

IMPACT OF DEBT STRUCTURE ON PROFITABILITY OF NON-FINANCIAL LISTED JOINT-STOCK FIRMS

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Abstract

How to cite this paper: Nguyen, Q. N., Pham, K. X., & Nguyen, L. P. (2024). Impact of debt structure on profitability of non-financial listed joint-stock firms [Special issue]. *Journal of Governance & Regulation*, 13(1), 377–387.

<https://doi.org/10.22495/jgrv13i1siart11>

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ISSN Online: 2306-6784

ISSN Print: 2220-9352

Received: 31.07.2023

Accepted: 05.03.2024

JEL Classification: C33, G23, G32, G33

DOI: 10.22495/jgrv13i1siart11

The relationship between debt structure and profitability has drawn the attention by many researchers. One of the earliest papers which can be mentioned is the study by Modigliani and Miller (1958). In order to contribute to the literature and practical evidence to this topic, our paper investigates the impact of debt structure on the profitability of Vietnam non-financial listed joint-stock companies (JSCs). By using the panel data of an eight-year period for 976 JSCs, from 2013 to 2020, we get a sample of 7,808 observations. Return on assets (*ROA*) and return on equity (*ROE*) are dependent variables and are considered as profitability measures. Stata 16 software is used to test the link between profitability and the other six independent variables. The result shows that short-term debt (*STDA*) and growth opportunities (*GRTH*) have their positive and significant statistical impact on both *ROA* and *ROE*. Meanwhile, total debt (*TDA*) and long-term debt (*LTDA*) have their opposite influences. Firm size (*SI*) has different significant statistical effects on these dependent variables and net sales growth (*SG*) has an insignificant statistical link on profitability. Based on the findings, some recommendations are proposed to increase their profitability by optimizing debt structure in the listed firms in an emerging country and Vietnam as the case study.

Keywords: Debt Structure, Long-Term Debt, Profitability, Short-Term Debt, Total Debt

Authors' individual contribution: Conceptualization — Q.N.N. and K.X.P.; Methodology — Q.N.N. and K.X.P.; Software — K.X.P. and L.P.N.; Validation — Q.N.N. and L.P.N.; Formal Analysis — Q.N.N. and K.X.P.; Writing — Review & Editing — Q.N.N., K.X.P., and L.P.N.; Visualization — Q.N.N., K.X.P., and L.P.N.; Supervision — Q.N.N.; Funding Acquisition — Q.N.N., K.X.P., and L.P.N.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgement: This research is funded by the National Economics University, Hanoi, Vietnam.

1. INTRODUCTION

According to Abor (2005) and Gill et al. (2011), debt structure is a combination of short-term debt (*STDA*) and long-term debt (*LTDA*) in a certain ratio to finance the production and business activities of firms. De Mesquita and Lara (2003) concluded that

debt structure is a combination of regular short-term debt and long-term debt, equity source to finance business operations. Short-term debts of firms usually include loans to credit institutions, payables to employees, and debts to the state budget. Normally, these debts are obliged to pay within a period of less than one year. These

liabilities are typically used to invest in short-term assets such as materials, goods and tools, and to pay short-term liabilities as they come due. Meanwhile, long-term debts of firms usually contain long-term loans to credit institutions, bond debts, and other long-term payables. A firm has obligations to pay these debts over a long period of time, usually more than one year. Long-term liabilities are typically for investments in fixed assets, investment properties or other long-term investments. Thus, the debt structure also depends on the asset structure and different business characteristics of firms. In other words, debt structure represents the capital structure of the enterprise in business activities. When managers use the optimal debt structure, it has a positive impact on profitability indicators and promotes the growth of firms.

Profitability is considered one of the most important financial contents to evaluate a firm's performance as well as the survival and development of any entity (Al Kharusi et al., 2022; Pasha & Elbages, 2022; Aslan et al., 2021; HarangiRákos & Fenyves, 2021; Kostyuk et al., 2004). In other words, it measures the failure or success of an enterprise during its operation. That is the reason why profitability has drawn the attention of many subjects, from insiders to outsiders such as managers, shareholders, investors, creditors, suppliers, etc. Due to its vital role, vast studies have been conducted to find factors which affect profitability. Results from the profitability assessment are the basis for forecasting business performance, making investments, lending, auditing, etc. Many ratios have been used to reflect the profitability of a firm, such as: 1) return on assets (ROA), 2) return on equity (ROE), 3) return on sales (ROS), 4) earnings per share (EPS), 5) return on invested capital (ROIC), 6) Tobins' Q, etc., but a large number of studies use two basic indicators are ROA and ROE. The reason for this selection is that these ratios reflect fully all the financial aspects of any firm.

To understand and enhance profitability, researchers have devoted substantial efforts to identifying the factors that influence it. Among various factors that impact profitability, debt structure is considered as one of the most decisive determinants. As a result, the impact of debt structure on profitability has been a topic of interest. Firms' managers have to investigate an optimal debt structure to increase both ROA and ROE as well as to help businesses grow sustainably. Relating to debt structure and profitability in a firm, up to now there are five typical theories as follows: 1) Modigliani and Miller theory, 2) static trade-off theory, 3) dynamic trade-off theory, 4) pecking order theory and 5) market timing theory.

First, the *Modigliani and Miller theory* was initially introduced by Modigliani and Miller (1958). Accordingly, in a perfect market, debt structure does not affect the value of firms. Therefore, there is no optimal debt structure for a particular enterprise. However, in reality, the debt structure depends on the business environment and the level of capital use of the managers. Therefore, the researchers hypothesized that firm value and profitability are affected by debt structure. After that, the theory of debt structure was further developed by many other researchers. In other words, theories of debt

structure in turn were born to explain the existing corporate debt structure in practice, including the static trade-off theory, dynamic trade-off theory, pecking order theory and market timing theory.

Second, five years later Modigliani and Miller (1963) relaxed their earlier assumptions by considering corporate income tax as a determinant of debt structure and it is considered as the *static trade-off theory*. From a business perspective, using debt can increase costs due to the benefit of tax shields from debt. Therefore, firms should use debt as much as possible to maximize benefits. However, using too much debt is also risky when the business environment is not convenient. This theory considers an optimal firm's debt structure when its capital structure is determined between the marginal tax benefits and the associated costs of debt. As a firm increases its debt-to-equity ratio, the benefit of the tax shield increases. A high level of leverage also promotes a firm's profitability. However, the high level of leverage also increases costs. In the condition that the product cannot be sold, then there is a decrease in liquidity, which can cause firms to fall into bankruptcy. The debt-to-working capital ratio is optimal when both ROE and ROA are highest, especially ROA is higher than the average cost of capital announced by commercial banks.

Third, it is the *dynamic trade-off theory* which is proposed for the first time by Fischer et al. (1989). Authors argue that there is the presence of the cost of capitalization in the model selection of the dynamically optimal debt structure. This shows that the present debt structure of an enterprise does not always coincide with the optimal debt structure. In the model of dynamic optimal debt structure, the financing decision depends on the flexible decisions of managers associated with each specific business environment. The larger a tax shield benefits, the more debt they borrow. Therefore, businesses should operate with higher leverage to take advantage of a tax shield. This theory explains the positive relationship between debt structure and profitability of firms.

