THE IMPACT OF MARKET TIMING ON CAPITAL STRUCTURE: EVIDENCE FROM VIETNAM CONSTRUCTION INDUSTRY

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Abstract

The purpose of this study is to test how equity market timing affects capital structure from the Initial Public Offering (IPO) perspective. Using Ordinary Least Square (OLS) technique to analyze a data-set of 102 Vietnamese enterprises in the construction industry for the period from 2006 to 2014, we conclude that, in the short-term, the impact of equity market timing on capital structure is relatively low. Whereas, in the long-term, the impact of equity market timing on capital structure is more obvious.

Keywords: Capital structure; IPO; Market timing; Vietnam.

1. INTRODUCTION

Determining the capital structure to get the best performance for any business is a controversial issue to decide nowadays. Moreover, the policy of increasing capital plays an important role in improving the corporate value. In fact, financing source rise by debt to create tax shields but it also restricts business opportunities and investment business. In addition, the second advantage is that debt, in general, is less expensive than equity. Thus, the suitable capital structure shows an important role in every firm.

Luigi and Sorin (2009) defined market timing of capital structure to be the time when companies chose to issue equity. More specifically, when the stock price was overvalued, the company would issue new shares and vice versa. Market timing is one of the most important factors affecting financial decisions of corporation managers. Henriksson and Merton (1981) used parametric and non-parametric to evaluate the ability to predict, or in detail the effects of market timing to investment decisions of the

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managers. The results showed that there was a significant contribution of market timing to micro forecasting.

In different timings of the market, corporations will issue new shares or repurchase existing shares to gain the most economic benefits. The decision will automatically change the capital structure of the corporation in general or the leverage ratio in detail. According to Baker and Wugler (2002), companies usually issue equity when the market was overestimated and vice versa, and would buy back equity when the price is undervalued.

In Vietnam, mostly large corporations choose IPO (Initial Public Offerings) to issue shares. Besides the successful of IPOs, lots of companies do not succeed. Preparing for IPO, companies must face with strict control, high issuing cost, and importantly the timing decision. If the market is actively operating, stock price is increasing due to the favorable conditions for issuing. In contrast, when the market lies low, companies will face with difficulties when implementing IPO. In fact, inappropriate timing decisions not only negatively affect the company but also the market.

Although market timing has significant effect on financial decisions of managers, in general, the studies of market timing's effects on the change in equity and debt ratio are relatively limited in Vietnam. Hence, the research will focus on the impact of market timing on the changes of capital structure in both short-term and long-term. Based on the outcome, this study will help companies prepare for IPO to have a better view of the difference of capital structure before and after IPO under the influence of market timing. Corporations will be able to prepare thoroughly, choose an appropriate timing to gain the most benefits when doing IPO.

The research will focus on the impacts of market timing on the change of capital structure in respects of short-term and long-term. The remainder of the paper is organized as follows. Section 2 reviews the impacts of market timing on capital structure. Section 3 provides a representation of the data used in empirical research and methodology. Section 4 explains the empirical findings and section 5 concludes the paper.

2. LITERATURE REVIEW

Capital structure has a new theory which was investigated by Baker and Wurgler (2002): “Market timing theory”. In their article, they collected data from all companies that issued IPO in the period 1968 - 1998 - the data were reported by SDC (Security Data Company) to examine the effect of market timing on capital structure. They used market-to-book ratio in order to measure the impact on leverage ratio. The result showed that it was possible to identify the existence of market timing's effects on capital structure and it was strongly persistent (within 10 years). Moreover, the regression results indicated that historical market-to-book ratio played a key role in interpreting leverage ratio.

In the US context, Huang and Ritter (2004) made an attempt in order to study market timing theory through capital structure. They used Compustat and CRSP to collect data during 1963 - 2001 and they excluded utilities and financial firms. Huang and Ritter (2004) applied Shyam, Sunder, and Myers's model (Shyam, Sunder, & Myers, 1999) to test pecking order coefficient. They also used logit model and multinomial logit model so as to estimate the option between debt and equity in leverage ratio. As a final point, their finding indicated that market timing theory provided evidences to explain time-series fluctuation of debt and equity better than tradeoff theory and pecking order theory.

Alti (2006) have selected a sample of firms that were listed by SDC between 1971 and 1999 to examine how market timing impacted capital structure in short-term and long-term. In addition, Alti (2006) also gave new variables: HOT and COLD to support his study. He concluded that hot-market firms reduced leverage ratio by issuing equity dramatically in IPO year. After that, within 2 years after IPO year, they issued more debt. It tended to raise leverage more than cold-market firms. Additionally, after testing the persistent of market timing, the finding showed that in the short-term, market timing affected on leverage ratio significantly but in long-term, this effect is restricted.

Kayhan and Titman (2006) investigated how firms' histories affected debt ratios in the period 1960-2003. In their research, they used BW's market timing measure, they also applied two variables: Yearly timing and Long term timing based on an idea of Baker and Wurgler (2002) about financial deficit to analyze the persistent of history on capital

structure. Their finding revealed that capital structure or particularly, the leverage ratio was driven intensely by market timing. However, in the long-term, the impact of market timing was not persistent.

