The Impact of Managerial Overconfidence on Capital Structure: Empirical Evidences in Vietnam

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ABSTRACT

This paper studies the effects of the managerial overconfidence on the corporate capital structure in the Vietnamese stock market for the period 2010-2016 by estimating generalized least squares (GLS) on a sample of 329 non-financial firms listed on the Ho Chi Minh City Securities Exchange. Research results show that managerial overconfidence has an impact on corporate capital structure, in particular firms with overconfident managers have higher overall leverage and short-term liabilities, but tend to reduce long-term debt ratio. In addition, state-owned enterprises having overconfident managers experience higher long-term debt ratios than other enterprises.

Keywords: Capital Structure, Managerial Overconfidence, Non-financial Listed Firms, Vietnam
JEL Classifications: G41, G32

1. INTRODUCTION

Capital structure is one of the most important concerns that every CFO pays special attention to. Therefore, the study of capital structure always attracts the attention of researchers in the world as well as in Vietnam. Since the publication of Modigliani and Miller (1958), many authors have studied capital structure studies in developed countries such as Bevan and Danbolt (2002), Akhtar and Oliver (2009), Frank and Goyal (2003) and developing countries such as Booth et al. (2001), Pandey (2001), Chen et al. (2011), etc.

The study of determinants of capital structure is necessary and useful for managers to organize and rearrange the business capital of the enterprise through selection and implementation financing decisions aimed to achieve a rational capital structure that is adapted to each stage of development. Because optimal capital structure helps businesses minimize the cost of capital, it thereby maximizes business value. According to Frank and Goyal (2009), capital structure also affects the profitability and risks that

businesses may face. Therefore, choosing the right capital structure is an art in financial management.

In addition to the usual determinants, this paper approached the problem of corporate capital structure in terms of behavioral finance, namely the managerial overconfidence. With this new element, the research paper expects to add a special determinant explaining the change in the debt ratio of the firm. This helps businesses identify the core elements as well as has an accurate view of the influence of management behavior on capital structure and making appropriate decisions in financing.

Vietnam is a transitional economy, which has changed from centrally planned economy to a market one, with many state-owned enterprises (SOEs) dominating the economy shown by Minor et al. (2018) that SOEs contributed an estimated 32.2% to Vietnam's GDP at the end of 2013. The study also expects to understand the managerial overconfidence in SOEs and whether the effect of this overconfidence on the corporate capital structure is different from private owned enterprises.

To our knowledge, no research has been done on this subject in Vietnam before.

The next section of this paper covers literature review, research methods and data collection and analysis, discussions, and conclusion.

2. LITERATURE REVIEW

De Bondt and Thaler[1] (1995) argue that the discovery of overconfidence is one of the most robust findings in decision-making psychology field. Psychological studies yielding results that almost every individual are psychologically over-confident.

Overconfidence is a trend to self-assess the knowledge, ability, and accuracy of information (signals of future possibilities), and at the same time, to underestimate the adverse outcomes and risks can occur. According to Nofsinger (2005), psychologists have determined that overconfidence makes overestimate their knowledge, underestimate their risk, and exaggerate their ability to control events.

Malmendier and Tate (2005) noted that executives, especially senior executives, are easily affected by overconfidence and optimism. They face complex and abstract situations, where knowledge is limited, they perceive high levels of control and they demonstrate high levels of engagement; all these things put them in a state of overconfidence.

2.1. The Theoretical Foundation of the Relationship between Overconfidence and Capital Structure

The most basic theory of capital structure is that of Modigliani and Miller (M and M) in 1958 - which is considered to be the starting point for studies of modern capital structure. In the two cases studied, the enterprise operates in a non-tax environment and in a tax environment, M and M has made important conclusions about the corporate capital structure. Specifically, in the 1958 study, the assumption of no corporate income tax (CIT), the M and M theory holds that the structure of capital does not affect the value of the firm (Modigliani and Miller, 1958). The authors later (Modigliani and Miller, 1963), by incorporating CIT into the research model, concluded: Under CIT conditions, the value of the levered firm is higher than the value of the unlevered firm because of the benefits from the tax shield (or levered value equal to the value of the unlevered firm plus the present value of the "tax shield").