Fourth, studies by Myers and Majluf (1984) and Myers (1984) introduced the concept of choice into the *pecking order theory*. Managers need to recognize the development opportunities and challenges of firms in the competitive market. When managers decide to finance with debt or through the issue of shares. Accordingly, managers need to analyze and then to choose the appropriate debt structure for their firms. Firms that generate high returns tend to use retained earnings to finance investment needs. Therefore, the relationship between debt utilization and performance is negative. Many studies have also provided evidence to prove this negative relationship such as ShyamSunder and Myers (1999), Simerly and Li (2000) and Fama and French (2002).

Fifth, Baker and Wurgler (2002) introduced a new debt structure theory called the *market timing theory*. Research in the United States (US) market from 1968 to 1999, these authors have shown that a firm will issue its shares at a time when its price is overvalued and vice versa. It means that a firm will buy its shares back when the stock price is undervalued. They confirmed the long-term impact of the market timing theory on debt structure.

However, their result met with contrasting opinions from other researchers such as Alti (2006), Flannery and Rangan (2006) and Kayhan and Titman (2007).

These prominent theories show the fact that the relationship between debt structure and profitability is very complex, even if it is contrary. That's why this paper is targeted at: 1) investigating the impact of debt structure on the profitability of joint-stock companies (JSCs) in the context of the Vietnamese economy; 2) analyzing the determinants of debt structure which affect on profitability of these firms; 3) proposing some solutions for managers of these firms to improve their profitability by optimizing debt structure.

With the aim to redound to the literature and practical evidence to this topic, our article examines the impact of debt structure on profitability (proxy by ROA and ROE) of Vietnam non-financial listed JSCs. Suitable regressions in Stata 16 were taken to experiment the relationship between profitability and factors of the biggest sample ever for 976 Vietnamese firms during the period of 2013-2020. Our findings reveal the fact that short-term debt (*STDA*) and growth opportunities (*GRTH*) have their positive and significant statistical impact on both *ROA* and *ROE*. Conversely, two determinants of total debt (*TDA*) and long-term debt (*LTDA*) have their negative impacts. Firm size (*SIZ*) has positive or negative impacts on dependent variables at its significant level while net sales growth (*SG*) has an insignificant statistical relation on profitability. The results of this research can effectively support managers of surveyed firms to raise their profitability by optimizing debt structure.

The remainder of this paper is structured as follows: Section 2 of the study reviews and discusses contents related to the theoretical framework and research overview on factors of debt structure affecting profitability in JSCs. In Section 3, the study mentions the research methodology and describes the research variables and research data. In Section 4, there is the presentation of the results of the experimental findings. Section 5 of the study presents a discussion of the results. Lastly, Section 6 has a conclusion and proposes some suggestions for managers of these JSCs.

2. LITERATURE REVIEW

Up to now, there are many studies which focus on the impact of debt structure (containing total debt, short-term debt and long-term debt) on profitability. However, to our understanding, their conclusions can be divided into three main groups. The first group supports capital mobilization from creditors. In means that, the more debt that a firm gets, the better for its profitability; in this case, the firm will take advantage of the tax shield effect. Contrarily, the others find that if the debts of a firm increase, its profitability reduces. The last group concludes the inverse influence of different kinds of debts on profitability. Apart from debt structure variables which are called as independent variables, these papers also used some other popular controlling variables such as the scale of a firm, growth rate of net sales, growth rate of total assets (or growth opportunity), net value of fixed assets, liquidity of assets, etc.

Relating to the group which concludes there are positive effects between debt structure and profitability can be found in many studies by Dessi and Robertson (2003), De Mesquita and Lara (2003), Abor (2005), Baum et al. (2007), Gill et al. (2011), Ahmad (2014), Sivathaasan et al. (2013), Kakanda et al. (2016), Akinleye and Akomolafe (2019), Hoang et al. (2019), Dinh and Pham (2020), Alhassan (2021), and Abuamsha and Shumali (2022). These authors all concluded, if firms make full use of capital from the increase in debt, it will support the increase of *ROA* and *ROE* positively. In other words, the more debt firms increase, the better for their profitability.

In contrast, other studies observed a negative effect of debt structure on profitability such as Zeitun and Tian (2007), Salim and Yadav (2012), Shubita and Alsawalhah (2012), Olokoyo (2013), Sheikh and Wang (2013), Chechet and Olayiwola (2014), Dawar (2014), Hasan et al. (2014), Foo et al. (2015), Riaz (2015), Admassu (2016), Habib et al. (2016), Nassar (2016), Nguyen et al. (2016), BaahAcquah et al. (2017), Bui (2017), Le and Phan (2017), Ngo et al. (2020), Nguyen and Nguyen (2020a), Nguyen and Nguyen (2020b), Nini and Patrisia (2020), Pham and Nguyen (2020), Pham (2020) and Yiadom et al. (2020). These empirical studies proved that the more debt that a firm gets, the worse its profitability.

The third group reveals both positive and negative impacts from each component of debt structure on profitability can be listed as Addae et al. (2013), Badar and Saeed (2013), Ahmad (2014), Appiadjei (2014), Tailab (2014), Vätavu (2015), Kirmi (2017), Vuong et al. (2017), Ramlan et al. (2020), Nguyen et al. (2019), Sakr and Bedeir (2019), Singh and Bagga (2019), Hajisaaid (2020), Co et al. (2021), En and Malek (2021), Jee et al. (2021), Nguyen et al. (2021), Setiawan and de Jesus Pereira (2021), Afroze and Khan (2022) and Nguyen et al. (2023).

De Mesquita and Lara (2003) used financial statements of 70 firms in Brazil market over seven years (1995-2001) with 489 observations and concluded that *STDA* has a positive and statistically significant effect on *ROE* while *LTDA* impacts *ROE* but is not statistically significant. Later Abor (2005) collected data from 22 firms on the Ghana Stock Exchange (GSE) for a five-year period, from 1998 to 2002 and found that both *TDA* and *STDA* have a significant positive impact on *ROE*; while *LTDA* has an insignificant statistically negative influence on this dependent variable. Baum et al. (2007) used a sample of both German (for the 1988-2000 period) and US firms (for the 1984-2005 period) with one key variable is the short-term liability ratio. This study revealed that an increase in *STDA* makes a rise in the profitability of German firms but has no impact on US firms.

There are some authors who investigate Vietnamese firms and also conclude a positive impact of debt structure on profitability. For example, Dinh and Pham (2020) picked 30 pharmaceutical firms listed on Vietnam's stock market during a period of five years (2015-2019). They labelled *ROE* as a dependent variable and detected *TDA* has positive and significant statistical on this variable. Similarly, Hoang et al. (2019) also disclosed that *STDA* affects *ROE* positively and statistically significantly. In their research, the panel data were taken from 85 non-financial firms listed

on the Ho Chi Minh Stock Exchange (HOSE) during the period from 2006 to 2017.

However, Zeitun and Tian (2007) showed that there is a negative and statistically significant between debt structure (including TDA, STDA and LTDA) and profitability (ROA) by using data from 167 firms for the period of 1989–2003. Both Chechet and Olayiwola (2014) and Dawar (2014) separately declared a negative and statistically significant impact of capital structure on the profitability of their surveyed companies. The former used the sample of 70 listed Nigerian firms during a ten-year period (2000–2009); while the latter also conducted a ten-year of data (2003–2012) from Indian firms. Likewise, in the same year 2014, Hasan et al. (2014) declared that debt structure impacts ROA negatively and statistically significantly while this influence on ROE is negative but not significant statistically when they investigated 36 Bangladeshi firms between 2007 and 2012.