In contrast to above mentioned studies, Mansson and Tonnel (2010), who analyzed market timing theory in Nordic market, drew different conclusions. He investigated the effect of current market-to-book ratio on leverage ratio by including and excluding historical market-to-book ratio. In excluding historical market-to-book ratio testing, the regression results demonstrated that the relationship between market-to-book ratio and debt issuance was not found. Applying historical market-to-book ratio analysis, market-to-book ratio was not measured market timing. They indicated that the support of market timing theory in Nordic was not found or in detail, there was no relationship between market-to-book ratio and equity issuance.

More recently, Bruinsschoofd and Haan (2012) researched the influence of market timing on corporate capital structure in a sample of the US, the UK and the European firms from 1991 to 2001. BW's model was applied by Bruinsschoofd and Haan for measure market timing. BW's model with a weighted average of historical MB ratios in time-series is dependent variable. This model through the variation of debt issuance in book value to explain equity issuance, the results revealed that market timing affected on European firms slightly, they also proved pecking order theory is more closely with European firms in which debt is favored external equity.

3. DATA AND METHODOLOGY

3.1. Data

Data in the research were mostly secondary and were collected from documentary and some trustworthy finance website: Hanoi Stock Exchange; Hochiminh Stock Exchange; vietstock.vn; and cafef.vn. This paper used the firm's annual report, firm's financial statements, books and other information about market timing. The database embraced some information of the firm like balance sheet; Net income statement. According to the tertiary database, researchers used secondary data to figure out some useful ratios to analyze the data.

About time horizon, the study used the data from 2006 to 2014. The information of each firm would be examined from 2006 to 2014. In this period of time, the economy in over the world as well as in Vietnam changed clearly: The crisis, the stable time, development time. Accordingly, the impacts of market timing on capital structure for the firms in construction industry lengthened from 2006 to 2014 will be figured out carefully and clearly.

3.2. Data analysis method

In this research, the leverage ratio was delineated based on two ways: Book leverage ratio and market leverage ratio. Book leverage ratio could be interpreted as the proportion of a company's assets that are financed by debt (1).

$$\text{Book leverage} = \frac{\text{Book debt}}{\text{Total assets}} \quad (1)$$

To calculate the market leverage ratio, the denominator was changed compared to the book leverage ratio. More specifically, this ratio was calculated by book debt divided by total asset minus book equity plus equity market. In particular, market equity was share price times number of shares (2).

$$\text{Market leverage} = \frac{\text{Book debt}}{\text{Total assets} - \text{Book equity} + \text{Market equity}} \quad (2)$$

Both of ratios were calculated in year t and they represent the debt ratio of business. Leverage ratio was an important financial indicator to assess the effectiveness of the businesses when using funding from debts instead of equity capital. More specifically, the leverage ratio indicated the usage of debt in total assets for the purpose of increasing return on equity and earnings per share of the company.

3.2.1. Independence variables

- Historical market to book value $\left(\frac{M}{B}\right)_{efwa, t-1}$

Where $\left(\frac{M}{B}\right)_{efwa,t-1}$ is the independent variable symbolizing the historical market to book value. To study the persistent in fluencies of market to book on leverage, Baker and Wurgler (2002) created a variable recapitulate relevant important historical factor in the market valuations. A new variable is included external finance weighted average and market to book ratio, this variable is calculated following to the model (3).

$$\left(\frac{M}{B}\right)_{efwa,t-1} = \sum_{s=0}^{t-1} \frac{e_s + d_s}{\sum_{r=0}^{t-1} (e_r + d_r)} * \left(\frac{M}{B}\right)_s \quad (3)$$

In the equation, e_s is net equity issues of company in year “s”, d_s is net debt issues of company in year “s”. About $\sum_{r=0}^{t-1} (e_r + d_r)$, this is the sum of equity and debt issuance from the time of IPO ($r = 0$) to year “t-1”. (M / B) is market to book value. This variable is defined by market equity divided by book equity.

- Market to book value $\left(\frac{M}{B}\right)_{t-1}$

$$\left(\frac{M}{B}\right)_{t-1} = \frac{\text{Market equity}}{\text{Book equity}} \quad (4)$$

Zaran and Zingades (1995) concluded this variable also expressed market mispricing of equity. They also found that there was a negative relationship between market to book value $\left(\frac{M}{B}\right)_{t-1}$ and leverage.

3.2.2. Control variables

- PPE/TA

PPE stands for Property, Plant and Equipment that includes as buildings, furniture, equipment, IT equipment, asset land, laptops, etc., and it is expected to be used during more than 1 year. The formula of PPE/TA is given by (5).

$$\text{PPE/TA} = \frac{\text{Property, Plant and Equipments}}{\text{Total Asset}} \quad (5)$$

- EBIT/TA

EBIT is the earnings before interest, taxes. It might be correlated with leverage which is profitability, since it is associated with the availability of internal funds (Baker & Wurgler, 2002). We can calculate by formulas (6) and (7).