However, the limit of this theory is in the assumptions of the model (perfect market, no financial distress, no transaction costs) that does not exist in the real capital market. So far, many researchers have tend to adjust the M and M theory by easing the assumptions and taking in account the characteristics of the real market and its participants. The most popular theories are trade-off theory, pecking order theory, market timing theory, among others.

The trade-off theory inherently developed by Kraus and Litzenberger (1973) suggests that business executives can identify an optimal capital structure that maximizes firm value based on trade-offs between the benefits and costs of debt (the tradeoff between tax shields and financial distress). According to Myers (2001), the greater the corporate debt, the greater the benefit of the tax shield, but the trade-off is the increase in the cost of financial distress. An optimal lever happens when a balance between the benefits and costs of debt is achieved.

Myers and Majluf (1984) published research to show that there is a prioritization of the use of internal and external funding sources, new debt issuance and new equity issuances from asymmetric information between the firm and its counterparties. This leads to a pecking order, whereby the firm's investment will be financed first by internal capital (mainly retained earnings), followed by new debt issuance and final by new equity issuance. Yet, for that reason, the authors argued that it is difficult to determine an optimal capital structure, as theoretically, owner equity is ranked first (retained earnings) and last (issuing new shares) in the classification order.

Baker and Wurgler (2002) argue that market timing is the first factor to consider in determining the corporate capital structure, meaning that the managers of firms generally do not pay attention to the use of debt or equity. They choose the type of funding that brings greater firm value at a specific moment of time. Welch's (2004) study concludes that shocks in stock prices create a prolonged effect on the capital structure and the financing decision of the firm.

The trade-off theory, pecking order theory, and market timing theory are different, but they are based on an important assumption that all participants in the market, including managers, are rational. In fact, the market imperfection and human behavioral science also demonstrates that humans are not entirely rational and easily misled. The extensive literature on psychology and behavior suggests that most people, including investors and managers, have significant limitations in their perceptions and tend to develop deceptive behaviors that influence, sometimes heavily on the decision. Thus, the theory of behavioral finance has recently emerged, as an important factor in explaining the financial decisions of people.

Ricciardi and Simon (2000) discusses behavioral finance attempts to explain and improve understanding of the theoretical basis of investors, including the associated emotional processes and the extent to which they affect the decision process. Basically, behavioral finance tries to explain what, why, and how in finance and investment but from the human behavioral perspective.

According to Shefrin (2002), three main considerations to consider in order to better understand behavioral finance are bias, experience, and pattern effects. Shefrin classifies the bias in behavioral finance as comprising four types: Overconfidence; Excessive optimism; Confirmation bias; Illusion of control. According to Heaton's model (2002), optimistic managers influence the firm's capital and financial structure. A similar forecast is also provided by Malmendier and Tate (2005; 2008)

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1   Richard H. Thaler, Ph. D., a professor of Chicago University, Nobel Prize in Economics 2017 for his "Nudge" theory. He is an American economist and the Charles R. Walgreen Distinguished Service Professor of Behavioral Science and Economics at the University of Chicago Booth School of Business.

and Fairchild (2005). Or, according to March and Shapira (1987), after choosing the investment projects, managers become frequent victims of the so-called "hallucinogenic" problem and underestimate the probability of failure of the project.

In the above four types of behavioral finance, overconfidence is most closely related to the manager. Therefore, within the research limits of the article, the authors focus only on "overconfidence."

2.2. The Effect of Overconfidence on the Corporate Capital Structure

Many research papers around the world have provided empirical evidence to demonstrate the effect of managerial overconfidence on the corporate capital structure. In this way, the papers examine the explanatory ability of traditional capital structure theories and add to human behavioral factors. Most of the studies suggest that there is a positive correlation between overconfidence and debt ratio. Overconfident managers tend to take more debt than others.

