

**REPUBLIC OF TURKEY
ÇUKUROVA UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS**

**THE IMPACTS OF CAPITAL STRUCTURE ON FIRM'S PERFORMANCE:
EVIDENCE FROM EAGLES AND NESTS EMERGING MARKETS**

Ahsanullah BARAKZAI

PHD THESIS

ADANA / 2022

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PhD THESIS

ADANA / 2022

ETHICAL STATEMENT

I hereby declare that this thesis study I prepared in accordance with thesis writing rules of Çukurova University Social Sciences Institute;

- All data, information, and documents presented in this thesis have been obtained within the scope of academic rules and ethical conduct,
- All information, documents, assessments, and results have been presented in accordance with scientific ethical conduct and moral rules,
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- No change has been made in the data used,

The work presented in this thesis is original, or else, I admit all loss of rights to be incurred against me.

Ahsanullah BARAKZAI

..... / / 2022

ABSTRACT**THE IMPACTS OF CAPITAL STRUCTURE ON FIRM'S PERFORMANCE:
EVIDENCE FROM EAGLES AND NESTS EMERGING MARKETS****Ahsanullah BARAKZAI****Doctoral Thesis, Department of Business****Supervisor: Prof. Dr. Hatice DOĞUKANLI****April 2022, 128 Pages**

Capital structure decisions are considered as one of the major financial management decisions of a company, which by proper and efficient adoption of that undoubtedly, a company can play a significant role in achieving its ultimate goal, which is to maximize the value of the company and increase the ownership value of its stockholders. Because it is argued that capital structure by influencing the cost of the capital can improve the operational performance of firms and increase their value.

Given the importance of this topic, in this study, the impact of capital structure on the performance of manufacturing companies operating at the different levels of emerging markets in terms of share in global gross domestic product (GDP) growth has been investigated from 2010 to 2019.

Therefore 5 Countries each China, India, Brazil, Indonesia, and Turkey are selected from the EAGLEs Emerging countries, which are situated at the top level of emerging markets in terms of share in global GDP, and 5 other countries each Poland, Thailand, Sri Lanka, Saudi Arabia, and Chile are selected from the NEST emerging markets which are situated at the bottom level of emerging markets.

The empirical results obtained from this study show that, except for some insignificant positive and negative relationships for some countries, In general leverage (Debts/Assets) has a negative significant relationship with the performance of manufacturing companies in each of EAGLEs and NESTs emerging countries. This means that by increasing the share of debt in the capital structure of companies in the above sample emerging countries, their operational performance decreases.

Keywords: Capital structure, financial leverage, firm's performance, emerging market.

ÖZET

SERMAYE YAPISININ FİRMA PERFORMANSINI ETKİLERİNİN GELİŞMEKTE OLAN EAGLES VE NESTS PİYASALAR İÇİN SINAMASI

Ahsanullah BARAKZAI

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Nisan, 2022, 128 Sayfa

Sermaye yapısı kararları, bir şirketin en önemli finansal yönetim kararlarından biri olarak kabul edilir ve bunun doğru ve verimli bir şekilde benimsenmesi ile şüphesiz, bir şirket, şirketin değerini en üst düzeye çıkarmak ve hissedarlarının sahiplik değerini artırmak olan nihai hedefine ulaşmada önemli bir rol oynayabilir. Tartışmalı bir konu olmakla birlikte sermaye yapısı, sermaye maliyetini etkileyerek firmaların operasyonel performanslarını iyileştirebilir ve değerlerini artırabilir.

Bu konunun önemi göz önüne alındığında, bu çalışmada, 2010-2019 döneminde küresel gayri safi yurtici hasıla (GSYİH) büyümesini dikkate alınarak gelişmekte olan ülkelerin farklı seviyelerinde faaliyet gösteren imalat firmalarının performansları üzerinde sermaye yapısının etkisi araştırılmıştır.

Bu nedenle, küresel GSYİH içindeki pay açısından gelişmekte olan piyasaların en üst seviyesinde yer alan EAGLEs gelişmekte olan ülkeler arasından Çin, Hindistan, Brezilya, Endonezya ve Türkiye'den 5'er ülke seçilmiştir, ve diğer 5 ülke, Polonya, Tayland, Sri Lanka, Suudi Arabistan ve Şili, gelişmekte olan piyasaların en alt seviyesinde yer alan NEST Gelişmekte Olan piyasalarından seçilmiştir.

Bu çalışmanın ampirik sonuçları, kaldırıcın (Borçlar/Aktifler), çalışma döneminde gelişmekte olan ekonomilerin her iki grubundaki (EAGLEs & NESTs) örnek imalat şirketlerinin performansını anlamlı ölçüde olumsuz etkilediğini göstermektedir. Bu, sonuç yukarıd'aki örnek ülkelerdeki şirketlerin sermaye yapısında borç payının artmasıyla operasyonel performanslarının düştüğü anlamına gelmektedir.

Anahtar Kelimeler: Sermaye Yapısı, Finansal Kaldıraç, Firma Performansı, Gelişmekte Olan Piyasalar.

ACKNOWLEDGEMENTS

First of all, I would like to thank my almighty Allah for giving me the opportunity to fulfill one of my long-held dreams of a doctoral degree in a developed country like Turkey, and to enable me to pursue it properly. Doctoral studies and preparing the thesis were not easy, but the presence, participation, and encouragement of kind people, whom I will mention below, made this scientific journey enjoyable and did not allow me to feel tired.

Firstly, I have to thank my respected supervisor Prof.Dr.Hatice DOĞUKANLI very much for guiding and encouraging me during my doctoral course and in the preparation of my thesis, I have to truly say that in this scientific period, she has not spared any kind of sacrifice and self-devotion, I will always be grateful to her, may Allah be pleased with her.

I would like to express my special thanks to all the esteemed professors of the Ph.D. program of the Department of Finance who have taught us tirelessly and honestly during the course and shared all their new and advanced scientific experiences with us.

I would like to special thanks to the respected and kind professors of the supervisory committee of my dissertation, each Prof.Dr. Hatice DOĞUKANLI, Assoc. Prof. Gamze VURAL, Assoc. Prof. Hüseyin GÜLER, Assoc. Prof. Emrah ARIÖĞLU, Assoc. Prof. Bahadır ERGÜN, and Asst. Prof. Gökhan SÖKMEN Who have continuously monitored my dissertation and shared their valuable advice and guidance with me in this regard.

I would like also to thank Res Asst. Dr. Metin BORAK for helping us a lot in the preparation of the proficiency exam and for sharing with us his useful scientific advice.

I would like to express my deepest gratitude to my kind family, each my dear father, mother, brothers & sisters, and especially to my dear eldest brother, Prof. Dr. Siddiqullah Barakzai, who facilitated my education in every way. I have to say, it was all his efforts and sacrifices that I have reached here today. I just want to tell him that I feel very lucky to have you and, I thank Allah that he has given me a kind brother like you.

I want to especially thank my dear wife Nazifa Barakzai, who has always encouraged me and took on the maximum responsibilities of the house during this study period and provided me with the chance to follow my lessons calmly.

Ahsanullah BARAKZAI

April 2022 /ADANA

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LIST OF ABBREVIATIONS

BBVA: Banco Bilbao Vizcaya Argentaria (BBVA) is a Spanish worldwide financial services corporation that in addition to operating financial activities in Spain, Turkey, North America, South America, and Romania, also conducts valuable scientific research on various financial issues.

EAGLES: Based on the classification of BBVA, Emerging, and Growth Leading Economies (EAGLEs) are countries whose additive GDP growth is expected to be larger than the average of G6's economies except for the USA up to the year 2026.

EBITDA.M: Earnings before Interest, Tax, Depreciation, and Amortization Margin (Earnings before Interest, Tax, Depreciation, and Amortization / Assets) . The EBITDA margin represents a company's operating profit as a percentage of its revenue.

FEM: Fixed Effect Model

IMF: International Monetary Fund

Incremental GDP: Incremental GDP, forecasts the changes in a country's GDP for the next few years.

ITC: International Trade Center

LTD: Long-term Debt (Long-Term Debt/Assets). LTD is a part of the company's capital that has been prepared in the form of long-term debt.