$$EBIT = \text{Revenue} - \text{Expenses (excluding tax, interest)} \quad (6)$$

$$EBIT/TA = \frac{EBIT}{\text{Total Assets}} \quad (7)$$

- Firm's Size

Firm's size is measured in nature logarithmic of net sales. In this research, we use $\ln(\text{net sales})$ as proxy of size. The greater firm's size is, the higher the ability is to access debt from bank or credit institution, so the firms have a tendency to borrow more (Baker & Wurgler, 2002).

$$\text{Size of firm (SIZE)} = \ln(\text{net sales}) \quad (8)$$

3.2.3. Regression models

We consider using the following regression models to identify the impacts of market timing on capital structure of firms.

$$\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1} = a + b\left(\frac{M}{B}\right)_{t-1} + c\left(\frac{PPE}{A}\right)_{t-1} + d\left(\frac{EBITDA}{A}\right)_{t-1} + e\log(S)_{t-1} + f\left(\frac{D}{A}\right)_{t-1} + u_t \quad (9)$$

$$\left(\frac{D}{A}\right)_t = a + b\left(\frac{M}{B}\right)_{\text{efwa}, t-1} + c\left(\frac{M}{B}\right)_{t-1} + d\left(\frac{PPE}{A}\right)_{t-1} + e\left(\frac{EBITDA}{A}\right)_{t-1} + f\log(S)_{t-1} + u_t \quad (10)$$

Where: D/A: Debt/ Asset; M/B: Market value/ Book value; TANG (PPE/TA): Tangible of asset; EBIT/TA: Profitability; SIZE: Enterprise size; e: Net equity issuance; d: Net debt issuance; t: Time IPO.

4. EMPIRICAL FINDINGS

4.1. The effect of market timing on capital structure in short-term

4.1.1. Book value leverage

- Descriptive statistic

The Table 1a and Table 1b illustrate the descriptive statistics of the variables in short-term for the firms IPO in Vietnam. Based on D/A (t) Book Value ratio from IPO to IPO+3, it tends to reduce Debt/ Asset, at 0.7014 (in Year IPO) and 0.6869 (in IPO+3). This trend shows that after IPO, almost of firms decided reducing debt or increasing capital structure. Similarly, the changing of D/A (Book Value) tends to go up year by year. By contrast, the changes between IPO +5 and IPO+4 suddenly decreased.

Table 1a. Descriptive statistic of the variables

Year	N	Short-term					
		D/A (t) Book Value		M/B (t-1)		EBIT/A(t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO	104	0.7014	0.16295	1.8984	1.59033	0.1080	0.06673
IPO+1	101	0.6741	0.1532	1.8109	1.32865	0.1083	0.06700
IPO+2	92	0.6615	0.16207	1.5709	1.21061	0.1088	0.14826
IPO+3	92	0.6869	0.16685	1.0373	0.99354	0.0932	0.07304
IPO+4	79	7858	0.78635	0.7837	0.69423	0.0903	0.10655
IPO+5	53	7257	0.14378	0.9255	0.82514	0.1082	0.26270

Table 1b. Descriptive statistic of the variables

Year	N	PPE/A(t-1)		Ln(S) (t-1)		Change of D/A (Book value)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO	104	0.1366	0.12066	26.0732	1.44230		
IPO+1	101	1.1454	0.11939	26.0594	1.22338	-0.0261	0.09265
IPO+2	92	0.1497	0.18445	26.2366	1.19179	0.0051	0.09682
IPO+3	92	0.1283	0.11962	26.3612	1.19288	0.0174	0.10157
IPO+4	79	0.1167	0.11273	26.1666	3.17619	0.0903	0.77413
IPO+5	53	0.1702	0.29213	26.0128	3.87114	0.0168	0.66760

- OLS regression analysis

Table 2a. The results of regression model considering short-term impact on the market timing to change D/A_t (Book value) in IPO+5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.332	0.110	0.015	0.06625

Note: Predictors: (Constant), DA, EBIT, PPE, MB, FirmSize

Table 2b. The results of regression model considering short-term impact on the market timing to change D/A_t (Book value) in IPO+5

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	0.177	0.117			1.519	0.135
MB	0.010	0.011	0.121		0.856	0.397
PPE	-0.026	0.052	-0.112		-0.489	0.627
EBIT	0.000	0.036	0.001		0.007	0.994
FirmSize	-0.003	0.004	-0.193		-0.831	0.410
DA	-0.111	0.064	-0.245		-1.736	0.089

Note: Dependent variable: ChangeOfBookLeverage

The research uses regression model to determine the impact of market timing on capital structure. First, we investigate whether there is a short-term relationship in the research sample or not.

$$\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1} = a + b\left(\frac{M}{B}\right)_{t-1} + c\left(\frac{M}{B}\right)_{t-1} + d\left(\frac{PPE}{A}\right)_{t-1} + e\left(\frac{EBITDA}{A}\right)_{t-1} + f \log(S)_{t-1} + g\left(\frac{D}{A}\right)_t + ut \quad (11)$$

We choose $\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1}$ as a representation short term for changing capital structure annually. This model mainly focuses on the impact of $\left(\frac{M}{B}\right)_{t-1}$ to $\left(\frac{D}{A}\right)_t - \left(\frac{D}{A}\right)_{t-1}$ in a short time.