Hackbarth model (2002) suggests that managers who are overly optimistic and/or overconfident often choose higher debt levels and issue new debt more often. Obviously, this is because managers are overconfident that their firms are less financially disturbed than they really are, which in turn means that executives underestimate the overhead costs and will borrow more debt to exploit the tax benefits. Oliver (2005) studies the pattern of US firms that have existed for more than 25 years. The author finds that overconfidence of management is significant in explaining the firm's financial decisions. This affirms the theoretical in behavioral finance that the more confident managers are, the more likely they are to issue debt.

Barros and da Silveira (2007) argues that differences in attitudes, styles, and perceptions of reality pertain to individual characteristics of individual executives that can significantly influence a company's decisions. In particular, the study has the same effect as Hackbarth (2002), providing further evidence that managerial overconfidence is an important determinant of the corporate capital structure. In the same year, Ben-David et al. (2007) published a paper showing that overconfident managers often neglect financial distress and therefore use higher leverage than optimal level.

In Malmendier and Tate's (2005) study, using data from an individual's portfolio of executives, categorize managers based on overconfident level and examine the relationship between overconfidence and capital structure decision. The results show that managers who are overconfident tend to be less likely to issue equity than the others. However, there are still different results as from Tomak (2013), which shows that the relationship between overconfidence and debt ratio is unclear, with no clear and sufficient evidence that overconfident managers tend to use more debt.

Esghaier (2017) investigated the role of manager's overcondidence and optimism on financing choice of 160 US industrial companies listed over the period from 2009 to 2015, and found the positive relationship between overcondidence and optimism and firm leverage. Based on above empirical and theoretical empirical evidence, the authors expect that there is a positive relationship between managerial overconfidence and debt ratios in Vietnamese firms.

2.3. Impact of State Ownership (SO) on Capital Structure

Zou and Xiao (2006) conducted research of listed firms in China and indicates the SO ratio has a positive correlation with the debt ratio for three reasons: First, SOEs have better access to debt financing in the market because they are guaranteed by the state and this reduces the risk of bankruptcy. Second, SOEs often prefer high debt to avoid stock dilution and to ensure control of this shareholders group. Third, the agency problem between the owner and the manager usually exists in SOEs because of the separation between the voting power and the cash flow. Voting rights belong to the state and managers representing the government, their salaries are not directly related to the performance of the businesses they manage. Since then, these managers have no pressure or motivation to make the business work. So, to reduce the agency cost, SOEs tend to use debt as a tool to manage the problem.

Li et al. (2009) investigated the relationship between ownership structure and capital structure in the Chinese market in the period 2000-2004. The empirical results show that the SO ratio has a positive relationship with the firm's debt ratio. The authors also argue that firms with a high proportion of SO tend to prefer debt because of soft capital constraints and government guaranteed funding. Then, Banker et al. (2011) use regression data tables with samples of firms listed on the Chinese stock exchanges from 2002 to 2005 also produced a similar result. In contrast to these views, the study by Huang (2006) in China argued that the SO did not affect the debt ratio.

3. RESEARCH METHODOLOGY

The study used both qualitative and quantitative methodology in collecting and analyzing data. Qualitative research is apt to the types of questions raised to the interviewees about their perception of "managerial overconfidence." The selection of research method should reflect the research topic and the general research strategy as the methodology decides which methods are used and how each method is used (Silverman, 2000). "Theoretical perspective" is taken to mean "the philosophical stance lying behind the methodology" (Crotty, 1998). The theoretical perspective, according to Crotty (1998), provides a context for the process involved a basis for its logic and its criteria. The study adopts the interpretive qualitative paradigm of research which "looks for culturally derived and historically situated interpretations of the social life world" (Crotty, 1998). The interpretive qualitative paradigm "exemplifies all the characteristics of qualitative research, … that is the researcher is interested in understanding how participants make meaning of a situation or phenomenon, and this meaning is mediated through the researcher as instrument" (Merriam, 2002).

