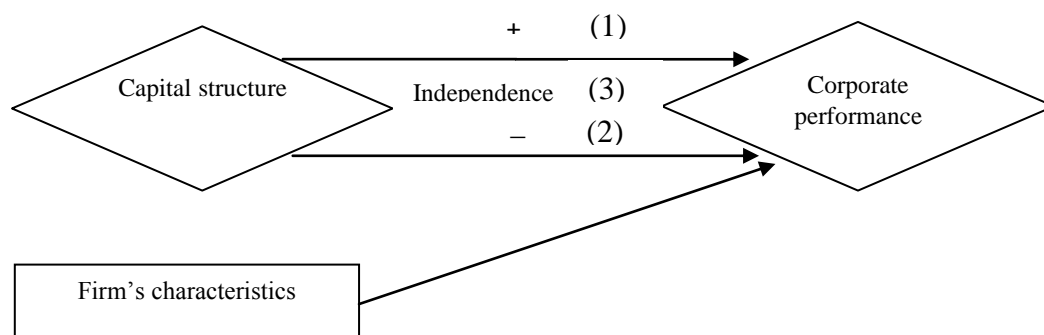
On the other hand, a number of studies found that capital structure is positive related to corporate performance. Nickell et al. (1997) analyses the role of pressure of financial market effects on productivity corporate performance in firms by using database from 580 UK manufacturing firms. This study has illustrated that capital structure is associated with the level of increased productivity growth. Margaritis and Psillaki (2010) test the link between efficiency, capital structure and ownership structure based on French manufacturing firms. Adopting an efficiency measure of corporate performance by X-inefficiency, this study observes both the influence of firm's capital structure on its

corporate performance and the reverse causality link. The findings support for the key prediction of agency cost hypothesis in that capital structure has positive relationship with firm performance (Jensen & Meckling, 1976). Gill et al. (2011) look for broaden Abor's (2005) findings considering the effect of leverage on performance by analyzing the effect of leverage on profitability in the manufacturing and service corporations in American. Empirical results demonstrate a positive link between i) STDTA and profitability, iii) TDTA and profitability for manufacturing industry.

However, there is some evidence that capital structure and corporate performance is independent. Krishnan and Moyer (1997) provides an empirical study about the performance and its leverage of large firms from four economies in emerging market in Asia. This study finds that Hong Kong firms have dramatically higher ROA from the other economies, possibly demonstrating the structure typical of concentrated conglomerate business in Hong Kong. The corporate performance differences among enterprises form other economies are not statistically dramatically. Enterprises form Korea have dramatically higher debt ratio than enterprises from the other economies. Capital structure itself does not seem to influence corporate performance. Weill (2007) aims to analyze the link between the firm's leverage and its performance by using frontier efficiency techniques to estimate performance of medium-sized corporations from seven European nations. The paper points out that the effect of leverage on corporate performance varies across countries that depend on particular institutional factors of each country including legal system and the access to bank credit. King and Santor (2008) examine how family ownership impacts on the performance and leverage of 613 Canadian enterprises during 1998-2005. This paper states that freestanding family owns firms have no relationship with performance among Canadian firms.

Based on theories and empirical evidences are presented above in which has been employed as a foundation to build a conceptual framework for this research.

FIGURE 1
Conceptual Framework for the Impact of Capital Structure on Corporate Performance



(1): The influence of capital structure on corporate performance is positive related to some empirical studies like (Nickell et al., 1997; Margaritis & Psillaki, 2010; Gill et al., 2011).

(2): The influence of capital structure on corporate performance is negative related to some empirical studies such as (Pushner, 1995; Majumdar & Chhibber, 1999; Zeitun & Tian, 2007; Soumadi & Hayajneh, 2008).

(3): The influence of capital structure on corporate performance is independent related to some empirical studies are mixed results such as (Krishnan & Moyer, 1997; Weill, 2007; King & Santor, 2008).