NEST: Based on the classification of BBVA, NEST is countries whose Expected Incremental GDP in the next decade is to be lower than the average of the G6 economies (G7 excluding the US) but higher than Italy's 2016.

OLS: Ordinary Least Square Regression Model

REM: Random Effect Model

ROA: Return on Asset (Net Income/Assets). ROA shows the ability of a company's assets in generating profits.

ROE: Return on Equity (Net Income/Shareholder's Equity). Shows the ability of a company's shareholder's equity in generating profits.

STD: Short-term Debt (Short-Term Debt/Assets). STD is a part of the company's capital that has been prepared in the form of short-term debt.

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CHAPTER I

INTRODUCTION

1.1. Background of the Study

When a company starts a business, it may pursue several goals, but what cannot be denied is that maximizing the value of a firm and the wealth of stockholders is the most important stimuli that compel individuals and organizations to engage in these activities. The question that may arise in this regard is how to increase the value of the company, in response, it should be said that financial scholars have offered several ways to maximize the value of the company, according to some arguments one of the most promising methods is to design a capital structure that, by influencing the cost of capital, paves the way for maximizing the value of the company. Based on this claim the capital structure and cost of capital along with other elements are among the most important factors that can directly affect the profitability and value of a company. As financing costs are one of the most important items of a company's general costs therefore companies, while arranging their capital structure, should refer to the financing resources that provide their required capital at a reasonable cost.

Companies in order to finance their respective activities, mainly rely on two financing sources, each internal source (equity) and an external source (debt). Many companies, when determining their capital structure, because of the low cost of debt financing prefer to go into debt instead of equity capital, because debt capital allows them to provide the desired combination of debt and equity capital. But the question that most companies face is how to arrange a capital structure to help the company achieve its ultimate goal. Various solutions have been offered to this question, for example, some companies believe that debt with its benefits such as tax savings and others can help the company reduce the cost of capital, while some other companies, due to the high risks of debt financing, recommend that companies in case of need for financial resources would be better to refer their internal resources. In short, various companies offer various suggestions regarding the optimal capital structure, considering the above cases; it seems that there is no single opinion in this regard.

There has been debate over the years about the relationship between financial leverage and corporate value, but it intensified when Modigliani and Miller proposed their "irrelevant theory" of capital structure (1958), they stated their theory that the

value of the firm is independent of its financial leverage, which means any change in the capital structure, keeps the value of the company invariant. But a few years later Modigliani and Miller (1963) in their second theory pointed out that with increasing levels of debt in the capital structure, the value of a firm increases, but due to increased demand from shareholders this increase reaches its previous trend and eventually the value of the firm remains the same. In pursuit of Modigliani and Miller, Jensen and Meckling (1976) deliberated the relationship between financial leverage and corporate performance concerning agency costs, and they pointed to the possible conflicts between directors and stockholders and between stockholders and debtors. After Jensen and Meckling (1976), the relationship between financial leverage and the performance of companies has attracted much attention from researchers, and as a result, some researchers like Vijayakumaran (2017), Safiudin, et al. (2015) found this relationship to be positive, that is, they found that with the increase in the level of debt in the capital structure, the value of firms also increased, while, the results of some other researchers like Narayanasary (2015), Nassar (2016), and Mwangi (2013) have shown this relationship to be negative, that is, they found that as the level of debt in the capital structure increases, the value of the company decreases.

The majority of research in which the impact of financial leverage on the performance of firms has been studied is related to developed financial markets. Regarding other countries, especially emerging countries that have a significant share in global growth, related to the effects of leverage on the performance of firms almost less research has been conducted. Therefore, considering the literature gap and the importance of this crucial financial issue, in this study, the impact of financial leverage on the performance of manufacturing firms that are operating at the different levels of emerging markets in terms of share in global growth has been investigated.

1.2. Statement of Research Problem

The main goal of any firm is to maximize shareholders' wealth by lowering the cost of capital; therefore, as mentioned earlier, according to some claims, the correct design of the capital structure, means determining and selecting the appropriate and effective combination of financial resources (level and type of debt) is one of the practices that can help the company achieve its goal, which is to increase its value.

Capital structure is the combination of financial resources (equity, debt) that firms

determine and select to finance their respective activities. In determining the capital structure, firms try to provide a combination of financial resources that meet the financial needs of the company at the lowest cost.

The question that arises in this regard is what proportion of which financial resources is the best combination in the capital structure that can help the company in achieving its goal, in this case, it should be said that it is impossible to design an optimal capital structure that is simultaneously reliable and acceptable to companies operating in different sectors, and can help companies achieve their goal of raising the value of shareholders wealth. An optimal capital structure is a capital structure that maximizes the value of a firm by minimizing its related costs. The absence of simultaneous optimal capital structure for all firms has led researchers to investigate this relationship in different financial and business structures, and as result some researchers found this relationship to be positive, however, the results of some other researchers have shown this relationship to be negative. This lack of unity in the results of these researches provides an opportunity for researchers to analyze this relationship between different types of firms in developed and non-developed countries.

As mentioned earlier, the majority of research in which the impact of financial leverage on the performance of firms has been studied is related to developed financial markets, regarding other countries, especially emerging countries that have a significant share in global growth almost less research has been conducted in this regard. The relatively limited research that has been done on the impact of financial leverage on the performance of firms in emerging markets has often investigated these markets individually, like Naser (2016), Basit (2017), Vijayakumaran (2017), have examined the impact of leverage on the performance of firms in Turkey, Malaysia, and China respectively. Some other research that has been carried out for a set of emerging countries, considered a specific group of countries that are approximately at a similar level in terms of contribution to global growth, like Nguyen Thu (2016) who investigated the effects of leverage on the performance of firms operating in the BRIC emerging countries. In general, it can be said that a comprehensive study, on which the impact of financial leverage on the performance of companies in different groups of emerging markets that are at different levels in terms of GDP growth has not been done.

Emerging markets by various entities taking into account various indicators such as GDP increase, growth of financial markets, and contribution to global production and future outlook are classified into different groups and categories such as EAGLEs,

NESTs, BRICS, MINT, etc. One of the most famous of these categorizations is the classification conducted by the international financial institution of BBVA (2010). Banco Bilbao Vizcaya Argentaria (BBVA) is a Spanish worldwide financial services corporation that in addition to operating financial activities in Spain, Turkey, Romania, and North and South America, also conducts valuable scientific research on various financial issues. According to BBVA's classification, emerging markets in terms of contribution to global growth are divided into two categories, each emerging and growth-leading economies (EAGLEs) and NESTs emerging countries.

EAGLEs or emerging and growth-leading economies are countries whose incremental gross domestic product (GDP) growth is expected to be larger than the average of G6's economies except for the USA by (2026). Based on the BBVA latest report China, India, Indonesia, Mexico, Nigeria, Philippines, Iran, Pakistan, Russia, Turkey, Egypt, Brazil, Bangladesh, Malaysia, and Vietnam are the countries that have membership in EAGLEs emerging countries. NEST or the next 11 are countries whose incremental GDP growth is expected to be higher than the average of non-G7's developed economies until (2026), each of the Saudi Arabia, Iraq, Poland, Thailand, Colombia, Myanmar, Argentina, UAE, Algeria, Kazakhstan, Sri Lanka, South Africa, Libya, Peru, Morocco, Ethiopia, Chile, Romania, Uzbekistan, and Mozambique are the countries which have the membership of this group of emerging markets.

As mentioned before so far no research has been done regarding the impact of financial leverage on the performance of firms operating in EAGLE and NEST countries, that is, this is the first study that group-wise examines the effects of leverage on the performance of industrial firms operating in these emerging countries.

Therefore to fill this research gap and to add to existing literature, in this study the impact of financial leverage is investigated on the performance of firms in 5 EAGLEs (China, India, Brazil, Indonesia, and Turkey) and 5 NESTs (Poland, Thailand, Sri Lanka, Saudi Arabia, and Chile) sample emerging markets throughout (2010-2019). In general, it is expected that the result of this research will help the existing and potential investors, stockholders, creditors, company directors, and other interested parties in decision making and policy designing, which are somehow affected by the relationship between financial leverage and operating performance in the EAGLE and NEST emerging markets.