The approach taken for this study lies in the acceptance of the importance of understanding and an appreciation of the influence

of subjective interpretations and perceptions in the constructs of a learning organization. This approach focuses on how learning organization is experienced in the everyday world. The phenomenological orientation is "particularly interested in how a learning organization is constructed by those who participate in it" (Denscombe, 2003). When the social world is socially constructed, the possibility of seeing things differently increases, thus giving rise to multiple perceptions of reality, supports a predominantly qualitative research orientation, rather than a quantitative one.

Quantitative method emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Babbie, 2010; Muijs, 2010).

Quantitative research works on numbers, logic, and an objective perspective. It focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning, thus revalidate the research results generated from qualitative method and increase the value and reliability of the research results.

3.1. Research Hypothesis

Behavioral finance theory refers to overconfidence that managers who are overconfident tend to have more debt than other financing funds because they always expect great benefits from debt financing and underestimate the cost of debt.

A number of empirical evidence around the world supports this theory such as Hackbarth (2002), Oliver (2005), Malmendier and Tate (2005) and Barros and da Silveira (2007). Based on empirical evidence and theoretical predictions, the paper expects a positive correlation between overconfidence and corporate capital structure, so the hypothesis is:

H_1: There is a positive correlation between the managerial overconfidence and the debt ratio of listed firms in Vietnam.

The study also examines the influence of the SO ratio on the relationship between the overconfidence and the capital structure. Zou and Xiao (2006) showed that SOEs in China prefer debt financing. According to behavioral finance theory, overconfident managers expect tremendous interest from debt and underestimate the cost of debt. Considering the similarity of Vietnamese economy and the Chinese one (both are transition economies, with strong intervention from the governmant), the hypothesis is:

H_2: SOEs in Vietnam with managerial over confidence will have higher debt ratios than other enterprises.

3.2. The Basis for Selecting the Research Model

Based on the selection of the model presented above and from the models of the previous studies of Frank and Goyal (2003; 2009), Barros and da Silveira (2007), Reimoo (2008), while adding the SO to investigate the difference of the managerial overconfidence between SOEs and private enterprise managers. The study will have the following models:

$$LEV_{i,t}=a_0+a_1OVER_{i,t}+a_2SIZE_{i,t}+a_3PROF_{i,t}+a_4GROW_{i,t}+a_5TANG_{i,t}$$
$$+a_6OVER_{i,t}\times TANG_{i,t}+a_7UNIQ_{i,t}+a_8LIQ_{i,t}+a_9NDTS_{i,t}+a_{10}SO_{i,t}$$
$$+a_{11}OVER_{i,t}\times SO_{i,t}+\varepsilon_{i,t}$$

In which:
Dependent variable (LEV) is represented by 3 proxies:
$TLEV_{i,t}$ is the ratio of total debt to total assets of firm i in year t;
$LTLEV_{i,t}$ is the firm's long-term debt to total assets ratio in year t;
$STLEV_{i,t}$ the short-term debt to total assets ratio of firm i in year t.

Independent variables:
$OVER_{i,t}$ is the managerial overconfidence at the firm i in year t.

Variable control:
$SIZE_{i,t}$ is the size of firm i in year t;
$PROF_{i,t}$ is the profitability of firm i in year t;
$GROW_{i,t}$ is the growth opportunity of firm i in year t;
$TANG_{i,t}$ is the tangible fixed asset of firm i in year t;
$UNIQ_{i,t}$ is the uniqueness of firm i in year t;
$LIQ_{i,t}$ is the liquidity of firm i in year t;
$NDTS_{i,t}$ is the non-debt tax shield of firm i in year t;
$SO_{i,t}$ is the SO ratio of firm i in year t.

Variable description: Appendix.

3.2.1. Research data
Data is collected from financial statements, annual reports of listed firms. We removed the financial firms from the sample because of their special capital structure.

The study used data from 329 non-financial firms listed on Vietnam's stock markets from 2010 to 2016, of which 152 listed on Ho Chi Minh City Securities Exchange and 177 listed on HNX. Sample data includes 2303 observations during the study period.