RESEARCH METHODOLOGY

Measurement of Variables

Capital structure variable: Capital structure is estimated by a variety of measures such as capital structure shows through the ratio of debt to equity (Majumdar & Chhibber, 1999; Krishnan & Moyer, 1997; Zeitun & Tian, 2007), the structure of total liability and total assets (Pushner, 1995; Weill, 2007), total debt to total assets (Margaritis & Psillaki, 2010; King & Santor, 2008; Gill et al., 2011; Gleason Mathur, & Mathur, 2000; Zeitun & Tian, 2007). Moreover, the maturity of debt is also significantly impacts on corporate performance including short-term debt and long-term debt (Gill et al., 2011; Zeitun & Tian, 2007; Myers, 1997; Brick & Ravid, 1985; Barclay & Smith, 1995).

In this study, three types of capital structure are employed including the total debt to total assets, long-term debt to total assets, short-term debt to total assets because a number of studies state that there are the most universal ratio as a capital structure measurement and analysis (Bernstein, 1993; Rajan & Zingales, 1995; Giannetti, 2003).

Corporate Performance Variable

The purpose of the research focuses on effectiveness to measure corporate performance. A work of Murphy, Trailer and Hill (1996) presented that characteristics of corporate performance are measured by finance and organization in aspect of effectiveness. Especially, Chakravarthy (1986) determined the financial performance as best profit achievement, and obtaining optimal profit on assets as well as benefits of shareholders have a central role in aspect of firm effectiveness.

Hoffer and Sandberg (1987) defined operational performance estimates as development in sales and in market share as they were concentrated on the elements which finally direct to performance in finance.

Apart from that, to measure the market performance, Zeitun & Tian (2007) used Tobin's Q, market value of equity on book value of equity (MBVR) and price-earnings ratio (P/E). Tobin's Q combines market value and accounting value and a number of studies employed this ratio to evaluate value of firm (King & Santor, 2008; Soumadi & Hayajneh, 2008).

According to some studies (Reece & Cool, 1978; Abdel Shahid, 2003, among others), the performance measure is broadly supposed to be the most effective measure to test firm performance. ROA and ROE are employed as proxy measures for firm performance and P/E, Tobin's Q, MBVR as market performance measures.

Based on Abdel Shahid (2003), the other factors such as the stock market efficiency, economy and politics may affect the performance and reliability of a firm. In brief, Tobin's Q is used in this study as the most common measure in modeling about the effect of capital structure on corporate performance.

Control Variables for Firm Characteristics

Profitability

Profitability (Profit) is estimated by the ratio of earnings before interest and tax and depreciation to total assets. Generally, this research expects a positive influence of profitability on corporate effectiveness because more profitable corporations are mostly better managed as well as corporations are predicted to be more effectiveness.

Firm Size

Size of the firm (Size) is estimated through the log of sales (Majumdar & Chhibber, 1999; Margaritis & Psillaki, 2010) or the log of the assets (Weill, 2007; Zeitun & Tian, 2007). Firm size and effectiveness is expected to be positive due to larger firms are predicted to be better managed, be more diversified and utilize better technology. Moreover, Himmelberg et al. (1999) suggests that larger firms may achieve benefits of economies of scale related to monitoring top management. On the other hand, Williamson (1967) shows that hierarchical managerial inefficiencies may incur in larger firms and lead to larger monitoring costs.

Tangibility: Firm tangibility (Tang) is calculated as the ratio of fixed tangible assets to the total assets (Margaritis & Psillaki, 2010; Weill, 2007; Ghosh, 2007). Fixed tangible assets are easily supervised and give good collateral. As a result, they tend to reduce agency conflicts.

Growth Opportunities

Sales growth (Growth) can be used as a proxy for growth opportunities or investment opportunities (Krishnan & Moyer, 1997; Majumdar & Chhibber, 1999; Zeitun & Tian, 2007). Sales growth is expected to have a positive influence on firm performance (Maury, 2006; King & Santor, 2008).