Table 3. A summary result of M/B_{t-1} variable

M/B_{t-1}	Beta	Significant
M/Bipo1	-0.008	0.231
M/Bipo2	-0.012	0.141
M/Bipo3	-0.019	0.123
M/Bipo4	-0.052	0.829
M/Bipo5	0.010	0.397

After we applies regression model to research data, we determine a number of observations about the short-term impact of market timing.

$\left(\frac{M}{B}\right)t - 1$ has a negative effect with $\left(\frac{D}{A}\right)t - \left(\frac{D}{A}\right)t - 1$ in almost time research.

The results are similar to the theory demonstrated in the research of Baker and Wurgler (2002). They suppose that the enterprise has tend to issue stocks when overvalued market than practical situation which book value company is exaggerated same expectation of market. This consequence leads to the market mispricing of this year reducing the ratio of debt / total assets in next year. Thus, in other words, it means that leverage ratio difference between the two years will be reduced in book value. However, the outcomes are unclear when the number of significant shows a remarkable gap, at 0.231, 0.141, and 0.123 respectively.

By contrast, a surprise was in two of years, in IPO+4 and IPO + 5, the M / B indexes, which was great with low significance of 0,829 and 0.397. Moreover, $\left(\frac{M}{B}\right)t - 1$ has the negative effect with $\left(\frac{D}{A}\right)t - \left(\frac{D}{A}\right)t - 1$ with Beta is 0.052 and, $\left(\frac{M}{B}\right)t - 1$ has the positive effect with $\left(\frac{D}{A}\right)t - \left(\frac{D}{A}\right)t - 1$ with Beta is 0.010. It is likely that after a business operates the process in a long time, Perception on changing $\left(\frac{D}{A}\right)t - \left(\frac{D}{A}\right)t - 1$ becomes practical and nearly come up to actual market value, changing book value approximately market value.

On the other hand, one more reason for this trend that almost enterprises initial public offering in IPO +4 and IPO +5 is a two-period time 2006- 2007 and 2010-211. It is a gap time beginning and termination of economic crisis which Vietnam Stock market is strongly depended on, so the market is unattractive investor. It is due to the manager who has not been able to take advantage of short-term time to bring benefit for shareholder. Therefore, the issuance of shares does not play an important role; The small-scale issuance leads to resulting at the moment is not impact on the capital structure.

In fact, it is not obvious to confirm the level impact of $\left(\frac{M}{B}\right)t - 1$ on $\left(\frac{D}{A}\right)t - \left(\frac{D}{A}\right)t - 1$ in short time when two results have negative effect in the beginning period of

IPO and positive effect in the later period. From these results, we confirmed that the M / B impact on the capital structure was with low signal and irrelevant.

Groups believe that the model considered lasting impact of information in the past to the current capital structure with the use of $\left(\frac{M}{B}\right)efwa, t - 1$ will give a clear result than the short-term impact on the team studied. The expected result would be as follows: Variable EBIT/TA, M / B expression had negative correlation; PPE/TA variable (charges tangible assets) and SIZE (size of business) was positively correlated with the level

There is an increase in the ratio of D/A. Therefore, the companies with the large amount of fixed assets are able to mortgage a bigger loan. It is due to the easily access to loans, and simultaneously leads to upturn the using debt. On the other hand, enterprises have greater scale; Loan debt becomes easier and therefore also encourages an increase in leverage.

4.1.2. Market value leverage

- Descriptive statistic

According to Table 4a and Table 4b, we have an overview situation of the business IPO; The sample firms have an uneven structure of debt and capital, with a slight difference in average. In first three years after IPO, firms still tend to increase the debt or decrease the equity capital, which reflected in the mean value of the variable D/A(t) that increased gradually over the year (the average value is 0.619; 0.7056; 0.7723, respectively over the year).

Table 4a. Descriptive statistic of the variables

Year	N	D/A (t) Market value		M/B(t-1)		EBIT/TA(t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO	104	0.6129	0.20297	1.8984	1.59033	0.1080	0.06673
IPO + 1	101	0.6190	0.22334	1.8109	1.32865	0.1083	0.06700
IPO + 2	92	0.7056	0.18732	1.5709	1.21061	0.1088	0.14826
IPO + 3	92	0.7723	0.18123	1.0373	0.99354	0.0932	0.07304
IPO + 4	79	0.7417	0.20294	0.7837	0.69423	0.0903	0.10655
IPO + 5	53	0.8069	0.16333	0.9255	0.82514	0.1082	0.26270

Table 4b. Descriptive statistic of the variables

Year	N	PPE/TA(t-1)		Ln(S) (t-1)		Change of D/A (Market value)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO	104	0.1366	0.12066	26.0732	1.22423		
IPO + 1	101	1.1451	0.11939	26.0594	1.22338	0.0029	0.20454
IPO + 2	92	0.1497	0.18445	26.2366	1.19179	0.0968	0.15558
IPO + 3	92	0.1283	0.11962	26.3612	1.19288	0.0806	0.15412
IPO + 4	79	0.1167	0.11273	26.1666	3.17619	-0.0138	0.11531
IPO + 5	53	0.1702	0.29213	26.0128	3.87114	0.0548	0.18175