3.2.2. Data processing
Regression analysis was used to assess the relationship between independent variables and dependent variable. With the characteristics of panel data, the study conducted the estimation of the regression model using Pooled OLS, FEM and REM estimations. We chose the most appropriate model through tests like Breusch-Pagan Lagrange Multiplier test, Hausman's test, examine heteroscedasticity and the autocorrelation (Modified Wald test and Wooldridge test) in the model, then used the generalized least squares (GLS) method to achieve the meaningful estimation results.

4. RESEARCH RESULTS

4.1. Data Processing Results
From Table 1, it can be seen that the capital structure of listed firms is generally balanced when the total debt/total assets ratio is 51.94%. Short-term debt ratio (average value was 40.82%) is higher than long-term debt ratio (11.12% on average), that indicates a preference for short-term loans from firms, and bank loans are still the main financing source for firms in Vietnam.

Table 1: The descriptive statistics of variables in the model

Variable	Number of observation	Mean	Median	SD	Max.	Min.
TLEV	2303	0.5194	0.5445	0.2189	0.9696	0.0026
LTLEV	2303	0.1112	0.0517	0.1388	0.7870	0
STLEV	2303	0.4082	0.4082	0.2030	0.9549	0.0026
OVER	2303	0.3131	0	0.4638	1	0
SIZE	2303	27.1302	27.0812	1.4836	32.8265	23.2820
PROF	2303	0.1241	0.1121	0.0894	0.6404	−0.4839
GROWTH	2303	0.1517	0.0807	0.9856	40.7637	−0.9528
TANG	2303	0.2601	0.2030	0.2095	0.9366	0
UNIQ	2303	0.8130	0.8391	0.1596	3.9088	0
LIQ	2303	2.2255	1.4162	4.1965	145.1005	0.1932
NDTS	2303	0.0307	0.0216	0.0310	0.3143	0
SO	2303	0.3257	0	0.4687	1	0

Source: Author's calculation on STATA 14. TLEV: Total debt/total assets, LTLEV: Long-term debt/total assets, SLTEV: Short-term debt/total assets, OVER: Managerial overconfidence, SIZE: Size of the firm, PROF: Profit, GROWTH: Growth opportunity, TANG: Tangible fixed asset, UNIQ: Product uniqueness, LIQ: Liquidity, NDTS: Non-debt tax shield, SO: State ownership

The mean value of OVER in the sample was 0.3131, indicating that the number of firms with the overconfident manager was low, about one-third of the sample.

The mean value of SO in the sample is 0.3257, indicating that the number of enterprises under the control of the government is not much (accounting for about one-third of the firms in the sample). In the period of 2011-2015, the equitization and the divestment of SOEs, that is called "a crucial pillar" of the government's structural reform in Vietnam, has continued (Minor et al., 2018).

Table 2 shows the correlation matrix between variables in the model. The correlation matrix analysis allows us to detect the multicollinearity that can occur in the model.

Table 2 presents the overall results of the regression. Managerial overconfidence is likely positively correlated with total leverage and short-term leverage, and negatively correlated with long-term leverage. Interaction of managerial overconfidence with SO tends to increase the relationship between managerial overconfidence and levarage. In contrast, the interaction of overconfidence of managers with tangibility lowers the relationship between overconfidence of managers and levarage.

Further tests on the fit of regression models showed that the fix-effect model is more appropriate than the REM or Pooled OLS (Appendix 3). Besides, Modified Wald test and Wooldridge test results gave the evidence of heteroscedasticity and autocorrelation in the fix-effect model (Appendix 4), that needed to be adjusted by the GLS method. Table 3 below presents the results of regression model using GLS method with three dependent variables: TLEV, LTLEV, STLEV.

4.2. Research Result Discussion
4.2.1. Managerial overconfidence (OVER)
Table 3 presented the results of the regression model based on the GLS estimation method with three dependent variables (total debt - TLEV, long-term debt - LTLEV and short-term debt - STLEV). The results are supported by previous empirical evidence of Hackbarth (2002), Oliver (2005), Barros and da Silveira (2007), Esghaier (2017) among others. The empirical result shows that managerial overconfidence is positively related

with both total debt ratio and short-term debt ratio, this is consistent with behavioral finance theory and support for hypothesis H_1.