1.3. The Purposes of the Study

The main goal of this study is to investigate the impact of financial leverage on the performance of firms operating in the different levels of emerging markets in terms of share in the global growth over the period (2010-2019).

For this purpose 5 countries China, India, Brazil, Indonesia, and Turkey are selected from the emerging and growth-leading economies (EAGLEs), which are situated at the top level of emerging countries in terms of contribution to global growth, and 5 other countries each Poland, Thailand, Sri Lanka, Saudi Arabia and Chile have selected from the NEST emerging markets, which had the status of potential EAGLE emerging markets, and it is expected that these markets will eventually include into the EAGLE group of emerging markets.

The study is expected to achieve the following specific objectives;

- 1) To determine the impact of financial leverage on the performance of firms listed in sample EAGLEs and NESTs emerging markets.
- 2) To investigate the level of effect of financial leverage on the firm performance in each sample EAGLEs and NESTs emerging markets.

1.4. The Research Questions

This study will attempt to answer the following main research questions;

1. Does financial leverage affect the firm's performance in EAGLE emerging markets?
2. Does financial leverage affect the firm's performance in NEST emerging markets?
3. If so what is the nature of these effects in both groups of these emerging markets?
4. Is the impact of the financial leverage on the performance of firms in both categories of emerging markets the same?
5. If no so what is the variance of effects in each EAGLEs and NEST sample emerging markets?

1.5. Research Hypothesis

Considering the research questions, the following hypotheses are developed, to find the right answer to these questions. These hypotheses are as follows;

Using ROA as a measure for the firm's performance, given the hypothesis as below:

1. **H₀** - The firm's financial leverage does not significantly affect the return on assets (ROA) of relevant companies in each of the sample EAGLE and NEST countries.

H₁ - The firm's financial leverage significantly affects the return on assets (ROA) of relevant companies in each of the sample EAGLE and NEST countries.

Using ROE as a measure for the firm's performance, given the hypothesis below;

2. **H₀** - The firm's financial leverage does not significantly affect the return on equity (ROE) of relevant companies in each of the sample EAGLE and NEST countries.

H₁ - The firm's financial leverage significantly affects the return on equity (ROE) of relevant companies in each of the sample EAGLE and NEST countries.

Using EBITDA.M as a firm performance measure, given the hypothesis below;

3. **H₀** - The firm's financial leverage does not significantly affect the earnings before interest, taxes, depreciation, and amortization (EBITDA) margin of relevant companies in each of the sample EAGLE and NEST countries.

H₁ - The firm's financial leverage significantly affects the earnings before interest, taxes, depreciation, and amortization (EBITDA) margin of relevant companies in each of the sample EAGLE and NEST countries.

Using STD and LTD as a firm's leverage measures, given the hypothesis below;

4. **H₀**: Short-term debt (STD) and long-term debt (LTD) does not significantly affect the performance of firms in each EAGLE and NEST sample emerging countries.

H₁: Short-term debt (STD) and long-term debt (LTD) significantly affect the performance of firms in each EAGLE and NEST sample emerging countries.

Using Sales growth as control variables, given the hypothesis below;

5. **H₀**: Sales growth rate does not significantly affect the performance of firms in each of the sample EAGLE and NEST emerging countries.

H₁: Sales growth significantly affects the firm's performance in each of the sample EAGLE and NEST emerging countries.

Using Firm size as a control variable, given the hypothesis as below;

6. **H₀:** Firms size does not significantly affect the performance of firms in each of the EAGLE and NEST emerging countries.

H₁: Firms size significantly affects the performance of firms in each of the sample EAGLE and NEST emerging countries.

1.6. Contribution of the Study

Previous research on the impact of leverage on the performance of firms in emerging countries has mostly focused on emerging markets individually; those researches that have been done collectively for a set of emerging countries, most of them are assigned to a certain group of emerging countries like BRICS, MINT, etc. The comprehensive research into the impact of financial leverage on the performance of firms that are operating in different levels of emerging markets seem rarely, considering this research gap, in this study, the effects of financial leverage on the performance of manufacturing firms operating at different levels of emerging countries in terms of share in global growth has been investigated throughout (2010-2019).

The result of this study will provide a financial parameter to directors, business advisors, investors, and all interested parties with the essential structure of the combination of debt and equity, and it will enable the companies officials to choose the right capital structure in order to improve the financial performance of their firms in both EAGLE and NEST emerging countries. Besides that, this study will help decision-makers particularly finance managers and policy organizers of both public and private firms situated in different levels of emerging markets to frame sound policy selections about the combination of debt and equity capital and so on increase the value of stockholders and decrease insolvency charges, likewise, this research will also provide information for those investors and analyzers who want to know that which type of capital structure combination generates the more value for the firms, and finally, this study will help those academicians who want to do more research in these markets to address the financial problems of communities.

1.7. Structure of the Study

As mentioned, this study, which aims to examine the effects of financial leverage on the performance of companies engaged in the manufacturing sector in the sample emerging countries of EAGLE and NEST from 2010 to 2019, will cover the following topics, respectively;

Chapter 1: Includes general discussion related to the thesis topic (background of the study, research problem, purposes, hypothesis, and contribution of study).

Chapter 2: This chapter will deal with the theoretical framework and review of the literature related to the research topic.

Chapter 3: This chapter will cover the research methodology in which data, variables, methods of estimation, and related subjects will be discussed.

Chapter 4: This chapter relates to the data analysis and empirical results of the study.

Chapter 5: The final chapter is devoted to the conclusion, findings, and recommendations related to the thesis topic.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Theoretical Framework

The decision on financial resources is one of the key financial management decisions that mostly rely on the company's goal and the form of financing that a company arranges. Determining and choosing the right financing structure plays an important role in the growth of companies for sustainable operations and the implementation of profitable projects. Since the ultimate goal of a company is to maximize its value and increase the value of stockholder's ownership, therefore, in addition to other proceedings, efforts are being made to select a capital structure or composition of financial resources that help the company to achieve its final goal (Messbacher, 2005).

Besides it, there are some other factors as well such as taxation, transaction costs, financial distress cost, agency conflicts, and adverse selection that further enhance the importance of determining the structure of financial resources which are procured by companies, in this regard numerous theories have been proposed by financial scientists to explain these factors which will be discussed later.

Generally, companies in case of need for financial resources obtain their required capital from two main financing sources, each internal financing source (retained earnings, accumulations) and external financing source (issuing stocks, borrowing), and these two major financing sources, in turn, are divided into other sub funding resources such as equity, debt, retained earnings, debentures, working capital loans, term loans, letter of credit, etc. (Shrotriya, 2019).

Companies in case of need for financial resources obtain their required capital from internal financing sources (Retained earnings, Reserves), and external financial sources (Shares, Borrowing). Each combination of these funding sources creates a forum of capital structure, and going to each of them has its advantages and disadvantages, therefore more care should be taken in the selection of these sources. Choosing and combining the right financial resources is one of the biggest challenges that every financial manager faces.

Debt is also one of the major sources of financing for companies, which has its advantages and disadvantages. Debt is considered a cheaper source of financing

compared to equity capital because interest on debt is paid before tax and thus lowers the effective cost of borrowing. Another good thing about debt is that in some cases, such as inflation, the company can pay off its debt by paying less money, the company's lenders have no rights in the company's management, and also they do not have the right to use the vote, moreover, another benefit of debt financing is that the long-term debt can maintain and guarantee the company's future financial stability. In addition to all these positive points, financing through debt also has some problems and drawbacks, for example; Payment of interest without considering whether the company is in profit or it has incurred losses, as well as the payment of the principal debt at the time of maturity is one of the major problems that may put the company in financial trouble, as the same way over-reliance on debt in the capital structure can cause the company serious problems such as the company's inability to pay its debt and bankruptcy (Paramasivan; Subramanian,2009).

Regarding preferred stocks, it should be said that preferred stocks are stocks that have certain privileges over other types of stocks, for example, their possibility of paying a dividend is high and more regular compared to common stocks, also these stocks are more stable and less risky compared to common stock. The advantage of these stocks for the company is that the preferred stockholder provides the capital required by the company without being included in the ownership of the company, also, these stockholders do not have the right to vote and participate in the meetings where strategic decisions are made regarding the company. The problem with preferred stocks is that their dividend is tax-deductible, additionally, the payment of their dividend is mandatory without considering the financial situation of the company, also their issuing cost is almost high compared to the common stocks. These all are issues that can affect the benefits of these stocks (Paramasivan; Subramanian, 2009).