Especially, since IPO+ 1 to IPO +2, the level of increase is quite significant (from 0.619 in the year IPO +1 jump up to 0.7056 in the year of IPO+2). However, it is special in the year of IPO + 4, the mean value has gone down even though there is not much reduced level. Enterprises tend to reduce the debt or increase the equity capital (the D/A(t) ratio from 0.7723 in the year of IPO + 3 fell down to 0.7417 in the year of IPO +4). After IPO +4, in the year of IPO+5, businesses return to previous trend, which increases debt or decreases share capital. Therefore, the expectation firms group can adjust the capital structure through the issued equity capital and take advantages from market timing. However, according to the column of M/B(t-1), it seems that the firms in the sample are valued differently by market year by year. In the year of IPO +1 and IPO + 2, the firms are valued as the strongest as the rate of M/B(t-1) in two years are quite high and are 1.8109 and 1.5709, respectively. By the year IPO +3, it seems that firms are not overvalued because the rate of M/B(t-1) average is not much higher than 1 and in the next years (IPO + 4 and IPO + 5) businesses will not be are not be highly appreciated (because the M/B(t-1) are lower than 1). The M/B(t-1) on average was just stable from IPO +1 to the year IPO + 4 (the standard deviation goes down bit by bit), in the year IPO + 5, the standard deviation went up slightly. Continuously, we consider to the profitability of the enterprises, we can see that the profitability of the business tended to drop slightly and shoot up fast in IPO + 5, which is very special when analyzing the impact of market timing on capital structure.

- OLS regression analysis

After running the regression, we have some comments about the short-term effect of market timing as follows.

Table 5a. The results of regression model considering short-term impact on the market timing to change D/A_t (Market value) in IPO+5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.659	0.435	0.374	0.14376

Note: Predictors: (Constant), DA, FirmSize, PPE, EBIT, MB

Table 5b. The results of regression model considering short-term impact on the market timing to change D/A_t (Market value) in IPO+5

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.224	0.398		0.563	0.576
MB	0.071	0.034	0.322	2.085	0.043
PPE	0.042	0.070	0.067	0.599	0.552
EBIT	-0.009	0.079	-0.012	-0.109	0.914
FirmSize	0.001	0.016	0.010	0.089	0.929
DA	-0.370	0.152	-0.384	-2.425	0.019

Note: Dependent variable: ChangeOfMarketLeverage

While $M/B(t-1)$ has negative correlation with $D/A_t - D/A_{t-1}$ just in the year of IPO +1 and IPO +3, $M/B(t-1)$ has positive correlation in three years: IPO + 2; IPO + 4 and IPO + 5. This is not similar to the idea about market timing from research of Baker and Wurgler (2002): The firms issue shares to the public when being highly valued by the market. Therefore, the impact of $M/B(t-1)$ on $D/A_t - D/A_{t-1}$ is not clear. However, this impact is quite slight and almost has no signification (sig in these year are quite high and are 0.228; 0.362; 0.386; 0.693 respectively and higher than 5%). However, surprisingly, in the year of IPO +5, $M/B(t-1)$ is pretty big significance (sig = 0.043 > 5%). This improves that in the year of IPO + 5, $M/B(t-1)$ had strong impact on $D/A_t - D/A_{t-1}$.

According to the result from regression, we found that among the years of IPO, the ratio of debt on total asset (showed by D/A) had the highest B-value in the year of IPO + 4 (B= -0.235) but this variable had high signification just in first three years after

IPO with the super standard signification (p. value = 0.000). However, in the year of IPO + 4 and IPO + 5, the signification of D/A went down (p. value = 0.13 and 0.19, respectively and higher than 5%). It means that in first three years, the variable D/A had a strong impact on dependent variable, and two year later, the level of impact went down.

Moreover, we find that there were two other variables which were significant and affected negatively on the difference in debt on asset ratio through the year and they were the previous capital structure and the profitability. The firm which had high profitability or used much debt in the previous year (the year t-1) would consider decreasing debt in this year (the year t) in order to gain the flexibility.

Similar to the study of Baker and Wurgler (2002), the other variables in the research are reached to the expectation, such as: EBIT/TA, Firm Size. With the variable EBIT/TA, M/B (t-1) showed negative correlation. The variable of Size (the size of firm) had positive correlation with the increasing in ratio of $D/At - D/A(t-1)$. The firms which had big fixed asset will have higher mortgaging asset ability, which makes it easier to approach to source of capital and lead to the trend of increasing debt. Moreover, it shows that the bigger the firms are, the easier it is for them to borrow money, which also encourages the increase of the leverage ratio. Finally, we consider the variable PPE, which has positive correlation in three years (IPO + 2; IPO + 4 and IPO + 5) with the sig value are 0.873; 0.145 and 0.552 respectively and higher than 5%. The PPE has negative correlation in two years (IPO +1 and IPO + 3) with the sig value are 0.22 and 0.171 (higher than 5%), the small signification. This shows that the level of impact of fixed asset in the construction firms in Vietnam is not high in debt capacity.