In contrast, overconfidence has a negative relation with long-term debt - this is opposed to behavioral finance theory, although the level of the negative correlation is insignificant. However, the managerial overconfidence is based on the judgment of the manager himself, the result of this study showed that overconfident managers recognize that the benefits of long-term debt cannot compensate the cost. Therefore, they reduce the long-term debt ratio of the firms.

The other reason is that, executives are confident about the profitability of their investment projects and they do not want to share the benefits to creditors. In the long run, especially for manufacturing firms with high levels of tangible fixed assets and high depreciation costs, they will make trade-off benefits of debt financing with the non-debt tax shield (NDTS).

The t-test result from Appendix 2 shows that private enterprises have more confident managers than the SOEs. Overconfident managers want to demonstrate their ability, so they wish to achieve clear and rapid results, and tend to use more short-term debt (shortermist). At the same time, in the long run, there will be unpredictable challenges and risks, so banks and lenders will also be hesitant to finance businesses.

4.2.2. SO
The regression results presented in Table 3 show that the SO is positively associated with TLEV and STLEV, consistent with the evidence of Li et al. (2009) in the Chinese market. This result can be explained by the support from the government to state-owned enteprises in accessing bank loan.

However, there is insufficient evidence that the SO affecting the long-term debt of firms. This result can be explained by fear and uncertainty about the long-term probability of the managers, and SOEs want to make rapid profits to respond to government budget limit. Therefore, the SOEs prefer short-term debt to long-term debt.

Besides, given the managerial overconfidence in SOEs, the results suggest that these managers tend to have more long-term

Table 2: Results of pooled OLS, REM, FEM regression model with dependent variables

Variable	TLEV			LTLEV			STLEV		
Estimation method	POOLED	REM	FEM	POOLED	REM	FEM	POOLED	REM	FEM
OVER	0.0378*** [2.86]	0.0427** [1.99]	-	-0.0148* [-1.77]	-0.0081 [-0.57]	-	0.0526*** [4.13]	0.0502** [2.41]	-
SIZE	0.0508*** [20.54]	0.0779*** [18.86]	0.112*** [19.09]	0.0350*** [22.33]	0.0476*** [16.76]	0.0737*** [14.96]	0.0158*** [6.64]	0.0240*** [5.87]	0.0388*** [6.13]
PROF	-0.864*** [-16.52]	-0.437*** [-12.49]	-0.375*** [-10.96]	-0.375*** [-11.32]	-0.120*** [-4.31]	-0.0689** [-2.41]	-0.489*** [-9.70]	-0.341*** [-9.24]	-0.306*** [-8.34]
GROWTH	0.0110*** [2.98]	0.0036* [1.93]	0.0021 [1.15]	0.0049** [2.09]	0.0034** [2.25]	0.0025* [1.66]	0.00612* [1.72]	0.000664 [0.33]	-0.00042 [-0.22]
TANG	-0.025 [-1.04]	0.0789*** [3.68]	0.0946*** [4.27]	0.286*** [18.82]	0.278*** [16.82]	0.264*** [14.27]	-0.311*** [-13.45]	-0.201*** [-9.00]	-0.170*** [-7.13]
OVER×TANG	-0.170*** [-4.34]	-0.112*** [-2.64]	-0.0777* [-1.70]	-0.0078 [-0.32]	-0.0306 [-0.95]	-0.0381 [-1.00]	-0.162*** [-4.30]	-0.0853* [-1.94]	-0.0396 [-0.81]
UNIQ	0.162*** [6.51]	0.019 [1.19]	-0.0023 [-0.15]	-0.0880*** [-5.57]	0.0035 [0.28]	0.0137 [1.06]	0.250*** [10.41]	0.0177 [1.05]	-0.016 [-0.96]
LIQ	-0.0163*** [-18.83]	-0.006*** [-12.03]	-0.0053*** [-11.02]	0.0007 [1.25]	0.0012*** [2.97]	0.001** [2.56]	-0.0170*** [-20.36]	-0.00733*** [-13.97]	-0.00632*** [-12.26]
NDTS	1.143*** [6.79]	0.1 [0.73]	0.0953 [0.67]	0.0794 [1.25]	-0.373*** [-3.47]	-0.409*** [-3.43]	1.063*** [6.55]	0.510*** [3.52]	0.504*** [3.29]
SO	0.0169* [1.77]	0.0076 [0.63]	0.0076 [0.55]	0.0073 [1.21]	-0.0021 [-0.24]	-0.0061 [-0.52]	0.00958 [1.04]	0.0117 [0.95]	0.0136 [0.91]
OVER×SO	0.0692*** [4.03]	0.0005 [0.02]	-0.0219 [-0.96]	0.0202* [1.85]	0.0164 [1.07]	0.0164 [0.86]	0.0490*** [2.96]	-0.0111 [-0.53]	-0.0384 [-1.57]
_CONS	-0.886*** [-12.23]	-1.572*** [-13.79]	-2.494*** [-15.45]	-0.797*** [-17.37]	-1.228*** [-15.63]	-1.946*** [-14.42]	-0.0889 [-1.27]	-0.172 [-1.53]	-0.548*** [-3.16]
No. observation	2303	2303	2303	2303	2303	2303	2303	2303	2303
R-square	0.3958	-	0.279	0.3977	-	0.217	0.341	-	0.135
F-statistic	136.46	-	76.16	137.53	-	76.16	131.86	-	38.34
Probability >F	0.0000	-	0.0000	0.0000	-	0.0000	0.0000	-	0.0000