Common stocks are those stocks whose holder has a certain number of extraordinary rights in comparison to other stockholders, for example, these stockholders has the right to vote and they can participate and express their opinions in important meetings of the company. The issuance of common stocks raises the firm's credit rates, and additionally, their dividends are taxable. The main problem with these stocks is that the issuance of these shares causes the company to lose its ownership and undermine the future progress of the firm. (Paramasivan ; Subramanian ,2009).

As can be seen, each of the above funding sources makes a forum of capital structure, and referring to each of them, as mentioned earlier, has its advantages and

disadvantages, therefore, more care must be taken in choosing financial resources. Choosing the right source and mix of finance is one of the major challenges facing any finance manager. The process of choosing the right financing sources requires a thorough analysis of these sources, and for analyzing and choosing the right financial resources, it is necessary to know and carefully examine the characteristics of each of the financial resources that ultimately form a kind of capital structure.

Capital structure is the combination of equity and debt which finances the company's assets and includes items on the left side of the company's balance sheet.

Hussy (1999) believes that the capital structure is the balance between a company's assets and debt composition. In his view, assets can be tangible or intangible, and so debt can be short or long-term debt.

According to Gerstenberg (1924), capital structure is the composition of a company's long-term financing resources, such as loans, reserves, equities, and bonds.

Based on Belkai's (1999), definition capital structure is the combination of each publicly issued securities, private investment, bank, and commercial debts, which are provided to finance the company's assets and are usually measured by debt to assets, equity to assets, and debt to equity ratio.

Keown et al. (2010), capital structure is the composition of different long-term sources which are used by a company to finance its assets.

Brealey et al. (2008), consider the capital structure as a combination of capital that comes from internal and external financing sources.

Based on some of the claims mentioned earlier the main goal of determining the firm's capital structure is to characterize the combination of financial resources that help the firm achieve its ultimate goal, which is increasing the value of the firm and enhancing the ownership's value of the firm's stockholders (Raymond; Neveu, 2002).

As the cost of capital is subject to capital structure, choosing the right combination of financial resources (capital structure) decreases the cost of capital and increases the market value of a company. The issue of how companies determine their capital structure is one of the hot topics in the field of finance that has been discussed by financial economists for years, and it is still one of the most exciting topics for financial researchers, and there are still a lot of researches going on (Marques and Santos, 2003).

In early, it was thought that determining the right structure of capital is such a difficult process that is not even possible to formulate a theory in this regard. In (1955), Weston began discussing the possibility of designing and formulating a theory related to

capital structure, and the continuation of his studies led Modigliani and Miller to present the first theory of capital structure in (1958). In pursuit of the publication of Modigliani and Miller's famous article on the irrelevance of a company's value to its financial leverage, the mentioned topic became the focus of discussion among financial researchers like Jensen and Mackling (1976), Kraus and Litzenberger (1973), Mayers (1984), Ross (1977) and overtime several theories have been designed in this regard such as the Trade-off theory, Agency theory, Pecking order theory, Market timing theory, and Signaling theory.

Research shows that none of these theories alone have been able to influence the factors that affect the capital structure of firms and provide a proper answer to the following question, why do firms look for different options when they need financial resources? Because, as mentioned in the capital structure theories, some financial scholars believe that companies relying more on financial leverage can help them achieve their ultimate goal of maximizing the value of the company's shareholders' wealth. But some of these scholars believe that referring companies to debt carries risks that the company could not easily recoup, hence, these scholars consider the optimal capital structure in referring to the internal resources of the company. In addition to these claims, several financial experts even doubt the existence of an optimal capital structure for a company. As can be seen here, the biggest problem is the lack of a comprehensive and unified theory that can fully explain and predict the behavior of financing and the structure of capital (Myers, 2001. Frank & Goyal, 2005).

In addition to the above question which relates to the nature of financial resources, determining the share of each financing source is another question that arises in this regard, means, to what extent should the company rely on debt in its capital structure; is there a specific level for debts in the capital structure. When companies decide on the design of their capital structure, they considered the final goal of the company, and try to determine the optimal capital structure which minimizes the average cost of capital and maximizes the value of the company. An optimal capital structure or optimal financing mix is the capital structure, which greatly increases the value of the company or an optimal capital structure is a structure that maximizes the value of the company and reduces the average cost of financial resources to its possible minimum level.

According to Pandey (2005) a proper capital structure should have the following characteristics;

1. Profitability: A proper capital structure should reduce capital costs and increase the company's operating performance and revenue.
2. Flexibility: The capital structure should be flexible enough that the company can provide the capital it needs whenever it wants.
3. Conservative: In the capital structure, the proportion of equity and debt must be considered; which means the amount of debt should not exceed a level that should not be tolerable.
4. Control: The capital structure should be arranged in such a way that there is no risk of losing control of the company.

2.1.1. Capital Structure Theories

Capital structure is the combination of financial resources that a firm provides to finance its assets. Financial scholars and researchers, considering the threefold relationship between financial leverage, cost of capital, and firm value, have proposed several theories to express the impact of financial leverage on the performance of firms. The emphasis of all these theories is on how companies by combining different types of financing resources affect the capital cost and the performance and value of the firm. These theories attempt to find out whether there is a relationship between financial leverage and firm performance?

If yes, then what is the optimal capital structure that can help companies achieve their goal of maximizing their value?

The main theories of capital structure are as follows:

- Net income theory
- Net operating income theory
- Traditional theory
- Modigliani and Miller (MM) Theory
- Trade-off theory
- Pecking order theory
- Agency cost theory
- Market timing theory
- Signaling theory

2.1.1.1. Net Income Approach

According to Durand's net income approach, the weighted average cost of capital (k_0) and company value can both be affected by financial leverage. That is, by adding debt to the capital structure, the cost of capital decreases and as a result, the value of the company increases. This means assuming that the cost of equity (k_e) and cost of debt (k_d) are constant, as the leverage increases, the total cost decreases and ultimately increases the value of the company (Mundy, 1992).

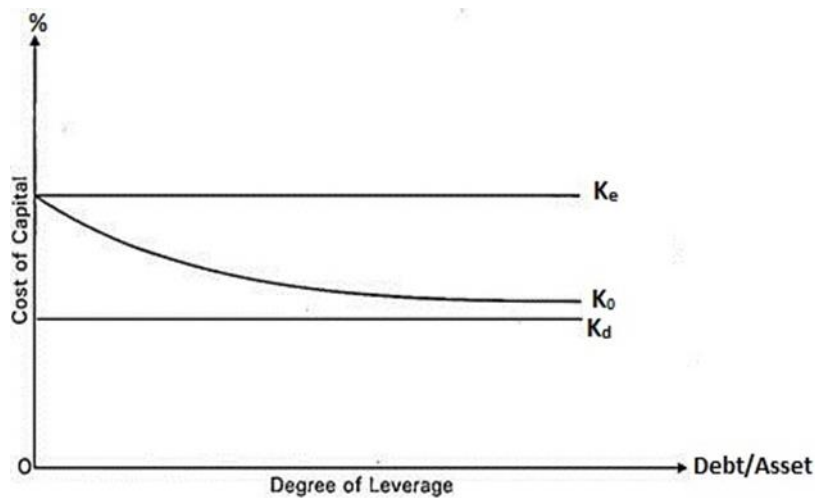


Figure 1. The effect of leverage on the cost of capital under the NI approach

2.1.1.2. Net Operating Income Approach

In this approach, Durand's net income approach has been rejected, according to the net operating income approach, the level of debt is independent of the cost of capital, so adding debt to the capital structure does not change the value of the company, because the benefit obtained from the cheapness of debt is offset by rising stocks costs, and the weighted average cost of capital (K_0) remains constant at all levels of the capital structure, therefore it can be said that based on net operating income approach there is no optimal capital structure for companies (Lawal, 2014).