4.2. The effect of market timing on capital structure in long-term

4.2.1. Book value leverage

- Descriptive statistic

From Table 6a and Table 6b we can see that the difference between years IPO of D/A Book value is not considerable (just fluctuating from 8-12%). However, we could recognize clearly the trend of increasing debt or decreasing join stock capital. The change

and adjustment of capital structure throughout repurchase and issue stock of enterprise, which bases on the wrong evaluation of market. Consequently, the expectation about the change will impact on market timing.

Table 6a. Descriptive statistic of the variables

Year	N	D/A(t) Book Value		M/B(t-1)		EBIT/TA(t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO							
IPO + 1	101	0.6741	0.15320	1.8109	1.32865	0.1083	0.06700
IPO + 2	92	0.6615	0.16207	1.5709	1.21061	0.1088	0.14826
IPO + 3	92	0.6869	0.16685	1.0373	0.99354	0.0932	0.07304
IPO + 4	79	0.7858	0.78635	0.7837	0.69423	0.0903	0.10655
IPO + 5	53	0.7257	0.14378	0.9255	0.82514	0.1082	0.26270

Table 6b. Descriptive statistic of the variables

Year	N	PPE/TA(t-1)		Ln(S) (t-1)		M/B(efwa) (t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO							
IPO + 1	101	0.1451	0.11939	26.0594	1.22338	1.8109	1.32865
IPO + 2	92	0.1497	0.18445	26.2366	1.19179	1.8626	1.40681
IPO + 3	92	0.1283	0.11962	26.3612	1.19288	1.3527	1.20702
IPO + 4	79	0.1167	0.11273	26.1666	3.17619	1.6361	1.23779
IPO + 5	53	0.1702	0.29213	26.0128	3.87114	1.6376	1.14928

M/B index has many differences throughout years, reaching peak in IPO years. After that, it will reduce gradually at the years later. This research shows that throughout time, the enterprise in sample will not be evaluated well by market. We can explain easily these problems due to exploration of Vietnam security market in 2006 and 2007 with dramatically growth of security (VN-index, Vietnam index stock has increased at peak 1000 point). The value of stock is evaluated better than the real value. And then, the stock market has stop short trend and the stock price gradually returned to the real value. As a result, the wrong evaluation becomes smaller and smaller. In this research about long-term impact, we will not expect to big influence from M/B variable because it does not show all impacts of information in the past. We do not expect that there will have an

impact from M/Bewfa on capital structure so as to indicate the effect of market timing in long-term.

Furthermore, other variables (EBIT/TA, PPE/TA and FirmSize) do not change too much throughout each year. Consequently, it shows that building companies in variables research does not have change about asset and the size of enterprise

- OLS regression analysis

In this part, we will investigate the impact of market timing on the structure of capital in enterprise. In long-term, with dependent variable is Book leverage. As the below analysis part, in short-term, market timing did not completely affect capital structure. Nevertheless, according to the statement of Baker and Wurgler (2002), long-term impacts of market timing on capital structure are due to the wrong evaluation cost of market and managers make use of countless to these opportunities. Consequently, market timing will influence to capital structure in long-term if it is not affected by issue activities and buyback stocks activities later. M/B efwa is variable which is typical for all others M/B in the past until the moment $IPO + k$. As a result, we hope that there will have negative impacts between M/B(efwa) and leverage rate (capital structure of business).

As recurrent result shows M/B (t-1) has influence on capital structure of company in $IPO + 1$ year (with reliable rate is 99%, Sig. < 1%), with negative impacts on capital structure. In later years, M/B (t-1) has positive impacts, this result is contrast with Baker and Wurgle (2002). However, the impacts were very weak and unmeaning because Sig. of these year are high, relatively, 0.533, 0.992, 0.665, 0.817 > 5%. Consequently, M/B (t-1) variable has a few impacts on Book leverage in long-term. Also, in particularly, in this research, it only affects capital structure of company after 1 year IPO and other years lately. Especially at $IPO+4$, $IPO+5$, M/B (t-1) does not affect. These demonstrations could explain due to. In years such as $IPO+4$ and $IPO+5$ include a great deal of companies carrying out IPO in years from 2006 to 2009 and get through difficult periods in 2011, 2012. As a result, the market is going down and evaluation wrongly will not occur. Moreover, publishing gross Join-Stock capital is represented by M/B (t-1) will not

influence too much anymore. Consequently, these demonstrations show M/B in short-term was not valuable in Book leverage as in long-term.

Table 7a. The results of regression model considering long-term impact on the market timing to D/A_t (Book value) in IPO+5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.164 ^a	0.027	-0.076	0.14918

Note: Predictors: (Constant), FirmSize, MBefwa, EBIT, MB, PPE

Table 7b. The results of regression model considering long-term impact on the market timing to D/A_t (Book value) in IPO+5

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.676	0.259		2.615	0.012
MBefwa	-0.015	0.022	-0.118	-0.684	0.497
MB	0.007	0.029	0.039	0.232	0.817
PPE	-0.032	0.120	-0.066	-0.269	0.789
EBIT	0.002	0.084	0.004	0.025	0.981
FirmSize	0.003	0.009	0.075	0.310	0.758

Note: Dependent variable: BookLeverage

In contrast, M/B (efwa) variable, which represents to market timing join-stock capital in the past has big impacts. Besides, it also has meaning in long time and just increase in IPO+5 year. M/B(efwa) variable has opposite effects on capital structure from IPO+4 year to IPO+4 with Sig. < 5%. As far as these demonstrations illustrate countless opportunities to market timing in the past like other words as in the past, although the information is little, it still dramatically affects dramatically to capital structure. Similar to Baker and Wurgler (2002), the effect of M/B(efwa) is bigger than M/B (t-1). From now, we can recognize clearly the fluctuation of M/B in the past, every company had impact on Book leverage in long-term. In addition, the market timing also had long-term influence on capital structure of enterprises, especially 4 years after IPO in this research.