*, ** and *** correspond to meaning levels of 1%, 5%, 10% number in square brackets is the standard error. TLEV: Total debt/total assets, SLTEV: Short-term debt/total assets, LTLEV: Long-term debt/total assets, STLEV: Short-term debt/total assets, OVER: Managerial overconfidence, SIZE: Size of the firm, PROF: Profit, GROWTH: Growth opportunity, TANG: Tangible fixed asset, UNIQ: Product uniqueness, LIQ: Liquidity, NDTS: Non-debt tax shield, SO: State ownership

Table 3: GLS model results with three dependent variables

Independent variables	Dependent variable		
	TLEV	**LTLEV**	**STLEV**
OVER	0.0427***	−0.0081*	0.0752***
	[3.46]	[−1.76]	[5.48]
SIZE	0.0715***	0.0292***	0.0314***
	[27.88]	[21.91]	[11.02]
PROF	−0.488***	−0.0508***	−0.399***
	[−17.27]	[−4.13]	[−12.93]
GROWTH	0.0097***	0.0003	0.0088***
	[5.33]	[0.47]	[3.77]
TANG	0.0446***	0.261***	−0.278***
	[2.62]	[23.35]	[−14.93]
OVER×TANG	−0.113***	−0.0105	−0.142***
	[−3.73]	[−0.54]	[−4.37]
UNIQ	0.0367***	0.0071	0.0313**
	[3.62]	[0.85]	[2.03]
LIQ	−0.0108***	0.0003	−0.0164***
	[−11.76]	[1.57]	[−16.78]
NDTS	−0.14	−0.261***	0.381***
	[−1.34]	[−4.98]	[3.39]
SO	0.0134*	−0.0023	0.0210**
	[1.68]	[−0.76]	[2.34]
OVER×SO	0.0213	0.0214***	−0.018
	[1.53]	[2.80]	[−1.17]
_CONS	−1.372***	−0.763***	−0.343***
	[−19.16]	[−21.05]	[−4.32]

Source: Author's calculation on STATA 14. *, ** and *** correspond to meaning levels of 10%, 5% and 1%. The number in square brackets is the standard error. TLEV: Total debt/total assets, LTLEV: Long-term debt/total assets, SLTEV: Short-term debt/total assets, OVER: Managerial overconfidence, SIZE: Size of the firm, PROF: Profit, GROWTH: Growth opportunity, TANG: Tangible fixed asset, UNIQ: Product uniqueness, LIQ: Liquidity, NDTS: Non-debt tax shield, SO: State ownership

debt financing. This can also be explained by the t-test result (Appendix 2), which shows that SOEs have more long-term loans than non SOEs. Thus, under the financial support from the government as well as the close relationship with commercial banks, overconfident managers will increase long-term debt to avoid the pressure on returning loans.