Recently, in the context of Vietnamese economy, Nguyen and Nguyen (2020a) took a survey of 488 listed JSCs over the duration of 2013–2018. These results expressed all three independent variables of TDA, STDA and LTDA had a negative and significant statistical influence on profitability (proxy by ROA and ROE). Pham and Nguyen (2020) also had the same conclusion when selecting 70 construction firms from 2014 to 2017. This paper only took ROS as a dependent variable which represented for profitability and declared all three components of debt structure have their negative statistical significance on ROS. Meanwhile, Pham (2020) based on data of 1,915 observations from 383 entrepreneurs for the period of 2015–2019, exposed that TDA had negative and significant statistical on both ROA and ROE. Also in 2020, Ngo et al. (2020) explored 118 non-financial listed firms from 2009 to 2017 and detected the capital structure had a statistically significant negative influence on profitability.

Contrast to one way link between debt structure and profitability, only positive or negative, many other scholars announce the two-way relationship between them. In other words, they find both positive and negative impacts from each component of debt structure on profitability. Addae et al. (2013) used sample data from 34 firms in Ghana over the duration of five years (2005–2009), measured by ROE as a proxy for profitability and three main independent variables of TDA, STDA and LTDA. Their statements were that both TDA and LTDA had a negative link with ROE, while STDA had a positive impact on profitability and these relationships are significant statistically. Meanwhile, Appiadjei (2014) used both ROA and ROE with STDA and LTDA. 35 listed firms on the GSE during

2004–2008 were conducted in the sample. The result expressed that debt structure influences profitability statistically significantly with the positive link of STDA and the negative tie of LTDA.

In the context of Vietnam, in the past three years, there are some studies that have investigated on this relationship. Co et al. (2021) collected 18 rubber firms from the 2015–2019 period and ROE as measured for profitability. Their study disclosed that LTDA had a negative impact on ROE while TDA affected positively and the relationship between debt structure and profitability is statistically significant. The latest research by Nguyen et al. (2023) took a sample of 300 firms for a period from 2012–2018. This paper labelled ROA and ROE as proxy for profitability and used STDA and LTDA as independent variables. Their conclusion proved that ROA and ROE were positively impacted by STDA and negatively influenced by LTDA as well as these links were significant statistically.

In summary, through research by domestic and foreign authors, we see that the debt structure of firms remarkably affects their profitability, especially ROA and ROE. However, each author studies in a different time and space, so the impact of debt structure on profitability is also divergent. Therefore, our research will investigate the largest sample of 7,808 observations (up to now) from 976 firms, in the period 2013–2020, to clarify the impact of debt structure on the profitability of listed non-financial JSCs on the Vietnam Stock Exchange (VNX). This is a time that many businesses were affected by the COVID-19 epidemic all over the world.

3. RESEARCH METHODOLOGY

3.1. Data collection

This paper collects data from audited financial statements of 976 non-financial JSCs from 2013 to 2020 which leads to a sample of 7,808 observations. These firms are listed on four official securities exchanges in Vietnam at present, including the HOSE, Hanoi Stock Exchange (HNX), Unlisted Public Company Market (UPCOM) and Over the Counter (OTC).

3.2. Research models

This paper uses *ROA* and *ROE* as proxy for the profitability of surveyed non-financial JSCs and they are dependent variables, while other six independent variables containing *TDA*, *STDA*, *LTDA*, *SIZ*, *SG* and *GRTH*. These variables are described concretely in Table 1 below.

Table 1. Summary of variables in the model

<i>Variables</i>	<i>Codings</i>	<i>Measurement</i>	<i>Expected sign</i>
<i>Dependent variables</i>			
Return on assets	<i>ROA</i>	<i>Net income/Average total assets</i>	
Return on equity	<i>ROE</i>	<i>Net income/Average total equity</i>	
<i>Independent variables</i>			
Debt to assets ratio	<i>TDA</i>	<i>Total debt/Total assets</i>	+/-
Short-term debt to assets ratio	<i>STDA</i>	<i>Short term debt/Total assets</i>	+/-
Long-term debt to assets ratio	<i>LTDA</i>	<i>Long term debt/Total assets</i>	+/-
Firm size	<i>SIZ</i>	<i>Natural logarithm of total assets</i>	+
Revenue growth rate	<i>SG</i>	$(Net\ Sales_i - Net\ Sales_{(i-1)})/Net\ Sales_{(i-1)}$	+
Growth opportunities	<i>GRTH</i>	$(Total\ Assets_i - Total\ Assets_{(i-1)})/Total\ Assets_{(i-1)}$	+

Source: Compilations by the Authors.

In which, components of debt structure including *TDA*, *STDA* and *LTDA* are key explanatory or independent variables. Meanwhile, the rest of the three determinants containing *SIZ*, *SG* and *GRTH* are considered as controlling variables in our models. In order to run regression models, this study uses tabular data to detect a relationship between six determinants (comprising *TDA*, *STDA*, *LTDA*, *SIZ*, *SG* and *GRTH*) and profitability which proxy by *ROA* and *ROE*. Data from 976 listed non-financial JSCs on the Vietnam stock market for the period from 2013 to 2020 is used in this survey which results in two following models.

Model 1

$$ROA = \beta_0 + \beta_1 * TDA + \beta_2 * STDA + \beta_3 * LTDA + \beta_4 * SIZ + \beta_5 * SG + \beta_6 * GRTH + \varepsilon \quad (1)$$

Model 2

$$ROE = \beta_0 + \beta_1 * TDA + \beta_2 * STDA + \beta_3 * LTDA + \beta_4 * SIZ + \beta_5 * SG + \beta_6 * GRTH + \varepsilon \quad (2)$$

where, β_0 = common y-intercept; β_1 - β_6 = correlation coefficients of variables; ε = stochastic error efficient.

In many other studies, authors use many dependent variables such as *ROA* (Baum et al., 2007, Badar & Saeed, 2013; Kebewar, 2013; Sheikh & Wang, 2013; Riaz, 2015; Admassu, 2016; Habib et al., 2016; Kirmi, 2017; Yiadom et al., 2020; Ngo et al., 2020; Abuamsha & Shumali, 2022), *ROE* (De Mesquita &

Lara, 2003; Abor, 2005; Gill et al., 2011; Shubita & Alsawalhah, 2012; Addae et al., 2013; Ahmad, 2014; Kakanda et al., 2016; Hoang et al., 2019; Dinh & Pham, 2020; Hajisaaid, 2020; Co et al., 2021; Setiawan & de Jesus Pereira, 2021), both *ROA* and *ROE* (Admassu, 2016; Sivathaasan et al., 2013; Tailab, 2014; Vätavu, 2015; Bui, 2017; Nguyen et al., 2019; Ramlan et al., 2020; Singh & Bagga, 2019; Nini & Patrisia, 2020; Nguyen, 2020; En & Malek, 2021; Jee et al., 2021; Nguyen et al., 2021; Nguyen et al., 2023). Other studies use *ROA*, *ROE* and *EPS* (Nassar, 2016; Nguyen & Nguyen, 2020a; Nguyen & Nguyen, 2020b; Pham, 2020; Alhassan, 2021; Afroz & Khan, 2022). Apart from that, few papers use *ROS*, *ROIC*, *Tobin's Q*, etc., as a proxy for profitability. After reviewing these articles, we conclude to use *ROA* and *ROE* as dependent variables due to its popularity and suitability for Vietnamese context. Apart from that, there are many factors that affect profitability such as: total debts, long-term debt, short-term debt, fixed assets, liquidity, current ratio, quick ratio, etc. Nevertheless, for an emerging economy like Vietnam and non-financial firms, we choose six above mentioned determinants.