Dummy Variables for Years

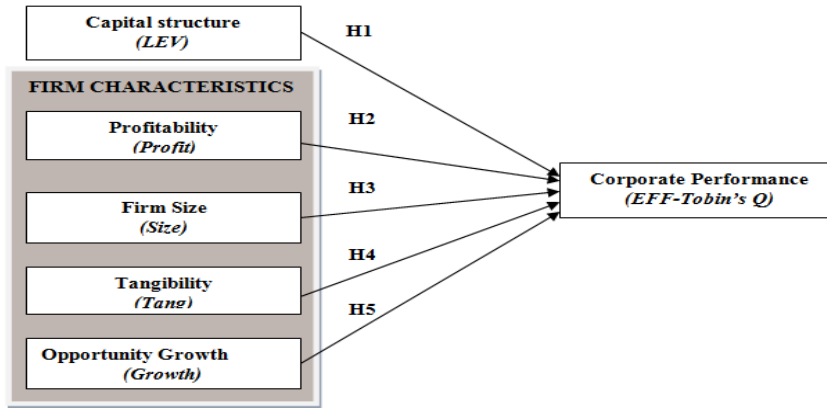
During our sampling period of 2008-2012, macroeconomic instability around Vietnam or global economic crisis in 2007-2008 affected the Vietnam economy.

Year dummy variables could control the effects, which change over time but constant across firms (Zeitun & Tian, 2007). In this

study, year dummy variable of 2008 was used as the based year. The LSDV regression model compared the difference in corporate performance between 2008 and the others. As analysis above, the

analytical framework demonstrates the effect of capital structure on corporate performance through variables are shown in Table 1.

**FIGURE 1
RESEACRH MODEL**



Hypothesis Development

Based on theoretical studies and prior empirical research, the link between a dependent variable and an independent variable lead to hypotheses that are proposed:

- H1: The level of capital structure is significant influence on corporate performance.
- H2: The level of profitability is positive related to corporate performance.
- H3: The level of firm size is positive related to corporate performance.
- H4: The level of tangibility is positive related to corporate performance.
- H5: The growth opportunities are positive related to corporate performance.

Model Specification

To investigate the effect of capital structure on corporate performance, this study uses empirical model that can be illustrated in Model 1, Model 2 and Model 3.

Model 1:

$$EFF_{it} = \alpha_0 + \alpha_1 TDTA_{it} + \alpha_2 Profit_{it} + \alpha_3 Size_{it} + \alpha_4 Tang_{it} + \alpha_5 Growth_{it} + \alpha_6 D_2 + \alpha_7 D_3 + \alpha_8 D_4 + \alpha_9 D_5 + \epsilon_{it} \quad (1)$$

Model 2:

$$EFF_{it} = \alpha_0 + \alpha_1 LTDTA_{it} + \alpha_2 Profit_{it} + \alpha_3 Size_{it} + \alpha_4 Tang_{it} + \alpha_5 Growth_{it} + \alpha_6 D_2 + \alpha_7 D_3 + \alpha_8 D_4 + \alpha_9 D_5 + \epsilon_{it} \quad (2)$$

Model 3:

$$EFF_{it} = \alpha_0 + \alpha_1 STDTA_{it} + \alpha_2 Profit_{it} + \alpha_3 Size_{it} + \alpha_4 Tang_{it} + \alpha_5 Growth_{it}$$

$$+ \alpha_6 D_2 + \alpha_7 D_3 + \alpha_8 D_4 + \alpha_9 D_5 + \epsilon_{it} \quad (3)$$

Where EFF is a proxy for the corporate performance (effectiveness) measure by Tobin's Q proxy; capital structure is used by three measures: total debt to total assets (TDTA), long-term debt to total assets (LTDTA), short-term debt to total assets (STDTA); dummy variables including D2 for year 2009, D3 for year 2010, D4 for year 2011, D5 for year 2012 and the year of 2008 is employed as reference year; ϵ is stochastic error terms.

Estimation Strategy

This study uses panel data. General model as follows:

$$Y_{it} = C + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_n X_{nit} + u_{it} \quad \forall i, t \in N^* \quad (4)$$

In which:

Y_{it} is the dependent variable, reflecting the corporate performance i at the time t
 X_{1it}, \dots, X_{nit} is the value of the independent variable, representing the factors affecting the corporate performance i at the time t . u_{it} is the residual.