Finally, other variables also have impact with quite high meaning (Sig. <5%) for instance, EBIT/TA (t-1) and Firm Size. Meanwhile, EBIT/TA (t-1) has opposite correlation with Book leverage, which indicates that the profitability above asset is high. Consequently, it helps to reduce debt rate throughout retained profit of company

according to Pecking Order Theory. As well as FirmSize, it also has much meaning in whole years, which illustrates that in big size company, it is easy to raise capital by borrowing debt along with mortgage. Consequently, there is a positive correlation between FirmSize and Book leverage in enterprise. About PPE/TA variable, it has negative correlation in almost years but with low meaning. (Sig. are 0.93, 0.258, 0.529, 0.897, 0.789 >5% in turn), which illustrates that in Vietnam building enterprises, unsupported fix assets have big impact on Raise capital as well as Book leverage.

4.2.2. Market value leverage

- Descriptive statistic

Table 8a. Descriptive statistic of the variables

Year	N	D/A (t) Market Value		M/B(t-1)		EBIT/TA(t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO							
IPO + 1	101	0.6190	0.22334	1.8109	1.32865	0.1083	0.06700
IPO + 2	92	0.7056	0.18732	1.5709	1.21061	0.1088	0.14826
IPO + 3	92	0.7723	0.18123	1.0373	0.99354	0.0932	0.07304
IPO + 4	79	0.7417	0.20294	0.7837	0.69423	0.0903	0.10655
IPO + 5	53	0.8069	0.16333	0.9255	0.82514	0.1082	0.26270

Table 8b. Descriptive statistic of the variables

Year	N	PPE/TA(t-1)		Ln(S) (t-1)		M/B(efwa) (t-1)	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
IPO							
IPO + 1	101	1.1451	0.11939	26.0594	1.22338	1.8109	1.32865
IPO + 2	92	0.1497	0.18445	26.2366	1.19179	1.8626	1.40681
IPO + 3	92	0.1283	0.11962	26.3612	1.19288	1.3527	1.20702
IPO + 4	79	0.1167	0.11273	26.1666	3.17619	1.6361	1.23779
IPO + 5	53	0.1702	0.29213	26.0128	3.87114	1.6376	1.14928

Based on statistics for the long-term, we can see status debt of business, they have changed significantly. Considering the mean values, in the first three-year period from IPO +1 to IPO+3 with a value increase slightly are 0619; 0.7056; and 0.772, respectively. At the time IPO + 4, values have decreased slightly but not significantly and rose sharply

during the IPO + 5 with value are 0.7417 and 0.8069 respectively. This indicates that firms tend to increase the debt after the IPO period or otherwise increase financial leverage. In particular, the value means of EBIT/TA and Ln(S) fluctuate the least. In contrast, two variables PPE /A and M/B fluctuate quite strongly. For example, M/B(t-1) variable continuous reducing after IPO time with the value from 1.8109 to 0.9225 (from IPO+1 to IPO+5). To PPE/TA variable, it sharply fell after IPO, with value from 1.1451 to 0.1702 (from IPO+1 to IPO+5). These shows that Tangible assets are not significant in loans of firms. In particularly, M/B_{efwa} has down trend after IPO but slightly reduce from 1.8109 to 1.6376 (from IPO+1 to IPO+5).

Considering standard deviation, the values of independent and dependent variables are minor. This shows that the variables in the table have high homogeneous values. The variables have small values from 0.1 to 0.2. In particular, only two dependent variables Ln(S)(t-1) and M/B_{efwa} are higher, with value from 1.1 to 1.4

- OLS regression analysis

The regression shown the market leverage like the dependent variable and MB_{efwa} is presented. The variable MB_{efwa} could be seen like the measure of market timing impact on the persistence. When considering the significant indicators in the independent variable, MB_{efwa} , EBIT and Firm size are three variables of suit models is given. For example, in year IPO + 1, three indexes are 0.001 and 0.004 and 0 respectively, less than 0.05. With the regression, the market leverage like dependent variable, MB_{efwa} was included as an explanatory variable only a control variables EBIT is significant. However, EBIT and market leverage have negatively correlated, implying that if the profit increased the market leverage will decline because the equity market actually increases. MB_{efwa} also have a negative correlation with market leverage as predicted by market timing theory. This also shows MB_{efwa} to is found to have a significant impact on the market leverage.