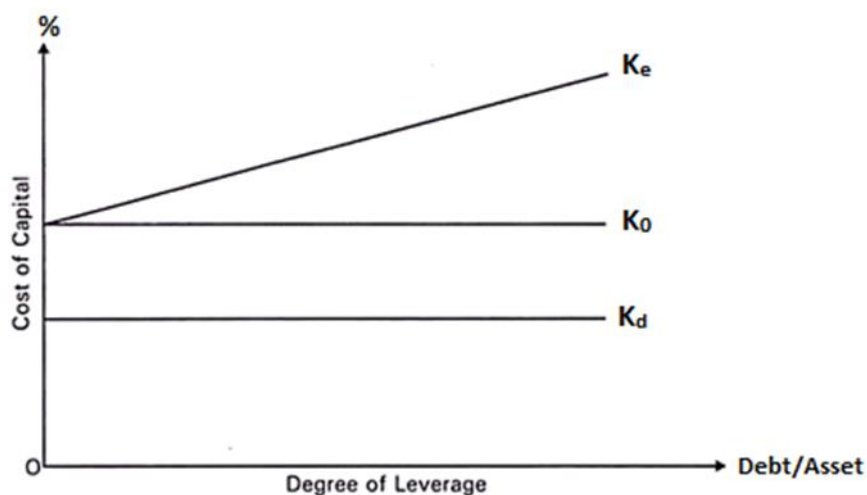


Figure 2. The effect of leverage on the cost of capital under the NOI approach

2.1.1.3. Traditional Theory

According to this theory, by increasing the level of leverage in the capital structure, the firm can influence the cost of capital and thus create the optimal capital structure that guides the firm in achieving its ultimate goal, which is to maximize the value of the firm and increasing the ownership value of the firm's stockholders. According to traditional theory by increasing the level of debt in the capital structure, the cost of capital decreases for a while, but due to the increase in the cost of equity, the cost of capital starts to increase. Based on this theory, the (AB) range in which the cost of capital is minimized is called the optimal range of financial leverage, and the capital structure that is placed in this range is called the optimal capital structure (Afrasiabishani, Ahmadiania, and Hesami, 2012).

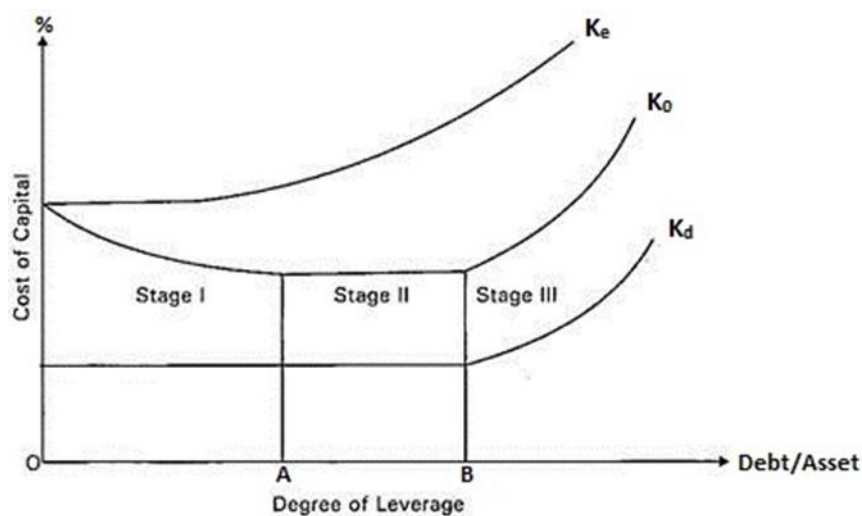


Figure 3. The effect of leverage on the cost of capital under the traditional approach

2.1.1.4. Modigliani and Miller (MM) Theory

In (1958), Modigliani and Miller in their famous article addressed the traditional theory of capital structure, and their research and investigations opened the door to the modern theory of capital structure (Margaritis et al, 2010).

According to Modigliani and Miller (1985), considering the assumptions; lack of income tax, Lack of agency and bankruptcy costs, the existence of information symmetry among capital market contributors, and assuming that domestic financial resources can be changed into external sources, company's executives cannot change the value of a company by making changes in the composition of financial resources (capital structure). In other words, according to Modigliani and Miller (1958), the company's value is independent of its financial leverage which means in any combination of financial resources, the value of the company remains unchanged. This theory is called Modigliani and Miller or MM's first capital structure theory, based on which the value of a leveraged firm is the same as the value of a firm without leverage with considering the assumption of ignoring income tax. As shown in figure 4 below;

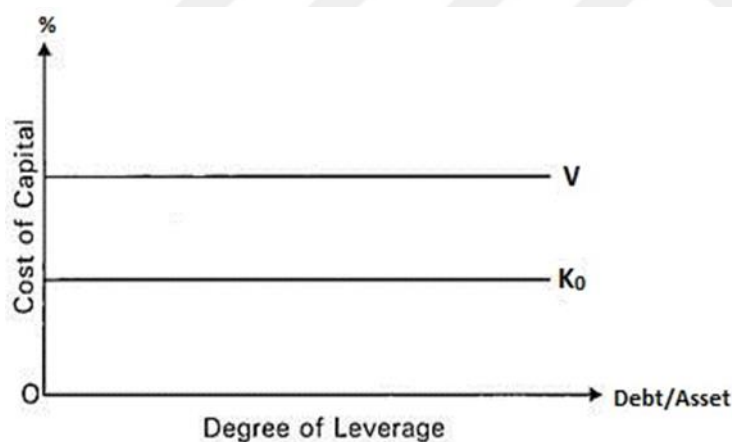


Figure 4. MM Capital Structure theory ignoring Tax

However, the approach of Modigliani and Miller seems somewhat logical from a theoretical point of view, but some of the assumptions of this theory, such as the absence of taxes, have made this theory somewhat unrealistic because today no country can be found tax-free. Therefore, companies cannot use this theory as a criterion and put it into practice.

In (1963), Modigliani and Miller, in their new theory known as MM's second approach by observing the problem of their previous theory, which was the non-

consideration of taxes, examined the effects of leverage on the value of the company considering the corporate taxes. They argued that if income taxes existed, companies could generate tax benefits by raising funds through debt. In other words, when borrowing creates a tax advantage, the value of the company can be directly affected by the level of financial leverage, therefore, given the tax advantage, the value of the company can be increased by raising the level of debt in the capital structure.

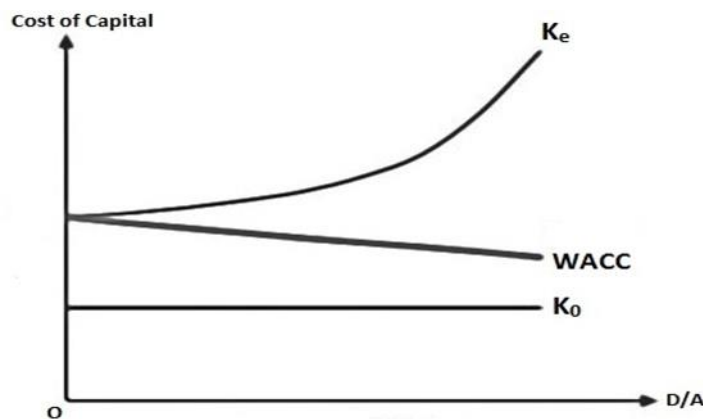


Figure 5. MM Capital Structure theory considering Tax

As seen even by considering the tax in this theory, the correctness and usability of this theory (MM's second approach) cannot be guaranteed, because, in addition to the assumption of ignoring the income tax, another assumption that also challenges Modigliani and Miller's theory is the perfection of the capital market, which is largely incompatible with the real world. Given this assumption, the theory has serious defects and problems which are mentioned below that make this theory unusable in practice (Prenaj and Ahmeti, 2015).

2.1.1.4.1. The effect of Bankruptcy Costs on Capital Structure

Bankruptcy costs are one of the major defects that directly affect the company's capital structure, bankruptcy costs are those costs that have left the company in financial trouble and caused it to go bankrupt. In the perfect capital market, there is no such thing as bankruptcy cost, while in reality there is a remarkable cost related to bankruptcy. When the debt to equity ratio exceeds a certain level the probability of bankruptcy increases and the expected cost of bankruptcy also increases as result it puts a negative impact on the cost of capital and the value of the company. Considering the costs of bankruptcy, the favorable capital structure arises as a result of clearing between tax

benefits of debt and the costs of bankruptcy (Kraus and Litzenberger, 1973).