4. RESEARCH RESULTS

4.1. Descriptive statistics

Table 2 indicates descriptive statistics of all eight total variables in this survey. It displays these variables in terms of maximum, minimum, mean and standard deviation concretely.

Table 2. Descriptive statistics

Variables	Obs.	Mean	Std. dev.	Min	Max
Name	0				
Year	7,808	2016.5	2.291239	2013	2020
<i>ROA</i>	7,808	0.0385439	0.353104	-24.2071	10.77731
<i>ROE</i>	7,808	0.0972137	1.413281	-48.27226	65.24826
<i>TDA</i>	7,808	0.5936195	1.090776	0.0005872	37.37448
<i>STDA</i>	7,808	0.5011975	1.183967	0.0005872	37.37448
<i>LTDA</i>	7,808	0.2173171	3.330527	-0.5009046	152.8179
<i>SIZ</i>	7,808	13.11767	1.544244	6.228511	19.86171
<i>SG</i>	7,808	8.451442	549.7511	-26.22134	19.86171
<i>GRTH</i>	7,808	0.0958843	0.7943651	-0.9884358	50.82904

Source: Results from Stata 16.

The mean of *ROE* is 0.097 and nearly 2.6 times higher than *ROA* (0.039). However, this difference rises to over six times at the maximum value of these dependent variables. All of the independent variables have their huge differences between the value of maximum and mean as well as the value of maximum and minimum; except the determinant of *SIZ* has its value of maximum (19.862) is 1.5 times larger the mean value (13.118) and 3.2 times bigger than the minimum value (6.229).

4.2. Correlation analysis

Table 3 illustrates the correlation between the dependent variables' profitability, represented by *ROA* and *ROE*, and the other six independent variables.

Table 3 reveals the correlation and multicollinearity between variables in the two above-mentioned models. According to this result,

ROA has its positive relationship with factors *SIZ* and *GRTH*; while its links with all other four independent variables (comprising *TDA*, *STDA*, *LTDA* and *SG*) are contrast. Meanwhile, *ROE* is negatively correlated with all independent variables except the factor of *GRTH*. Besides, all the correlation coefficients among eight variables are less than 0.28 which suggest a lower likelihood of multicollinearity, it is still necessary to conduct further tests to thoroughly examine and ascertain the presence or absence of multicollinearity in the researched models. However, the correlation coefficient between *TDA* and *STDA* is quite high (is at 0.868) because there are many surveyed non-financial JSCs do not have their long-term debt. In other words, the debt of these firms is totally short-term debt or their short-term debt is equal total debt. Presently, this is a typical feature of surveyed JSCs particularly and Vietnamese non-financial firms generally.

Table 3. Matrix of correlation

	<i>ROA</i>	<i>ROE</i>	<i>TDA</i>	<i>STDA</i>	<i>LTDA</i>	<i>SIZ</i>	<i>SG</i>	<i>SRTH</i>
<i>ROA</i>	1							
<i>ROE</i>	0.0297	1						
<i>TDA</i>	-0.2735	-0.0044	1					
<i>STDA</i>	-0.2327	-0.0013	0.8683	1				
<i>LTDA</i>	-0.0129	-0.0050	0.0168	0.2217	1			
<i>SIZ</i>	0.0905	-0.0097	-0.0531	-0.0669	0.0413	1		
<i>SG</i>	-0.0014	-0.0007	0.0038	0.0024	-0.0005	-0.0021	1	
<i>GRTH</i>	0.0457	0.0166	-0.0224	-0.0200	-0.0001	0.0663	0.0088	1

Note: No. of obs. = 7,808.

Source: Results from Stata 16.

4.3. Multiple regression analysis

In order to investigate the relationship between factors and profitability, data were moved from excel and coded in Stata 16. In the following step, we check the multi-collinearity among these six independent variables. From Table 4, it can be seen

that the mean value of variance inflation factor (VIF) is 2.31 and VIF of each independent variable is smaller than 5. The determinant of *STDA* has its highest value of VIF (4.94) and two factors comprising *SG* and *GRTH* have their lowest value of VIF (1.00). This once again proves that there is not any multi-collinearity among them.

Table 4. Checking multi-collinearity of independent variables

Variable	VIF	Square root (SQRT) VIF	Tolerance	R-squared
<i>TDA</i>	4.69	2.17	0.2133	0.7867
<i>STDA</i>	4.94	2.22	0.2022	0.7978
<i>LTDA</i>	1.22	1.10	0.8219	0.1781
<i>SIZ</i>	1.01	1.01	0.9869	0.0131
<i>SG</i>	1.00	1.00	0.9999	0.0001
<i>GRTH</i>	1.00	1.00	0.9951	0.0049
Mean VIF	2.31			
	Eigenvalue	Cond. index		
1	2.8386	1.0000		
2	1.1700	1.5576		
3	1.0003	1.6846		
4	0.9817	1.7005		
5	0.9154	1.7609		
6	0.0872	5.7063		
7	0.0068	20.5038		
Condition number		20.5038		
Eigenvalues & cond. index computed from scaled raw sscp (w/intercept)				
Det (correlation matrix)		20.5038		

Note: No. of obs. = 7,808.

Source: Results from Stata 16.

Then fixed effects model (FEM) and random effects model (REM) are used to run two above mentioned models. Hausman command is applied to compare between REM and FEM. If p-value (or α) is higher than 5%, REM is selected and vice versa. After running Hausman command, FEM is chosen for Model 1 because its p-value are 0.00% and REM is selected for Model 2 because its p-value are 15.13%.

We continue to run the Wooldridge test and the result shows all p-value Prob > F = 0.0715 and 0.9216 for Model 1 and 2, respectively. In other words, they are higher than 5%, which means that these models have no autocorrelation. After that, the modified ward test (for Model 1) and the Breusch and Pagan Lagrangian multiplier test (for Model 2) are checked. The outcome gives both Prob > chi2 = 0.000 < α = 0.05 which proves that two models happened heteroskedasticity (see Table 5).

After correcting defect of heteroskedasticity by using feasible generalized least square (FGLS) regression, we summarize results for two models in Table 6 below.

Table 6. Regression results after correcting defect

	Model 1	Model 2
	<i>ROA</i>	<i>ROE</i>
<i>TDA</i>	-0.0990776*** [-46.95]	-0.0227775*** [-5.77]
<i>STDA</i>	0.0065758*** [3.93]	0.0175099*** [4.70]
<i>LTDA</i>	-0.0012825*** [-3.79]	-0.0026467*** [-3.94]
<i>SIZ</i>	0.0112772*** [37.27]	-0.0049762*** [-9.91]
<i>SG</i>	0.00000007 [0.07]	-0.0000198 [-1.36]
<i>GRTH</i>	0.0107707*** [9.98]	0.0229357*** [9.74]
_cons	-0.0556054*** [-14.36]	0.1658299*** [25.55]
N	7,808	7,808

Notes: t statistics in brackets; ***p < 0.01.

Source: Summarized from Stata 16.