The use of OLS method assuming no cross-unit or any particular period affecting the coefficients in the model is often difficult to occur in practice and lead to the phenomenon of autocorrelation. To overcome this limitation, the article uses a combination of fixed effects method (FEM) and the random method (REM)

Fixed effects model as follows:

$$Y_{it} = C_i + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + u_{it} \quad (5)$$

Or $Y_{it} = \alpha_0 + \alpha_1 D_{1i} + \alpha_2 D_{2i} + \dots + \alpha_n D_{ni} + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + u_{it} \quad (6)$

The term "fixed effects" is used as: whether the original ordinals may vary for companies but each ordinal of the company does not change over time that is invariant over time. The difference of the original ordinals of the company can be analyzed through a dummy variable technique. Hence, estimates of fixed effects are also seen as the ordinary least squares method contains dummy variable because to allow the emergence of different block coefficient for each entity, each entity must include one dummy variable.

The downside of the FEM model is that freedom degree is reduced greatly by adding dummy variables, prone to the multicollinearity phenomenon or violate the assumption $u_{it} \sim N(0, \sigma^2)$, (Gujaranti, 2004). If the individual characteristics (constant over time) are a single for entity and not correlated with characteristics of other entities, FEM model is no longer appropriate and random effects model - REM will be used to estimate the relationship.

Random effects model

$$Y_{it} = C_{0i} + \beta_1 X_{it} + u_{it} \quad (7)$$

The coefficient of the vertical axis in the above equation is decomposed into two parts:

$$C_{0i} = C_0 + \varepsilon_i \quad (8)$$

Rewrite the equation (7) as follows:

$$Y_{it} = C_0 + C_1 X_{it} + w_{it} \quad (9)$$

Basic differences between FEM and REM models is that FEM model has every vertical axis coefficient differed from each diagonal unit, while the random effects model (REM) only has one vertical axis coefficient value and this coefficient equal to the average value of all the observed cross unit, the difference of the diagonal unit is in the random error ε_i .

To choose the appropriate model, the article uses the Hausman's test with the hypothesis:

H_0 : FEM and REM models are indifferent. $(\text{Prob} > \lambda^2) < \alpha (0.05)$; reject H_0 .

If H_0 is rejected, random effects model will be not suitable and in this case FEM is selected, and vice versa if H_0 is accepted, REM model will be used. A testing for some problems to control the effectiveness of models including heteroskedasticity is available for the fixed-effects model (Breusch Pagan test), multicollinearity (VIF test). However, limitations of panel data sets including problems in the design, data collection and data management of panel surveys (Kasprzyk, Duncan, Kalton & Singh, 1989). According to Baltagi (2008), other limitations of panel data sets are the distortions caused by measurement errors.

Data Collection

The variable data were collected directly from the financial statements of companies listed on Stock Exchanges of Ho Chi Minh City and Hanoi. However, of the total companies listed in two Stock Exchanges of Vietnam, only 380 companies are listed from 2008, including 230 companies in the fields of finance, banking, insurance, trade and services. Thus, after the removal of those companies, the number of remaining production companies meeting the requirements of sufficient data from 2008 to 2012 are only 150 companies. Selected sample are required to publicly disclose their audited financial statements at least from 2008 to

2012 and downloaded directly from their websites. As a result, the type of used data is a balanced panel including necessary variables.