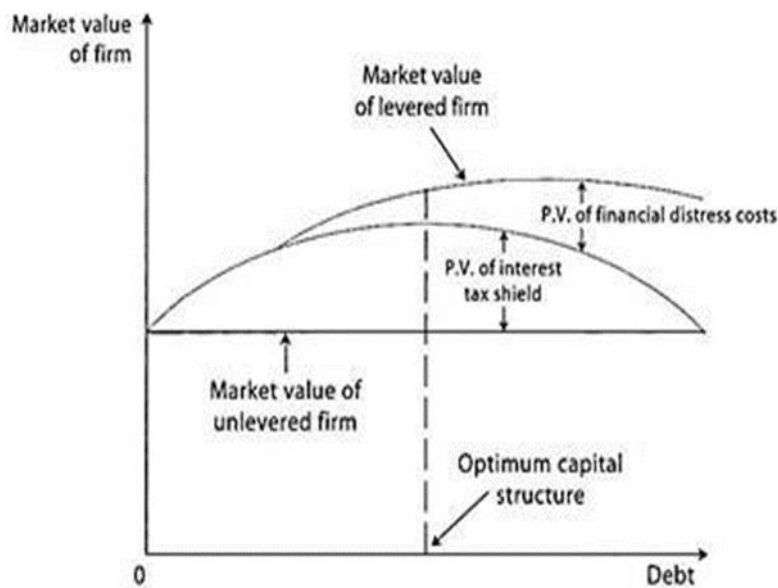


Figure 6. Value of firm in the presence of taxes and bankruptcy costs

2.1.1.4.2. The effect of Agency Costs on Capital Structure

Generally, corporate creditors are interested in using various methods to control and put influence the firm's stockholders to protect their privileges, and the cost that comes with applying these actions is called the agency costs. This theory which was proposed by Jensen and Mackling (1976) on the agency costs states that regardless of who paid the agency costs, those who bear these costs are the firm's stockholders. When debt owners anticipate the cost of monitoring, they demand higher interest rates. Assuming that all factors are constant, the higher the probability of monitoring costs will cause the higher the cost of interest, and the lower the value of the firm. The existence of agency costs acts as a negative stimulus on the way out of debt. If there is a perfect capital market, people would not have to pay taxes and there would only be regulatory costs, so obviously, no firm would need to create debt, but in the real world, despite the taxes debt creation is cost-effective, but costs such as agency and bankruptcy are the ceiling and control to use debt. In the figure below, the optimal capital structure is obtained in X whereas when only the impact of taxes and bankruptcy is considered, it moves to point Y. As shown in figure 7.

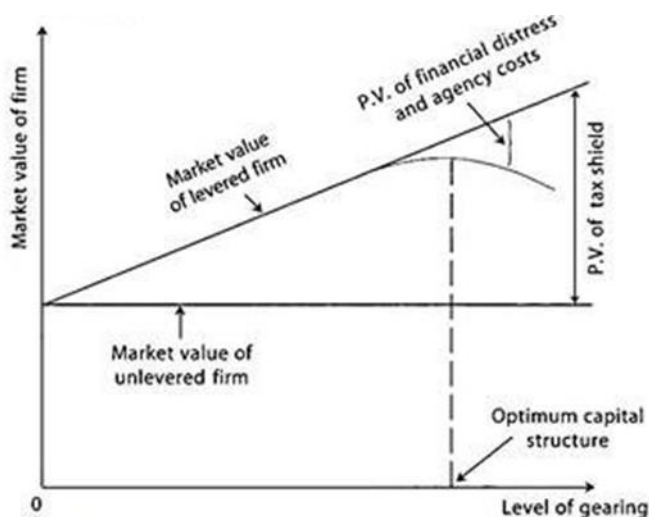


Figure 7. Value of firm in the presence of taxes, bankruptcy costs, and agency costs

In pursuit of Modigliani and Miller's famous theories of capital structure (1958) and (1963), and observing the different behaviors of companies, to justify companies not relying 100 % on borrowing when they need financial resources and explain the difference in corporate debt ratios, paved the way for the introducing modern theories and assumptions in this regard (Harris & Raviv, 1991).

2.1.1.5. Trade-Off Theory

The basis of this theory relates to the (1963) discussions of Modigliani and Miller on the irrelevance theory of capital structure, in which they argued that increasing debt levels in the capital structure can lead firms to tax shield benefits. This hypothesis (Trade-off theory) is formed from each static trade-off and dynamic trade-off theory.

Kraus and Litzenberger (1973) played a major role in enriching the literature on the capital structure by presenting a static trade-off theory. According to this hypothesis (static trade-off), companies, based on their business needs, first determine the target ratio for their debt level, then they spend all their efforts to reach this predetermined debt level. Kraus and Litzenberger (1973) consider debt as a good source of financing for a company's activities compared to equity, because the interest on debt is tax-deductible and has the benefits of agency, while the capital provided through equity does not have such a privileged feature.

Besides all these positive points, over-reliance on debt capital can lead a company to irrecoverable consequences such as financial risk or bankruptcy, which can reduce or even destroy the value of a company. This means that companies should

consider the benefits and costs of financing through debt, and about the allegations referred to design an optimal combination of debt and equity which help the company achieve its ultimate goal of maximizing its value.

De Mooij (2011), points out that raising funds through debt makes it possible for the companies to gain tax benefits, which allows investors to make more operating profits. The amount that companies save from debt is called the Interest tax shield.

The dynamic trade-off theory is based on the hypotheses of static trade-off theory which was previously discussed. According to the dynamic trade-off theory of capital structure, instead of determining the optimal fixed structure for debt and equity, it will be better to specify an optimal range or interval for debt and equity when the company needs financing because creating an optimal capital structure range, companies will be able to easily finance in their desired area of interest, considering the needs and goals of the firm. It should be said that the capital structure cannot be adjusted based on the optimal capital structure or by the optimal area in any case, because in some changing conditions like the financial deficit, change in the market timing, or case of change in stock prices, the companies cannot move according to their optimal capital structure, that is, the companies are forced to deviate from their optimal structure of capital, which has costs for companies. Therefore companies have to create a trade-off between, marginal benefits that companies get due to the optimal capital structure and the costs that come from the deviations of optimal capital structure, to help the company achieve its ultimate goal, which is to increase the value of the company (Ahmed, 2017).

2.1.1.6. Pecking Order Theory

The pecking order theory for the first time was presented by Donaldson in (1961) and later on in (1984) developed by Mayers. According to this theory, it is not correct to say that a firm, in any case, has a specific or optimal capital structure and tries to chase it; rather, the capital structure of a firm is more likely related to the conditions of the firm's internal cash flow, dividend payments and the existence of favorable investment opportunities. According to pecking order theory, the preference and choice of financial resources by firms are based on considering their costs. The theory adds that corporate financing decisions are a signal to shareholders and investors, and given these signals, they may buy or sell their stocks and ultimately affect the cost of the firm's capital. This theory advises firms that in order to finance their long-term investments, they should

first refer to their internal financing resources, if internal sources do not meet the financial needs of the firm then it can refer to external financing sources and provide their required capital in the form of debt. If external sources either do not meet the financial needs of the company, then as a last resort firms can refer to issuing new stocks (Myers, 1984).

2.1.1.7. Signaling Theory

This signaling theory of capital structure which is based on information asymmetry is introduced by Ross (1977). Managers and individuals inside the company have more accurate information about the firm's real value and its future vision compared to those who are outside the firm and not involved in the internal affairs of the firm like investors and other related parties; this difference in having information is called information asymmetry. This information asymmetry led the financial experts to introduce several approaches to the optimal capital structure, including signaling theory (Harris and Raviv, 1991).