Table 5. Checking heteroskedasticity and autocorrelation

	<i>Autocorrelation</i>	<i>Heteroskedasticity</i>		
<i>For Model 1</i>	xtserial ROA TDA STDA LTDA SIZ SG GRTH Wooldridge test for autocorrelation in panel data. H0: no first-order autocorrelation. F (1,975) = 3.255 Prob > F = 0.0715	xttest3 Modified Wald test for groupwise heteroskedasticity in fixed effect regression model. H0: $\sigma^2(i) = \sigma^2$ for all i . chi2(976) = 2.0e + 09 Prob > chi2 = 0.0000		
<i>For Model 2</i>	xtserial ROE TDA STDA LTDA SIZ SG GRTH Wooldridge test for autocorrelation in panel data. H0: no first-order autocorrelation. F (1,975) = 0.010 Prob > F = 0.9216	xttest0 Breusch and Pagan Lagrangian multiplier test for random effects. ROE [id,t] = Xb + u[id] + e[id,t]		
		<i>Estimated results</i>		
			<i>VAR</i>	<i>SD = SQRT (VAR)</i>
		ROE	1.99762	1.413372
		e	1.779777	1.334083
u	0.1535928	0.3919092		
	Test: Var(u) = 0 chibar2(01) = 297.00 Prob > chibar2 = 0.0000			

Source: Results from Stata 16.

From the result of Table 6, we have the models concretely as follows:

$$ROA = -0.05561 - 0.09908 * TDA + 0.00658 * STDA - 0.00128 * LTDA + 0.01128 * SIZ + 0.00000007 * SG + 0.01077 * GRTH$$

$$ROE = 0.16583 - 0.02278 * TDA + 0.01751 * STDA - 0.00265 * LTDA - 0.00498 * SIZ - 0.00002 * SG + 0.02294 * GRTH$$

5. DISCUSSION

From the two above models, it can be seen that when TDA rise by 1%, ROA and ROE will reduce by 9.91% and 2.28%, respectively. This outcome is consistent with the large number papers by Abor (2005), Zeitun and Tian (2007), Salim and Yadav (2012), Shubita and Alsawalhah (2012), Olokoyo (2013), Sheikh and Wang (2013), Addae et al. (2013), Chechet and Olayiwola (2014), Dawar (2014), Hasan et al. (2014), Tailab (2014), Foo et al. (2015), Riaz (2015), Vätavu (2015), Admassu (2016), Habib et al. (2016), Nassar (2016), Nguyen et al. (2016), Baah-Acquah et al. (2017), Bui (2017), Nguyen et al. (2019), Ramlan et al. (2020), Singh and Bagga (2019), Ngo et al. (2020), Nguyen and Nguyen (2020a), Nguyen and Nguyen (2020b), Nguyen (2020), Nini and Patrisia (2020), Pham and Nguyen (2020), Pham (2020), Yiadom et al. (2020), Jee et al. (2021) and Afroze and Khan (2022).

Likewise, LTDA also has its negative and significant statistic impacts on profitability and significant at level of 1%. This outcome reveals that the more long-term debts these firms get, the worse for their profitability. When LDTA falls 1 unit, ROA and ROE will climb 0.0013 units and 0.0027 units, respectively. This finding is in line with many authors, such as Zeitun and Tian (2007), Salim and Yadav (2012), Shubita and Alsawalhah (2012), Olokoyo (2013), Sheikh and Wang (2013), Addae et al. (2013), Ahmad (2014), Appiadjei (2014), Hasan et al. (2014), Foo et al. (2015), Riaz (2015), Admassu (2016), Habib et al. (2016), Nguyen et al. (2016), Baah-Acquah et al. (2017), Bui (2017), Kirmi (2017), Le and Phan (2017), Vuong et al. (2017), Nguyen and Nguyen (2020a), Nguyen and Nguyen (2020b), Nini and Patrisia (2020), Pham and Nguyen (2020),

Yiadom et al. (2020), Co et al. (2021), En and Malek (2021), Setiawan and de Jesus Pereira (2021), Afroze and Khan (2022), Do et al. (2022) and Nguyen et al. (2023).

On the contrary, STDA has its statistically significant positive impact on profitability which is measured by ROA and ROE at 1% significant level. This implies that 1% rise in STDA causes an increase in ROA and ROE by 0.007% and 0.018%, respectively, with other variables hold constant. Our finding is similar to studies by De Mesquita and Lara (2003), Abor (2005), Baum et al. (2007), Gill et al. (2011), Addae et al. (2013), Appiadjei (2014), Tailab (2014), Ramlan et al. (2020), Hoang et al. (2019) and Nguyen et al. (2023).

The factor of GRTH impacts positively on profitability and significant at level of 1%. When GRTH improves 1%, ROA and ROE grow by 1.08% units and 2.29%, respectively. This means that a higher of growth opportunities, the better for profitability of surveyed JSCs. Many other papers also support this disclosure, for example, Salim and Yadav (2012), Sheikh and Wang (2013), Habib et al. (2016), Bui (2017), Ngo et al. (2020), Nini and Patrisia (2020), Pham and Nguyen (2020) and Jee et al. (2021).

The SIZ determinant has a 1% significant statistical impact on two dependent variables in different ways. Concretely, it is positively linked with ROA with coefficients of 0.01128 which means that when SIZ grows 1 unit, ROA also rises by 0.011 units. This outcome is in line with research by Zeitun and Tian (2007), Sheikh and Wang (2013), Habib et al. (2016), Nguyen et al. (2016), Admassu (2016), Baah-Acquah et al. (2017), Vuong et al. (2017), Akinleye and Akomolafe (2019), Ngo et al. (2020), Nguyen and Nguyen (2020a), Nguyen and Nguyen (2020b), Nguyen (2020), Nini and Patrisia (2020), Pham and Nguyen (2020), Pham (2020), Afroze and Khan (2022) and Do et al. (2022).

Meanwhile, the SIZ variable shows its negative and significant statistical relationship with ROE with coefficients of 0.005 which means that when SIZ goes up 1%, ROE falls by 0.5%. Some others also have the same result, for example, Salim and Yadav (2012), Baah-Acquah et al. (2017) and Jee et al. (2021). Besides Hasan et al. (2014) and Nguyen et al. (2021) also found the negative impact of SIZ but it is insignificant statistical link.

Lastly, SG has a positive link with ROA while this relationship with ROE is reversed, but these ties

are insignificant statistically. In other words, this independent variable does not impact profitability. The finding of this paper is favoured by Gill et al. (2011), Admassu (2016), Kakanda et al. (2016), Nguyen et al. (2016) and Nguyen (2020).

6. CONCLUSION

This paper explores determinants on profitability (measured by *ROA* and *ROE*) of 976 non-financial JSCs on VNX for the period from 2013 to 2020 with a biggest sample of 7,808 observations. Six factors are considered as independent variables which consist of total debt (*TDA*), short-term debt (*STDA*), long-term debt (*LTDA*), size of firm (*SIZ*), net sales growth (*SG*) and growth opportunities (*GRTH*). The result shows that two factors of *STDA* and *GRTH* have a positively significant impact on both *ROA* and *ROE*. Meanwhile, both independent variables of *TDA* and *LTDA* have their negative and significant statistical ties with profitability. The factor of *SIZ* has its significantly different effects on these dependent variables while the determinant of *SG* has its insignificant statistical links on profitability.

The findings of this study reveal that debt structure has both negative and positive effects on profitability. Notably, this result is supported by many other empirical papers, domestically and internationally. Concretely, this paper finds a negative impact of total debts and long-term debts on profitability. It means that the profitability of a firm reduces if its total debts and long-term debts rise. Our surveyed period has witnessed the COVID-19 epidemic all over the world which badly affected business operations except medical firms. This epidemic has obviously worsened the growth rate and profitability of firms. Despite the fact that, our world has overcome the COVID-19 epidemic, but its consequences still harm the worldwide economy unexpectedly and Vietnam is not an exception. Many Vietnamese firms have been badly affected by this shock and still faced many difficulties to recover. They do not dare to take long-term loans to expand their production scale or invest in other ways. Especially, for a new emerging or transition market like Vietnam, interest rate of long-term debts is higher than the short-term debts. In other words, a higher interest rate of long-term debts induces a bigger risk for a firm. Apart from that, a longer maturity also means that a larger potential uncertainty for the business operation of any firm. Besides, in the banking field of Vietnam, administrative procedures for lending long-term loans are more complex than the short-term debts. These reasons induce firms have a tend to use short-term debt instead of long-term debt. In our sample, nearly 20% of firms do not have their long-term debts (equivalent to 191 JSCs).