EMPIRICAL ANALYSIS RESULTS

Descriptive Statistics

This section presents the descriptive statistics for indicators that are used to determine the nature of sample and its suitability extent for using. Table 2 demonstrates summary statistics of the explanatory variables which indicates mean, standard deviation, minimum, maximum both independent and dependent variables computed from the annual financial statements. Tobin's Q varies between 0.03 and 3.72 with the average of 0.78 approximately. This indicates that the cost to replace corporation's assets is higher than its stock value; in other words, this implies that corporation's stock is undervalued on average. The average value of STDTA is 0.18 with the wide variation from 0 to 0.73. The value 0.18 indicates that approximately 18 percent of total assets are shown by short-term debt, implies that short-term debt is largely utilized for financing operations in Vietnamese listed manufacturing firms. This reason can be explained by ability in accessing the credit of long-term from financial institutions. Another cause is due to Vietnamese long-term debt market is the under-developed nature. The average value of variable LTDTA ranges from 0 to 0.80. Again, the above position shows that the corporations are financially leveraged by short-term debt in their operations. The variable Profit reveals an average of 11.03 percent with a wide range from -51.01 percent to 59.13 percent and its standard deviation is 0.09. The variable Size distributed from 3.59 to 7.42 and the average value of this proxy equal at 5.62. In absolute value, the net sales ranged from 3,873 millions VND to 26,561,574 millions VND. This implies that this variable is largely different in distribution. Tang variable with average value at 30.69 percent ranges wide from 0 to 1 absolutely. Growth variable reveals an average of 19.83 percent with a wide range from -96.76 percent to 658.90 percent and its standard

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TABLE 1
Summary Statistics of the Explanatory Variables, 2008-2012

Variable	Mean	Std. Dev.	Min	Max
Tobin's Q	0.7765	0.4379	0.0320	3.7238
TDTA	0.2573	0.21113	0	0.8029
LTDTA	0.0814	0.1375	0	0.6957
STDTA	0.1796	0.1668	0	0.7338
Profit	0.1103	0.0923	-0.5101	0.5913
Size	5.6162	0.6622	3.5880	7.4243
Tang	0.3069	0.2141	0	1
Growth	0.1983	0.5363	-0.9676	6.5890

The correlation of the explanatory variables is demonstrated in Table 3 in order to analyze the relationship between the explanatory proxies. As can be seen from the Table 3, there is no existence of high correlation among explanatory variables. In more details, STDTA has a negative relationship with corporate performance as Tobin's Q measures, while corporate performance has a positive correlation with both LTDTA and TDTA. Profit has positive correlation related with Tobin's Q; however, it has negative correlation related with firm leverage both all of leverage variables (TDTA, LTDTA, STDTA). In addition, this correlation

matrix is also illustrated that larger firms tend to obtain higher performance as well as have higher leverage ratio both all of leverage variables (TDTA, LTDTA and STDTA) and firm profitability. Tang, Tobin's Q, TDTA and LTDTA are positive, while this correlation is negative STDTA as well as Profit and Size. It is evident from the Table 3 that higher growth opportunities firms tend to have higher performance as well as firm profitability, firm size and tangibility but this correlation is opposite with firm leverage variables.

TABLE 2
Correlation Matrix of the Explanatory Variables, During 2008-2012

	Tobin's Q	TDTA	LTDTA	STDTA	Profit	Size	Tang	Growth
Tobin's Q	1.0000							
TDTA	0.0179	1.0000						
LTDTA	0.0444	0.6042	1.0000					
STDTA	-0.0406	0.7419	-0.0578	1.0000				
Profit	0.5011	-0.2804	-0.1860	-0.2072	1.0000			
Size	0.2476	0.3320	0.1614	0.3020	0.1021	1.0000		
Tang	0.2003	0.1583	0.4851	-0.1991	-0.0075	-0.0295	1.0000	
Growth	0.0037	-0.0073	-0.0091	-0.0018	0.0985	0.1480	0.0315	1.0000

Source: Author's calculation

EMPIRICAL RESULTS

Based on a Hausman test, this study chooses between random effects model and fixed effects model. Null hypothesis is denoted

by random effects model that is preferred compared with fixed effects model. The results of Hausman test is illustrated in Table 4.

TABLE 3
Results of Hausman test

Regression Models	Hausman Value
Model 1	H = 79.59 (P = 0.0000)
Model 2	H = 64.00 (P = 0.0000)
Model 3	H = 70.89 (P = 0.0000)

Source: Author's calculation

It is evident from the above Table 4 that all of *P*-value of Hausman test statistic are less than 0.05. For this reason, the Table 5 presents the choice between random effects model (REM) and fixed effects model (FEM).

TABLE 4
Choice Between Random Effects and Model Fixed Effects Model

Regression models	Choice
Model 1	Fixed effects model
Model 2	Fixed effects model
Model 3	Fixed effects model

Source: Author's analysis

The F-statistics are significant at the 1% level, demonstrating that models are a significant fit of the data overall.