Myers and Majluf (1984) believe that if investors have less or insufficient information related to the value of the company compared to those who are inside the company and know the real value of the company, likely, they will not be able to properly price the company's stocks. Based on the signaling theory, a company's capital structure is a kind of signaling to those who are outside the firm (Stockholders, investors, and other parties) and concerning what is going on inside the firm, or it is somehow sharing the company's internal information with them. For example, if a company issues new stocks for financing their activities, it will send a negative sign to the stock market, and investors will think that the stock of the firm is overvalued, and the firm will not have a good future, and so on if a company for financing its new project goes into debt, it can deliver a good image of the company to the stock market and show that the company has a good future, because when firm finance their required capital through debt, it shows that the company seems assured of repaying its debt, so debt financing can send a good signal about the future of the company. Therefore, it would be good for companies to provide their required capital from their sources of funding, without any signal being transmitted to the stock market. If the internal financing resources can not suffice the capital required by the company, it is better to refer to the borrowed capital as a last resort to issuing the new stocks (Myers, 1984).

2.1.1.8. Agency Costs Theory

The agency cost theory was proposed by Jensen and Meckling (1976). Based on this theory agency costs which include stock and debt issuance costs determine the optimal capital structure of a company (Harris et al, 1991).

Jensen and Meckling (1976) in their theory, report the conflicts of interest inside the firm, according to them ,there are two types of interest-based conflicts between insiders in a business organization, first; the conflict of interest between the stockholders and managers of a company and second; the conflict of interest between the bondholders and the company's stockholders (Harris et al, 1991).

Jensen and Meckling considering the discrepancy of managers' decisions from the stockholders, stated that the agency cost of equity arises from the separation of a company's ownership of its management or control since company managers are not able to seize non-operating profits therefore instead of the increasing value of the firm they are more interested in the maximizing of their benefits (Margaritis et al., 2010).

As the creditors provide their financial resources to the company, therefore they are interested in monitoring the company's activities to protect their rights, and of course, this monitoring requires costs that constitute a kind of agency costs. As the level of debt in a company's capital structure increases, agency costs also increase, and if this trend of agency costs continues to increase and exceeds the set limit, it reduces the value of the company. However, due to the tax advantage of debt, increasing the level of debt in the capital structure increases the value of the company. Thus, according to Jensen and Meckling (1976) by creating a balance between the benefits of debt and the agency costs of debt, an optimal capital structure can be achieved.

2.1.1.9. Market Timing Theory

Market timing theory is one of those theories that have recently been proposed by Baker and Wurgler (2002) on explaining the decisions of the company's capital structure using the asymmetric information problem. Market timing theory is one of those capital structure theories that are mostly used in many financial contexts.

According to Baker and Wurgler (2002), the capital structure is formed by the accumulated results of past efforts to schedule the market of ownership securities (Margaritis, 2010).

McDonald and Lucas (1990) presented the stock release timing pattern based on information asymmetry between investors and management. Also, Çelik et al (2013) investigated the impact of equity market timing on the capital structure of Turkish IPO firms listed in the Istanbul stock market from (1999 to 2008). The research findings indicate the invalidity of the market timing theory for IPO firms operating in Turkey.

In this model, it is assumed that companies issue shares after an unusual and significant increase in stock prices. Managers are also looking to schedule stock markets based on private information related to the company's future value and schedule debt markets based on general information. It should be noted that in the case of debt market scheduling if the company's managers do not have more general information than investors, this model (Market timing) will not be able to create value. Besides it, managers based on their private information may schedule debt markets and the company's future credit rating. Company managers may have more information about the future changes in the company's credit rating compared to investors, therefore if the company managers expect that the company's credit rating may improve in the future, they issue short-term debt securities, and if they expect the company's credit rating to decline in the future, they issue long-term debt securities (Lucas et al, 1990).

In practice, securities market scheduling seems to be one of the most important aspects of corporate finance. The importance of the mentioned factor depends on stock and bond market fluctuations, as these fluctuations intensify, so do the timing factors.

According to this theory, when stock prices rise, firms issue stocks because in this case, the firms can easily increase the capital based on its stocks, therefore, debt returns and debt market conditions play a major role in corporate capital structure decisions.

Sulaeman et al (2012) companies issue stocks when stock returns are high, a company's stock returns can better describe the behavior of stock issuance compared to other factors of financial policy.

In short, according to market timing theory, the most important factor that plays a major role in determining capital structure decisions is incorrect pricing of stocks and debt instruments at the time of financing (Parlak et al, 2010).

2.1.2. Emerging Economies

There is no doubt that the majority of scientific papers in the field of finance have researched and examined empirical models in advanced financial markets, especially

the US financial markets. The main reason is that developed financial markets In terms of market freedom, Legislative system, and data transfer are one of the largest and most efficient markets in the world, that's why the developed financial markets have become favorite markets for financial researchers to empirically analyze and investigate their related models in these markets. In the late (1980), with the development of information technology, globalization alongside the transfer of goods and services also created significant facilities for the flow of capital from one country to other counties, and with the expansion and development of international trade the domestic markets were opened to foreign investors and financial institutions and bypassing time, the structure of emerging economies changed dramatically, and these changes and the rapid growth of emerging markets have attracted the attention of many economists. In emerging financial markets, the existence of opportunities such as more volatility, higher returns, the existence of favorable investment opportunities, and the independence of these financial markets from developed financial markets, have made these markets more attractive to researchers and compelled them to do various studies and investigations about these markets.

Emerging countries refer to those economies in which the middle class, which forms the vital core of a country's economy and financial system, simultaneously grows speedy as different sectors grow. Once a time, some of these countries did not have a good economic situation, even still there are emerging countries that are struggling with economic problems such as unemployment and poverty, but currently, in general, each of these countries is trying to bring about positive change in their economic, political and social conditions and they are moving towards improvement with each passing day (Logue, 2011).

According to Van Agtmael (1981), emerging nations refer to those nations that are in a state of transition from a developing stage to a developed one. Emerging markets are reviving and reforming their economies with each passing day, they are trying to access opportunities like international trade, technology transfer, and foreign investment by integrating into the globalization framework.

These markets with 85 percent of the world's population, 59 percent of the world's gross domestic product, 50 % of world exports, and an abundance of different types of natural resources such as oil, copper, gold, plantain, and likely a big buyer of goods and services in the future, play a significant role in the global economy. China, India, Brazil, and Russia are at the top of these markets, which include the 10 largest economies in the

world (BBVA annual report, 2016 . Ganster, 2001. WTO Statistics, 2019).

2.1.2.1. Structure and Major Methodology of Emerging Markets

Financial specialists and relevant financial institutions considering various economic and financial indicators have named and classified emerging markets into different groups, such as BRIC, Next Eleven (N11), MIST/MIKT, CIVETS, etc. One of the most popular of these emerging market classifications is the categorization presented by the BBVA Research Department (2010). BBVA's research department, which focuses more on emerging economies, based on the GDP growth of emerging markets categorized these markets into two groups; emerging and growth-leading economies (EAGLEs) and NESTs emerging economies.

Banco Bilbao Vizcaya Argentaria (BBVA), which is headquartered in Madrid and Bilbao (Spain), and formed as a result of the merger of BBVA and Argentina in (1999), is a Spanish multinational banking group that addition to providing various financial services in the different parts of the world mainly in Spain, Turkey, Romania and North, and South America, also conducts valuable scientific researches on various financial issues of the world countries. This bank (BBVA), which is one of the most famous banks in the world by Forbes which is a world's leading publication, has been selected as the best bank in the world and Spain in (2000) and (2001), respectively. BBVA in terms of reputation and credibility is in a good position among Asian-pacific, European, Central American, and Southern & Northern American countries. As mentioned earlier based on the BBVA's classification emerging markets are divided into; EAGLEs & NESTs emerging countries.

EAGLEs: Includes those emerging countries whose share in global growth is expected to be higher than the average share of G6's economies during (2015-2025). It is expected that these economies will contribute \$ 475 billion to global growth, and their share in the world's economic growth will be 64 percent between (2015 and 2025). Based on the latest BBVA report, 15 countries each of Brazil, China, India, Indonesia, Turkey, Mexico, Philippines, Nigeria, Iran, Pakistan, Russia, Egypt, Bangladesh, Malaysia, and Vietnam includes in the group of EAGLEs emerging markets (EAGLEs economic outlook, 2016).