This research also reveals a positive relationship between short-term debts and profitability. This outcome totally suits with above-mentioned analysis; it means JSCs in Vietnam

mainly use short-term debts instead of long-term debts. These firms are taking advantage of lower interest rates and shorter maturity from short-term loans as well. The benefits of short-term loans help them be safer in their operations. Other reason for using short-term debts is that, during the researched duration, the interest rate of short-term loan is rather stable in Vietnam's economy. The use of short-term debts also means that financial leverage also rises and creates a tax shield for a firm. In other words, the higher of short-term debts a firm gets (of course in a certain safety limit), the better for its tax shield. Therefore, the *STDA* factor has a positive effect with profitability is appropriate.

Both determinant of growth opportunities and firm size have their positive influences on *ROA* and *ROE* (except the negative effect of *SIZ* on *ROE*). In a certain way, there is a relationship between the size of a firm and its growth in total assets. If a firm broadens its scope, it will cause a rise in profitability. In this case, a firm is making use of its economic of scale in creating its revenues and lowering its costs. This movement also helps to raise the growth rate of total assets over years. One obvious reason for a big (or large size) firm is that it has a better chance of investing and getting higher profits. Moreover, in monetary market such Vietnam, a big firm also has a more convenient position in negotiating with commercial banks about interest rates or it is able to reduce interest rates of lending.

Besides, for government's related agencies, it is necessary to simplify the process in getting loans from financial institutions by issuing legal policies. It will really help firms to reduce their business costs and it will be easier for them to access capital sources, especially the short-term debts.

The outcome of this paper suggests that non-financial JSCs in VNX should maintain their higher proportion of short-term debts in debt structure as currently in order to take advantage of tax shield and accelerate profitability. Apart from that, after mobilizing capital from short-term loans, managers of these firms should invest in their total assets so as to expand their scale of operation as well as to promote their growth rate of assets. In other words, this movement can help a firm take advantage of economic scale. As a result, the expansion of total assets in its turn promotes back to the profitability of firms.

Findings from analysing determinants on current profitability of JSCs in Vietnam has contributed to the existing literature of this field by new empirical evidence. However, our first limitation is the survey's duration which focuses on a short time of eight years only. Besides, our sample does not include the financial firms. Moreover, this paper just focuses on six independent variables. So ideally, in the future, better comprehensive research for total JSCs on the VNX with a longer time as well as using more factors, such as ratio of fixed assets to total assets, firm age, liquidity, corporate income tax, etc. will be taken.

REFERENCES

- Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, 6(5), 438–445. <https://doi.org/10.1108/15265940510633505>
- Abuamsha, M., & Shumali, S. (2022). Debt structure and its impact on financial performance: An empirical study on the Palestinian stock exchange. *Journal of International Studies*, 15(1), 211–229. <https://doi.org/10.14254/2071-8330.2022/15-1/14>
- Addae, A. A., Nyarko-Baasi, M., & Hughes, D. (2013). The effects of capital structure on profitability of listed firms in Ghana. *European Journal of Business and Management*, 5(31), 215–229. <https://core.ac.uk/download/pdf/234625161.pdf>
- Admassu, N. A. (2016). The impact of capital structure choice on firms' financial performance: Evidence from manufacturing PLCs in Tigray Region, Ethiopia. *Research Journal of Finance and Accounting*, 7(15), 31–38. <https://core.ac.uk/download/pdf/234631564.pdf>
- Afroze, S., & Khan, S. A. (2022). Impact of capital structure on firm performance: Evidence from the pharmaceuticals & chemicals sector in Bangladesh. *The Cost and Management*, 50(1), 27–40. <https://icmab.gov.bd/wp-content/uploads/2022/04/Impact-of-Capital-Structure-on-Firm-Performance-Evidence-from-the-Pharmaceuticals-Chemicals-Sector-in-Bangladesh-.pdf>
- Ahmad, T. (2014). Impact of capital structure on profitability: An empirical analysis of cement sector of Pakistan. *Research Journal of Finance and Accounting*, 5(17), 49–54. <https://iiste.org/Journals/index.php/RJFA/article/view/15824/16485>
- Akinleye, G. T., & Akomolafe, L. (2019). Capital structure and profitability of manufacturing firms listed on the Nigerian Stock Exchange. *Information Management and Business Review*, 11(3(0)), 27–34. [https://doi.org/10.22610/imbr.v11i3\(0\).2944](https://doi.org/10.22610/imbr.v11i3(0).2944)
- Al Kharusi, S., Murthy, Y. S. R., & Al Foori, A. (2022). Performance and profitability of local banks: The case of the emerging market. *Corporate & Business Strategy Review*, 3(1), 55–63. <https://doi.org/10.22495/cbsrv3i1art6>
- Alhassan, I. (2021). Capital structure and financial performance of consumer goods companies in Nigeria. *International Journal of Accounting Research*, 6(2), 58–67. <https://doi.org/10.12816/0061255>
- Alti, A. (2006). How persistent is the impact of market timing on capital structure? *The Journal of Finance*, 61(4), 1681–1710. <https://doi.org/10.1111/j.1540-6261.2006.00886.x>
- Appiadjei, E. A. (2014). Capital structure and firm performance: Evidence from Ghana Stock Exchange. *Research Journal of Finance and Accounting*, 5(16), 37–43. <https://core.ac.uk/download/pdf/234630095.pdf>
- Aslan, T., Kizil, C., & Yilmaz, E. (2021). Profitability analysis with the fuzzy logic: A hospital example. *Corporate Governance and Organizational Behavior Review*, 5(2), 17–31. <https://doi.org/10.22495/cgobr5i2p2>
- Baah-Acquah, P., Freeman, E., & Ellis, E. P. (2017). Relationship between capital structure and profitability of oil marketing companies (OMCs). *International Journal of Multidisciplinary Research and Development*, 4(3), 110–116. <https://www.allsubjectjournal.com/assets/archives/2017/vol4issue3/4-1-99-848.pdf>
- Badar, R., & Saeed, A. (2013). Impact of capital structure on performance empirical evidence from sugar sector of Pakistan. *European Journal of Business and Management*, 5(5), 78–86. <https://core.ac.uk/download/pdf/234624602.pdf>
- Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance*, 57(1), 1–32. <https://doi.org/10.1111/1540-6261.00414>
- Baum, C. F., Schäfer, D., & Talavera, O. (2007). *The effects of short-term liabilities on profitability: A comparison of US and Germany*. <https://doi.org/10.2139/ssrn.967260>
- Bui, N. T. H. (2017). The impact of financial leverage on firm performance: A case study of listed oil and gas companies in England. *International Journal of Economics, Commerce and Management*, 5(6), 477–485. <https://ijecm.co.uk/wp-content/uploads/2017/06/5631.pdf>
- Chechet, I. L., & Olayiwola, A. B. (2014). Capital structure and profitability of Nigerian quoted firms: The agency cost theory perspective. *American International Journal of Social Science*, 3(1), 139–158. https://www.aijssnet.com/journals/Vol_3_No_1_January_2014/13.pdf
- Co, H. T. T., Uong, T. T. M., & Nguyen, C. V. (2021). The impact of capital structure on firm's profitability: A case study of the rubber industry in Vietnam. *Journal of Asian Finance, Economics and Business*, 8(7), 469–476. <https://doi.org/10.13106/JAFEB.2021.VOL8.NO7.0469>
- Dawar, V. (2014). Agency theory, capital structure and firm performance: Some Indian evidence. *Managerial Finance*, 40(12), 1190–1206. <https://doi.org/10.1108/MF-10-2013-0275>
- De Mesquita, J. M. C., & Lara, J. E. (2003). *Capital structure and profitability: The Brazilian case* [Paper presentation]. Academy of Business and Administrative Science Conference, Vancouver, Canada. <http://surl.li/piofq>
- Dessi, R., & Robertson, D. (2003). Debt, incentives and performance: Evidence from UK panel data. *The Economic Journal*, 113(490), 903–919. <https://doi.org/10.1111/1468-0297.t01-1-00159>
- Dinh, H. T., & Pham, C. D. (2020). The effect of capital structure on financial performance of Vietnamese listing pharmaceutical enterprises. *The Journal of Asian Finance, Economics and Business*, 7(9), 329–340. <https://doi.org/10.13106/jafeb.2020.vol7.no9.329>
- Do, L. H., Luong, K. T., Mai, A. H. N., Dam, L. A., Pham, H. T. L., & Nguyen, N. T. (2022). The impact of capital structure on firm performance: Case of listed firms in processing and manufacturing industry in Vietnam. *International Journal of Economics, Business and Management Research*, 6(3), 96–113. <https://doi.org/10.51505/IJEBMR.2022.6307>
- En, J. N. J., & Malek, N. I. A. (2021). Capital structure and firm performance of technology sector in Malaysia. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 11(3), 601–628. <https://doi.org/10.6007/IJARAFMS/v11-i3/10660>
- Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, 15(1), 1–33. <https://doi.org/10.1093/rfs/15.1.1>
- Fischer, E. O., Heinkel, R., & Zechner, J. (1989). Dynamic capital structure choice: Theory and tests. *The Journal of Finance*, 44(1), 19–40. <https://doi.org/10.1111/j.1540-6261.1989.tb02402.x>

- Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. *Journal of Financial Economics*, 79(3), 469–506. <https://doi.org/10.1016/j.jfineco.2005.03.004>
- Foo, V., Jamal, A. A. A., Karim, M. R. A., & Ulum, Z. K. A. B. (2015). Capital structure and corporate performance: Panel evidence from oil and gas companies in Malaysia. *International Journal of Business Management and Economic Research*, 6(6), 371–379. <http://www.ijbmer.com/docs/volumes/vol6issue6/ijbmer2015060606.pdf>
- 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. <https://lib.manaraa.com/books/The%20Effect%20of%20Capital%20Structure%20on%20Profitability%20Evidence%20from%20the%20United%20States.pdf>
- Habib, H. J., Khan, F., & Wazir, M. I. (2016). Impact of debt on profitability of firms: Evidence from non-financial sector of Pakistan. *City University Research Journal*, 6(1), 70–80. <https://www.cusit.edu.pk/curj/Journals/Journal/Jan%202016/artcile%2006a.pdf>
- Hajisaaid, A. M. S. A. (2020). The effect of capital structure on profitability of basic materials Saudi Arabia firms. *Journal of Mathematical Finance*, 10(4), 631–647. <https://doi.org/10.4236/jmf.2020.104037>
- Harangi-Rákos, M., & Fenyves, V. (2021). Financial performance and market growth of the companies in Hungary and Romania: A study of the food retail companies [Special issue]. *Corporate Ownership & Control*, 18(3), 325–336. <https://doi.org/10.22495/cocv18i3siart7>
- Hasan, M. B., Ahsan, A. F. M. M., Rahaman, M. A., & Alam, M. N. (2014). Influence of capital structure on firm performance: Evidence from Bangladesh. *International Journal of Business and Management*, 9(5), 184–194. <https://doi.org/10.5539/ijbm.v9n5p184>
- Hoang, V. H., Tran, M. D., Hoang, V. H., & Nguyen, T. T. C. (2019). Capital structure and financial efficiency: Evidence from Ho Chi Minh Stock Exchange of Vietnam. *Asian Economic and Financial Review*, 9(11), 1255–1265. <https://doi.org/10.18488/journal.aefr.2019.911.1255.1265>
- Jee, K. F., Ngui, J. E. J., Poh, P. P. J., Chan, W. L., & Wong, Y. S. (2021). Capital structure and firm performance: Evidence from Malaysian public listed plantation companies. *UNIMAS Review of Accounting and Finance*, 5(1), 116–135. <https://doi.org/10.33736/uraf.3536.2021>
- Kakanda, M. M., Bello, A. B., & Abba, M. (2016). Effect of capital structure on performance of listed consumer goods companies in Nigeria. *Research Journal of Finance and Accounting*, 7(8), 211–219. <https://core.ac.uk/download/pdf/234631372.pdf>
- Kayhan, A., & Titman, S. (2007). Firms' histories and their capital structures. *Journal of Financial Economics*, 83(1), 1–32. <https://doi.org/10.1016/j.jfineco.2005.10.007>
- Kebewar, M. (2013). *Does debt affect profitability? An empirical study of French trade sector*. <https://doi.org/10.2139/ssrn.2205794>
- Kirmi, P. N. (2017). Relationship between capital structure and profitability, evidence from listed energy and petroleum companies listed in Nairobi Securities Exchange. *Journal of Investment and Management*, 6(5), 97–102. <https://doi.org/10.11648/j.jim.20170605.11>
- Kostyuk, A. N., Tchernyshov, K., & Kostyuk, H. (2004). Financial-industrial groups at the markets for corporate control and investments: The case of Ukraine. *Corporate Ownership & Control*, 2(2), 77–90. <https://doi.org/10.22495/cocv2i2p7>
- Le, V. T. P., & Phan, N. T. B. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance*, 42, 710–726. <https://doi.org/10.1016/j.ribaf.2017.07.012>
- 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. <https://www.aeaweb.org/aer/top20/48.3.261-297.pdf>
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *The American Economic Review*, 53(3), 433–443. <https://www.jstor.org/stable/1809167>
- Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 574–592. <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
- Nassar, S. (2016). The impact of capital structure on financial performance of the firms: Evidence from Borsa Istanbul. *Journal of Business & Financial Affairs*, 5(2), Article 1000173. <https://doi.org/10.4172/2167-0234.1000173>
- Ngo, T. V., Tram, T. X. H., & Vu, B. T. (2020). The impact of debt on corporate profitability: Evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(11), 835–842. <https://doi.org/10.13106/jafeb.2020.vol7.no11.835>
- Nguyen, D. T. (2020). The effect of financial structure on business performance of industrial enterprises listed in Vietnam. *Accounting*, 6, 1297–1304. <https://doi.org/10.5267/j.ac.2020.8.021>
- Nguyen, H. T., & Nguyen, A. H. (2020a). Capital structure and firm performance of non-financial listed companies: Cross-sector empirical evidence from Vietnam. *Accounting*, 6, 137–150. <https://doi.org/10.5267/j.ac.2019.11.002>
- Nguyen, H. T., & Nguyen, A. H. (2020b). The impact of capital structure on firm performance: Evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, 7(4), 97–105. <https://doi.org/10.13106/jafeb.2020.vol7.no4.97>
- Nguyen, L. T., Phan, M. H., & Bui, K. B. (2016). Liabilities and the impacts on financial performance of the Vietnamese listed small and medium-sized enterprises. *Journal of Economics and Development*, 18(3), 41–63. <https://doi.org/10.33301/2016.18.03.03>
- Nguyen, N. M., Nguyen, T. H., & To, T. H. (2021). The impact of capital structure on financial performance of logistic service providers listed on Ho Chi Minh City Stock Exchange. *Palarch's Journal of Archaeology of Egypt/Egyptology*, 18(2), 688–719. <https://archives.palarch.nl/index.php/jae/article/view/7484/7073>
- Nguyen, S. L., Pham, C. D., Truong, T. V., Phi, T. V., Le, L. T., & Vu, T. T. T. (2023). Relationship between capital structure and firm profitability: Evidence from Vietnamese listed companies. *International Journal of Financial Studies*, 11(1), Article 45. <https://doi.org/10.3390/ijfs11010045>