Therefore, the hypothesis H$_2$, that is "Overconfidence of managers in enterprises under the control of the State will have higher debt ratios than those of non-state enterprises" is only confirmed for long-term debt. This result also contributes to evidence that managerial overconfidence affects the capital structure of firms.

4.2.3. Other determinants
Firm size affects the capital structure. Specifically, firm size has positive correlation with both short-term and long-term debt. This finding is consistent with previous empirical evidence of Oliver (2005), Barros and da Silveira (2007), Reimoo (2008) and Tomak (2013); supporting tradeoff theory, which suggests that the larger the size of the firm, the more likely it is to use more loans in total assets.

Profitability has a negative correlation with financial leverage of firms, similar to the findings of Deesomsak et al. (2004), Huang (2006), Reimoo (2008) and Tomak (2013). This result can be explained by pecking order theory, which confirms incase firms have higher returns, they will tend to reduce the use of debt, instead of new equity issuance to fund the business.

Growth opportunities go along with short-term debt and total debt, similar to finding of Chen (2004) in the Chinese market. This

result suggests that firms with high growth rates are believed to be healthy and have easy access to loans.

Tangibility has positive correlation to long-term debt, but has a negative correlation to short-term debt, consistent with the evidence of Reimoo (2008), which shows that with the availability of collateral, firms prefer long-term debt to short-term debt. In case of interaction of this variable with managerial overconfidence, the result shows that firms with high tangible fixed assets and managed by overconfident managers tend to reduce short-term debt and threby total debt; indicating that overconfident managers use less fixed assets as a collateral than other managers.

About uniqueness, the empirical result shows that there is a positive relationship between short-term debt and COGS to sales, indicating negative ralationship between financial leverage and uniqueness, supporting the pecking order theory.

Liquidity is a negatively associated with total debt and short-term debt, consistent with the findings of Titman and Wessels (1988), Deesomsak et al. (2004). This negative correlation indicates that highly liquid firms use less short-term debt.

NDTS has negative correlation to the long-term debt of the firms, consistent with the results of previous studies such as Chen (2004) and Huang (2006).

5. CONCLUSION

A panel data of 2303 observations is employed from 329 firms listed on Vietnam's stock market for the period from 2010 to 2016

to investigate the relationship between managerial overconfidence and the capital structure of firms in Vietnam. By using the approach of behavioral theory, we try to find the answer to the question: "What is the effect of managerial overconfidence on the capital structure of the firms in Vietnam?"

The results show that managerial overconfidence does affect the corporate capital structure. Firms managed by overconfident managers choose a higher level of leverage (total debt and short-term debt). In addition, an interesting finding of the article is that overconfident managers tend to reduce long-term debt ratio that can be explained by managerial overconfidence in future investment projects. Overconfident managers in Vietnam prefer short-term financing.

On the contrary, in SOEs, overconfident managers tend to increase their long-term debt ratio because of the assurance from the government and commercial banks, so that it is easier for the managers to access loans.

The study contributes empirical evidence to the study on determinants of corporate capital structure in Vietnam. The behavioral finance approach can explain the influence of managerial overconfidence on the financial decisions of a firm.

5.1. Limitation and Future Research
The overconfidence can exist in many different forms and expressions. The other proxies of managerial overconfidence are to be further studied to get robust results on the impact of overconfidence on financing decisions.

Behavioral finance is a new topic and has many aspects to explore. Human behavior, in particular, is always influenced by emotional factors, so the financial decisions in the enterprises also correlate with these factors. In this study, overconfidence is just one of the many manifestations of cognitive distortion. Having that said, further studies should be explored and empirically tested for other relationships.

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