Table 6 describes the results of fixed effects regression models analysis in relationship about the effect of capital structure on corporate performance. It can be seen from the this table that the association of corporate performance determinants with each capital structure measure for sample of Vietnamese listed manufacturing firms over the examined period 2008 to 2012. At the aggregate level, as can be seen from the Table 6, the regression models are highly significant with rejecting the null hypothesis of all the regression coefficients is insignificance at less than the level of 1%.

First of all, from Hypothesis 1, the level of capital structure is expected to significant influence on corporate performance. Three capital structure variables are employed including TDTA, LTDTA, and STDTA. The coefficients of TDTA and STDTA are significantly and positively related to the corporate performance measure Tobin's Q at the 1% level of significance as predicted. In contrast, LTDTA is found to be insignificant with Hypothesis 1. These results present that higher leverage

level as TDTA and STDTA measures lead to higher corporate performance excluding the level of leverage is measured by LTDTA. This finding supports for *agency cost* that higher leverage level is associated with better performance. Moreover, these findings are consistent with the results of previous empirical studies such as Nickell et al. (1997), Margaritis & Psillaki (2010), Gill et al. (2011).

Then, from Hypothesis 2 states that the level of profitability is positive related to corporate performance. Table 6, as predicted, suggests that the Profit is dramatically and positively related with corporate performance in TDTA, LTDTA and STDTA at the 1% level of significance. In other words, more profitable firms seem to lead to better performance or profitability and corporate performance are positively related. This result is explained that the management of profitable enterprises is generally better than less profitable enterprises.

Next, from Hypothesis 3 is expected that the level of firm size is positive related to corporate performance. It is generally accepted that the results are found which do not reject Hypothesis 3. According to the Table 6, Size is found to be significantly positively correlation with corporate performance

at 1% statistic level in TDTA, LTDTA and STDTA. This means that larger firms may use better technology, better managed and be more diversified. In addition, larger firms may obtain the benefit from top management that be supported by economies of

scale (Himmelberg et al., 1999). This result is consistent with empirical studies including (Gleason et al., 2000) as well as among others.

TABLE 6
Corporate Performance and Capital Structure

	Corporate performance		
	TDTA	LTDTA	STDTA
Constant	-0.5156 (-1.57) [*]	-0.5873 (-1.75) [*]	-0.4680 (-1.43)
LEV	0.4266 (3.58) ^{***}	0.1231 (0.60)	0.3975 (3.02) ^{***}
Profit	0.8510 (3.59) ^{***}	0.7137 (2.77) ^{***}	0.8195 (3.43) ^{***}
Size	0.1903 (3.08) ^{***}	0.2216 (3.53) ^{***}	0.1864 (3.04) ^{***}
Tang	0.1595 (1.27)	0.1826 (1.33)	0.2130 (1.71) [*]
Growth	-0.0661 (-3.60) ^{***}	-0.0710 (-3.90) ^{***}	-0.0657 (-3.62) ^{***}
D2	0.2047 (7.18) ^{***}	0.2128 (7.54) ^{***}	0.2077 (7.24) ^{***}
D3	0.0424 (1.39)	0.0484 (1.58)	0.0441 (1.43)
D4	-0.1899 (-5.55) ^{***}	-0.1347 (-4.08) ^{***}	-0.1913 (-5.55) ^{***}
D5	-0.5156 (-4.34) ^{***}	-0.5873 (-1.75) [*]	-0.1429 (-4.50) ^{***}
R ² within	0.3693	0.3538	0.3627
R ² between	0.2215	0.2891	0.2594
R ² overall	0.2701	0.3082	0.2924
Wald Test	33.37	25.92	29.48
P – Value	0.0000	0.0000	0.0000

(^{*}): Statistic significance at 10% level, (^{**}): Statistic significance at 5% level, (^{***}): Statistic significance at 1 % level

Source: Author's calculation

The Hypothesis 4 is expected that the tangibility level is positive related to corporate performance. The result indicates that Tang has an insignificant impact on corporate performance associated with TDTA, LTDTA. This finding implied that corporate performance is not influenced by ratio of Tang. In the words, the fixed assets to assets ratio and corporate performance have no relationship. On the contrary, Tang is positive related with corporate performance in STDTA at 10% statistic significance level. This finding indicates that firms use short-term debt to assets to finance its operations have better performance because these firms with higher fixed assets may provide good collateral to receive short-term credits from financial institutions.