- Nguyen, T. D. C., Dang, D. D., Luong, T. B., & Nguyen, T. T. T. (2019). Capital structure and performance: Empirical evidence from Vietnam. *Journal of Emerging Issues in Economics, Finance and Banking*, 8(1), 2802-2812. https://www.academia.edu/39911356/Capital_Structure_and_Performance_Empirical_Evidence_from_Vietnam
- Nini, & Patrisia, D. (2020). The effect of capital structure for firm performance in manufacturing companies listed of the Indonesia Stock Market. In *Proceedings of the 5th Padang International Conference on Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA-5 2020)* (Advances in Economics, Business and Management Research, pp. 17-23). Atlantis Press. <https://doi.org/10.2991/aebmr.k.201126.003>
- Olokoyo, F. O. (2013). Capital structure and corporate performance of Nigerian quoted firms: A panel data approach. *African Development Review*, 25(3), 358-369. <https://doi.org/10.1111/j.1467-8268.2013.12034.x>
- Pasha, R., & Elbages, B. (2022). Green banking practices: The impact of internet banking on bank profitability in Egypt. *Corporate & Business Strategy Review*, 3(2), 65-75. <https://doi.org/10.22495/cbsrv3i2art6>
- Pham, N. T., & Nguyen, T. (2020). The impact of financial structure on profitability: Empirical evidence from Vietnam's construction sector. *Asian Economic and Financial Review*, 10(9), 1028-1036. <https://doi.org/10.18488/journal.aefr.2020.109.1028.1036>
- Pham, T. H. D. (2020). The impact of capital structure on financial performance of firms: Evidence from Hanoi Stock Exchange. *American Based Research Journal*, 9(3), 15-21. <https://doi.org/10.5281/zenodo.3733150>
- Ramlan, H., Abdul Kahar, A. S. B., & Abd Rahim, M. F. B. (2020). Impact of capital structure on performance of Malaysian trading and service firms. In N. S. Othman, A. H. B. Jaaffar, N. H. B. Harun, S. B. Buniamin, N. E. A. B. Mohamad, I. B. M. Ali, N. H. B. A. Razali, & S. L. B. M. Hashim (Eds.), *European Proceedings of Social and Behavioural Sciences* (Driving sustainability through business-technology synergy: Vol. 100, pp. 550-555). European Publisher. <https://doi.org/10.15405/epsbs.2020.12.05.59>
- Riaz, S. (2015). Impact of capital structure on firm's financial performance: An analysis of chemical sector of Pakistan. *Journal of Poverty, Investment and Development*, 12, 85-93. <https://core.ac.uk/download/pdf/234695236.pdf>
- Sakr, A., & Bedeir, A. (2019). Impact of capital structure on firm's performance: Focusing on non-financial listed Egyptian firms. *International Journal of Financial Research*, 10(6), 78-87. <https://doi.org/10.5430/ijfr.v10n6p78>
- Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia — Social and Behavioral Sciences*, 65, 156-166. <https://doi.org/10.1016/j.sbspro.2012.11.105>
- Setiawan, C., & de Jesus Pereira, N. F. (2021). Capital structure, liquidity and firm size impact on profitability of mining industry in Indonesia. In *Proceeding of the International Conference on Family Business and Entrepreneurship (ICFBE)* (pp. 361-368). <https://doi.org/10.33021/icfbe.v2i1.3569>
- Sheikh, N. A., & Wang, Z. (2013). The impact of capital structure on performance: An empirical study of non-financial listed firms in Pakistan. *International Journal of Commerce and Management*, 23(4), 354-368. <https://doi.org/10.1108/IJCoMA-11-2011-0034>
- Shubita, M. F., & Alsawalhah, J. M. (2012). The relationship between capital structure and profitability. *International Journal of Business and Social Science*, 3(16, special issue), 104-112. https://ijbssnet.com/journals/Vol.3_No.16_Special_Issue_August_2012/12.pdf
- Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 51(2), 219-244. [https://doi.org/10.1016/S0304-405X\(98\)00051-8](https://doi.org/10.1016/S0304-405X(98)00051-8)
- Simerly, R. L., & Li, M. (2000). Environmental dynamism, capital structure and performance: A theoretical integration and an empirical test. *Strategic Management Journal*, 21(1), 31-49. [https://doi.org/10.1002/\(SICI\)1097-0266\(200001\)21:1<31::AID-SMJ76>3.0.CO;2-T](https://doi.org/10.1002/(SICI)1097-0266(200001)21:1<31::AID-SMJ76>3.0.CO;2-T)
- Singh, N. P., & Bagga, M. (2019). The effect of capital structure on profitability: An empirical panel data study. *Jindal Journal of Business Research*, 8(1), 65-77. <https://doi.org/10.1177/2278682118823312>
- Sivathaasan, N., Tharanika, R., Sinthuja, M., & Hanitha, V. (2013). Factors determining profitability: A study of selected manufacturing companies listed on Colombo Stock Exchange in Sri Lanka. *European Journal of Business and Management*, 5(27), 99-107. <https://pdfcoffee.com/factors-determining-profitability-a-study-of-selected-manufacturing-companies-listed-on-colombo-stock-exchange-in-sri-lanka-pdf-free.html>
- Tailab, M. (2014). The effect of capital structure on profitability of energy American firms. *International Journal of Business and Management Invention*, 3(12), 54-61. <https://ssrn.com/abstract=3251675>
- Vätavu, S. (2015). The impact of capital structure on financial performance in Romanian listed companies. *Procedia Economics and Finance*, 32, 1314-1322. [https://doi.org/10.1016/S2212-5671\(15\)01508-7](https://doi.org/10.1016/S2212-5671(15)01508-7)
- Vuong, N. B., Vu, Q. T. T., & Mitra, P. (2017). Impact of capital structure on firm's financial performance: Evidence from United Kingdom. *Journal of Finance & Economics Research*, 2(1), 18-32. <https://doi.org/10.20547/jfer1702102>
- Yiadam, E. B., Mawutor, J. K. M., Amankwa, R. F., & Yalley, S. (2020). The effect of capital structure on organizational performance of listed Ghana club 100 companies. *The IUP Journal of Accounting Research & Audit Practices*, 19(3), 8-21. <http://surl.li/pipnt>
- Zeitun, R., & Tian, G. G. (2007). Capital structure and corporate performance: Evidence from Jordan. *Australasian Accounting Business & Finance Journal*, 1(4), 40-61. <http://doi.org/10.14453/aabfj.v1i4.3>