Table 9a. The results of regression model considering long-term impact on the market timing to D/A_t (Market value) in IPO

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.190	0.036	-0.066	0.16866

Note: Predictors: (Constant), FirmSize, MBefwa, EBIT, MB, PPE

Table 9b. The results of regression model considering long-term impact on the market timing to D/A_t (Market value) in IPO

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	0.802	0.292			2.742	0.009
MBefwa	-0.021	0.024	-0.147		-0.855	0.397
MB	-0.009	0.033	-0.047		-0.283	0.476
PPE	0.000	0.136	0.000		-0.001	0.999
EBIT	-0.013	0.095	-0.021		-0.140	0.899
FirmSize	0.002	0.010	0.045		0.187	0.853

Note: Dependent variable: MarketLeverage

Secondly, when considering index B of the regression model, the FirmSize variable has relatively large value in the other variables. This shows that it has the great significance to all of year, from IPO + 1 to IPO+ 5 with 0.062; 0.073; 0.044; 0.006 and 0.002 respectively. This also means that when the enterprises increase its scale, the debt financing becomes easier and D/A will increase. This is consistent with the reality in Vietnam, which is almost large, and business with reputation often greater priority in accessing loan capital. For M/B_{t-1} variable presents the change of growth opportunities (Baker & Wurgler, 2002) have the negative correlation affects on the capital structure. This is completely consistent with the theory is given.

Thirdly, when considering the R-square index, the value ranges from 0.312 to 0.462 for five years. This indicator may be acceptable, but it also reflects the independent variables have weak correlation with the dependent variables. To consider $EBIT_{t-1}$ variable has negative correlation with D/A_t implying the firms have high profitability will reduce the debt ratio through retained earnings following to pecking-order theory.

Finally, the PPE variable has negative correlation in IPO+1 and IPO+4, and it impacts positive correlation in IPO+2 and IPO+3. However, they are quite weak and low

significance, which presents implications for Vietnam enterprises, i.e. fixed assets do not support for the loans.

5. CONCLUSION

In the short-term, when dependent variables are the change to book leverage, there is a negative correlation between market to book ratio (M/B_{t-1}) variable and the change to book leverage ($D/A_t - D/A_{t-1}$) variables. This result is equivalent to the conclusions of the Baker and Wurgler (2002) who claim that the market mispricing affects the equity issuance. Particularly, with high market valuations, the company will reinforce the equity issuance; it leads to reduce the leverage ratio. In contrast to the result above, the regression result for changing to book leverage variable shows a positive correlation between market to book ratio (M/B_{t-1}) variable and the dependent variable. However, in both cases, market to book ratio variables were not significant in the model; In other words, the effect of market timing in the short-term is not obvious and very weak.

This study also focuses on the effect of market timing in a period with the high volatility of the market (financial crisis, development period of Vietnam securities); therefore, the mispricing entirely can occur. However, to explain the market to book value variable has no impact on capital structure in the short-term; The paper suggests that although managers can appreciate the mispricing opportunity, the equity issuance is dominated by a lot other element: The management of the State, the high costs, and the decision of the shareholders. In the study of Baker and Wurgler (2002), when investigating the impact of market timing in the long term, they concluded that market timing has persistence impact on the capital structure of company at least for 10 years. In this paper, for the construction industry in Vietnam, with dependent variables are market leverage and book leverage, the regression results show that market timing has an effect only within 4 years after IPO. However, the study showed the same results with Baker and Wurgler (2002) in which the impact of market timing in the past on leverage ratio was relatively high, which reflected historical market to book ratio variable (M_{efwa}) in 4 years after IPO had moderately significance of regression models and had negative effect on the capital structure of the business. This is a signal to demonstrate that the factors relevant to the valuation in the past have persistence impact on the capital structure of

company. After considering the impact of market timing on capital structure of the companies in construction industry in Vietnam, there is persistence impact of market timing on capital structure in the long term. However, the effect of market timing in the short-term is very weak and it doesn't have significance on leverage ratio. This paper just applies OLS as a basic analysis tool. Further research can test the OLS assumptions or use the different methods to examine the impacts of market timing on capital structure.

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ẢNH HƯỞNG CỦA VIỆC ĐỊNH THỜI ĐIỂM THỊ TRƯỜNG LÊN CẤU TRÚC VỐN: BẰNG CHỨNG TỪ NGÀNH CÔNG NGHIỆP XÂY DỰNG Ở VIỆT NAM

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Lịch sử bài báo

Nhận ngày 08 tháng 09 năm 2016 | Chính sửa ngày 08 tháng 11 năm 2016

Chấp nhận đăng ngày 16 tháng 11 năm 2016

Tóm tắt

Nghiên cứu này nhằm kiểm tra ảnh hưởng của việc định thời điểm thị trường lên cấu trúc vốn của các doanh nghiệp lần đầu tiên phát hành cổ phiếu ra công chúng (IPO). Tác giả sử dụng phương pháp bình phương tối thiểu thông thường (OLS) để phân tích một tập dữ liệu gồm 102 doanh nghiệp ngành xây dựng ở Việt Nam trong khoảng thời gian từ năm 2006 đến năm 2014. Kết quả nghiên cứu cho thấy ảnh hưởng việc định thời điểm thị trường trong thời gian ngắn hạn là khá thấp trong khi tác động trong dài hạn là khá rõ ràng.

Từ khóa: Cấu trúc vốn; Định thời điểm thị trường; IPO; Việt Nam.