The growth opportunities are positive related to corporate performance is predicted that in Hypothesis 5. In the Table 6, as expected, the regression results show that Growth is examined to have negative and significant influence on the corporate performance in associated with TDTA, LTDTA and STDTA at the 1% level of significance. This finding states that firms have higher growth opportunities that may face financial difficulties

leading to adversely affected. As a result, the conflicts between equity holders and debt may increase. According to Myers (1977), in these situations, firm's managers acting in the interests of shareholders are likely to under-invest. Therefore, higher growth opportunities may reduce corporate performance.

The final argument is that the influence dummy variables for years on corporate performance. The year of 2008 was analyzed as the beginning year of global financial crisis. Moreover, this year is chosen as reference year. The year of 2009, year of 2011 and year of 2012 had significant impact on corporate performance in related with TDTA, LTDTA and STDTA at the 1% level of significance excluding year of 2012 in associated with LTDTA at 10% statistic significance level; however, the influence of year of 2009 on corporate performance is insignificant. In more details, firms were slightly achieved higher performance compared with year of 2008. In the contrary, there has been a suddenly decrease in the corporate performance in 2011 and in 2012; especially, year of 2012 is the most significant influence on corporate performance.

CONCLUSIONS

This study investigates the impact of capital structure on corporate performance by using a panel data of 150 Vietnamese listed manufacturing firms during 2008 to 2012. We find empirical evidence that the capital structure has significant and positive relationship with corporate performance in associated with debt to assets and short-term debt to assets. In contrast, corporate performance is insignificantly influenced by long-term debt to assets. Based on main findings, this research recommends some implications of policies for managers to improve corporate performance.

Firstly, firm's managers could improve performance by increasing the leverage; they should have to build the risk management policies for financing its operations.

Secondly, firm's managers want increase long-term debt but decreasing the short-term debt, they should pay attention to fixed assets. However, firms need to consider the effectiveness of using fixed assets.

Thirdly, when the firms have high growth opportunities, managers should pay attention to conflicting of interest between equity holders and debt holders.

Lastly, firms with lower effectiveness and lower profits, small firms as well as firms with lower growth opportunities should be careful in using debt to finance their operation, especially in using short-term debt when economy suffers macroeconomic

instability phase.

However, this study has clear limitations in methodology and data collection. To measure the corporate performance variable, this study uses Tobin's Q in book and market values; however, this variable may do not account for adequate elements in evaluating the corporate performance. As mentioned in Section 2, corporate performance can measure in associated with productivity, efficiency and effectiveness but this study only measures corporate performance through the aspect of effectiveness. Therefore, future research directions aim to consider corporate performance by measuring productivity or efficiency like (Pushner, 1995; Nickell et al., 1997; Margaritis & Psillaki, 2010; Weill, 2007). Moreover, some estimation methods can be considered in further research directions such as Deterministic non-parametric frontier methods (Margaritis & Psillaki, 2010), stochastic frontier approach (Weill, 2007). Moreover, the results of models may be influenced by some omitted variables such as ownership structure (King & Santor, 2008; Margaritis & Psillaki, 2010; Arosa, Iturralde & Maseda, 2010) or industry sectors (Margaritis & Psillaki, 2010; Zeitun & Tian, 2007). These variables need to consider in future research directions. Data is collected from 2008 to 2012. Consequently, data is used for longer period may give a better picture of the relationship between firm's capital structure and its performance.

REFERENCES

- Abdel Shahid, S. F. (2003). *Does ownership structure affect firm value? Evidence from the Egyptian stock market. Evidence from the Egyptian Stock Market.*
- Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, 6(5), 438-445.
- Arosa, B., Iturralde, T., & Maseda, A. (2010). Ownership structure and firm performance in non-listed firms: Evidence from Spain. *Journal of Family Business Strategy*, 1(2), 88-96.
- Baltagi, B. (2008). *Econometric analysis of panel data.* John Wiley & Sons.
- Barclay, M. J., & Smith, C. W. (1995). The maturity structure of corporate debt. *The Journal of Finance*, 50(2), 609-631.
- Bernstein, P. L. (1993). *Capital ideas: the improbable origins of modern Wall Street.* Simon and Schuster.
- Brick, I. E., & Ravid, S. A. (1985). On the relevance of debt maturity structure. *The Journal of Finance*, 40(5), 1423-1437.
- Chakravarthy, B. S. (1986). Measuring strategic performance. *Strategic Management Journal*, 7(5), 437-458.
- Ghosh, S. (2007). Leverage, managerial monitoring and firm valuation: A simultaneous equation approach. *Research in Economics*, 61(2), 84-98.
- Giannetti, M. (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis*, 38(01), 185-212.
- Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management*, 28(4), 3-15.
- Gleason, K. C., Mathur, L. K., & Mathur, I. (2000). The interrelationship between culture, capital structure, and performance: evidence from European retailers. *Journal of Business Research*, 50(2), 185-191.
- Gujarati, D. N. (2004). *Basic econometric* (4th ed.).
- Himmelberg, C. P., Hubbard, R. G., & Palia, D. (1999). Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics*, 53(3), 353-384.

- Hofer, C. W., & Sandberg, W. R. (1987). Improving new venture performance: Some guidelines for success. *American journal of small business*, 12(1), 11-25.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kasprzyk, D., Duncan, G. J., Kalton, G., & Singh, M. P. (1989). *Panel surveys*. John Wiley, New York.
- King, M. R., & Santor, E. (2008). Family values: Ownership structure, performance and capital structure of Canadian firms. *Journal of Banking & Finance*, 32(11), 2423-2432.
- Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance*, 28(4), 911-922.
- Krishnan, V. S., & Moyer, R. C. (1997). Performance, capital structure and home country: An analysis of Asian corporations. *Global Finance Journal*, 8(1), 129-143.
- Majumdar, S. K., & Chhibber, P. (1999). Capital structure and performance: Evidence from a transition economy on an aspect of corporate governance. *Public Choice*, 98(3-4), 287-305.
- Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance*, 34(3), 621-632.
- Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance*, 12(2), 321-341.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297.
- Murphy, G. B., Trailer, J. W., & Hill, R. C. (1996). Measuring performance in entrepreneurship research. *Journal of Business Research*, 36(1), 15-23.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- Nickell, S., Nicolitsas, D., & Dryden, N. (1997). What makes firms perform well? *European Economic Review*, 41(3), 783-796.
- Pushner, G. M. (1995). Equity ownership structure, leverage, and productivity: Empirical evidence from Japan. *Pacific-Basin Finance Journal*, 3(2), 241-255.
- Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, 50(5), 1421-1460.
- Reece, J. S., & Cool, W. R. (1978). Measuring investment center performance. *Harvard Business Review*, 56(3), 28-46.
- Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.
- Short, H. (1994). Ownership, control, financial structure and the performance of firms. *Journal of Economic Surveys*, 8(3), 203-249.
- Soumadi, M. M., & Hayajneh, O. S. (2015). Capital structure and corporate performance: Empirical study on the public Jordanian shareholdings firms listed in amman stock market. *Research Journal of Finance and Accounting*, 6(4), 1-9.
- Weill, L. (2008). Leverage and corporate performance: does institutional environment matter? *Small Business Economics*, 30(3), 251-265.
- Williamson, O. E. (1967). Hierarchical control and optimum firm size. *The Journal of Political Economy*, 75(2)123-138.
- Williamson, O. E. (1988). Corporate finance and corporate governance. *The Journal of Finance*, 43(3), 567-591.
- Zeitun, R., & Tian, G. G. (2007). Capital structure and corporate performance: Evidence from Jordan. *The Australasian Accounting Business and Finance Journal*, 1(4), 40-61.

— This article does not have any appendix. —