NESTs: Includes those emerging countries whose share in the world growth is expected to be higher than the average share of non-G7 economies. It is anticipated that

these economies will contribute \$ 168 billion to global growth and 10% of the world's economic growth will be related to NESTs between (2015 and 2025). Based on the latest BBVA economic outlook (2018), 20 countries each of Poland, Thailand, Sri Lanka, Saudi Arabia, Chile, Iraq, Colombia, Argentina, UAE, Kazakhstan, South Africa, Peru, Morocco, Ethiopia, Romania, Uzbekistan, Mozambique, Algeria, Myanmar, and Libya includes in the NESTs group of emerging countries (EAGLEs economic outlook, 2016).

The number of countries in each above category is not fixed it may change over time. For example, Saudi Arabia, which was previously a member of the EAGLEs emerging group, due to falling oil prices in (2016) has been excluded from this group and joined the NEST group. Similarly, in (2016) Malaysia and Vietnam, by fulfilling the requirements and conditions of the EAGLEs emerging markets, were able to rise from the NESTs to the EAGLE emerging economies.

The question that may come to mind is, in the presence of other categorizations, why in this study the emerging markets are examined based on the BBVA classification? The BBVA Classification of Emerging Countries, which is based on major economic indicators, is one of the most popular and credible classifications of emerging countries which is somewhat trustable compared to the previous classifications of these countries.

The main reasons that in this study, emerging countries have been investigated based on BBVA classification are as follows:

a) The dynamism of this classification

The previous classifications were almost fixed, meaning that there was no place for other emerging countries to enter or leave, like BRICS, which does not seem very logical. But in the BBVA's classification, unlike the previous grouping, each emerging country that meets certain conditions can easily join or leave EAGLE & NEST emerging economies.

b) Annual revisal

BBVA research is reviewed annually, and the future outlook of the countries is predicted based on the latest statistics figures related to the economic situation of the emerging countries.

c) Focusing criteria

If we look at the previous divisions, the majority of them focus on criteria that may

be misleading to follow, for example; the focus criterion of BRIC was the absolute size, for Next-11, this criterion was the size of GDP and population, as well as the CIVETS focused on the young population, while for EAGLEs, incremental GDP and ultimately the share of emerging markets in the global economic growth has been determined as a focusing criterion, which is to a large extent a true and credible criterion compared to other criteria. In this categorization, the BBVA multiplies the current level of GDP of emerging countries by the growth rate for the next 10 years and, forecasts the potential GDP growth of the mentioned countries for the next decade, and then from the potential GDP growth of the next ten years, they negate the existing level of GDP, the result that is obtained is called incremental gross domestic product (IGDP) which indicates an increase in the level of GDP as a result of investment by the economy.

d) The NEST (group of Potential Emerging Countries)

The countries that are in the list of EAGLE emerging markets are not permanent in this group, meaning by considering their economic growth prospects, they may leave this group in the future. In order to have a list of those emerging markets that may eligible in the future to join EAGLE emerging markets, BBVA has also considered a group of potential emerging markets named NEST emerging countries.

e) Shortness of horizon

In the BBVA's research, the criterion for predicting the economic outlook of countries has been determined for the next 10 years, while in other relevant analyzes, this criterion ranges reaches from (20 to 50) years. It is clear that the shorter the forecast period, the obtained result from the research also more accurate and error-free.

f) EAGLEs prospective

The BBVA publishes quarterly and annual economic reports which reflect the latest assessments of the performance of emerging countries, which may affect the 10-year outlook of the target countries. It should be said that the purpose of publishing these economic reports is to include new countries in the EAGLEs and NESTs lists.

g) Providing essential information to the interested parties

The BBVA's research and reports frequently announce the outlook of emerging markets and try to largely answer questions from stakeholders whose decisions are somehow influenced by emerging market conditions (García-Herrero, Nigrinis, and

Navia, 2010; Schwartz and García-Herrero, 2011).

2.1.2.2. A Brief Overview of the Global Role of EAGLEs & NESTs during (2015-2025)

Emerging economies have played an amazing role in the growth of global GDP since the beginning of this century and have made further achievements in this regard. It is expected that the growth of these emerging markets will continue in the same way for the next ten years, and will greatly strengthen the economic transition in the world. According to the latest EAGLEs economic outlook, published in (2016) and updated in late (2018), considering the past growth trends and growth potential of EAGLE and NEST countries, it's expected that these economies will make significant progress in the next ten years. Based on the latest forecasting of BBVA research, the emerging markets will account for 79% of global growth between 2015 and 2025, in which the contribution of EAGLEs will be 64% and the share of NESTs and other emerging economies will be 10%, and 5% respectively (EAGLEs Economic Outlook, 2016).

Regarding the developed countries, it is said that the share of developed countries in global GDP growth in the next ten years will reach almost 20 %, where the United States will pass the G6 and non-G7 markets with the highest share of 9 %, and so on the share of G6 economies and non-G7 markets will reach 5% and 6 %, respectively.

China and India, with a share of 29 % and 17 % in global GDP growth, will be at the top of emerging countries between (2015-2025), and these countries will play a significant role in the global GDP growth (BBVA Research, IMF, 2018).

Brazil, Indonesia, and Russia are expected to have a larger share in global growth compared to developed countries, except the United States in the coming 10 years. The contributions of Mexico, Russia, and Turkey to global GDP growth over the next ten years are expected to be higher than that of Germany and the United Kingdom.

2.1.2.3 The Current Economic Situation of EAGLE and NEST Emerging Economies

According to the latest statistics which are mentioned in Appendix 2. Table 1/2, China is currently at the top of the EAGLEs Group and, India, Russia, Brazil, and Mexico are next in the ranking, respectively. Similarly in the NEST group, Saudi Arabia is at the top of the list, Poland, Thailand, Argentina, and the United Arab

Emirates are next in the ranking, respectively. Based on the statistics, in (2020) the share of EAGLEs and NESTs emerging countries in nominal and PPP- based Gross domestic product (GDP) reached 36.67 % and 51.94 % respectively. In which the contribution of EAGLEs emerging countries in nominal and PPP-based GDP reaches 31.01 % and 43.18% and the share of NESTs emerging countries reaches 5.64 and 8.76 sequentially. China, India, Brazil, Indonesia, and Turkey, which represent the EAGLEs emerging economies, with their contribution of 24.4 % and 32% of the world's nominal & PPP-based GDP, and each of Saudi Arabia, Poland, Thailand, Chile, and Sri Lanka, which represent the NESTs emerging economies with their contribution of 2.5% and 3.8 % respectively, which accounts for a total of 27% and 35.7 % of world nominal and PPP-based GDP, made up a significant share in the world's gross domestic product. In the EAGLEs group of emerging countries, China with a global share of 17.4 and 18.3 percent in nominal and PPP based GDP is placed at the top of this group, while in the NESTs group of emerging countries, Saudi Arabia with the global share of 0.83 and 1.24 % placed at the top of the mentioned group (IMF economic outlook, 2021).

In (2020), the residents of each EAGLEs and NESTs emerging country individually received 50.5 % and 71% of the world's average per capita GDP respectively.

Regarding the growth of GDP in the mentioned countries, it should be said that, except for a few limited countries, such as China, Turkey, Iran, Egypt, Vietnam, Bangladesh, Ethiopia, Myanmar, and Uzbekistan, which had small positive GDP growth in (2020), the remaining all EAGLEs and NESTs countries had negative growth. The main reason for this decrease is the presence of a Corona pandemic along with other factors.

According to the (2020) statistics, the total residents of EAGLEs and NESTs countries made up about 70 % of the world's population, of which approximately 60 % were living in EAGLEs countries and the remaining 10 % in NESTs countries which is a considerable number. Also, 46% of the world's population is related to the 10 sample EAGLE and NEST countries, in which 36% of the world's population only belongs to China and India, which are situated at the top of the EAGLE emerging countries.

In the same way in (2020), the overall share of EAGLEs and NESTs emerging countries in global imports was reached 32.5%. In which the contribution of EAGLEs countries was 24.7% and the contribution of NESTs countries was 7.8%, respectively. Regarding exports, it should be said that the share of EAGLEs and NESTs emerging countries in global exports was 36.5%, the contribution of EAGLEs emerging countries

was 28.5% and the contribution of NESTs emerging economies was 8 percent, respectively. Similarly, these 10 sample EAGLE and NEST emerging countries account for 21 % of world imports with a share of 17 and 4 %, respectively, and the mentioned countries account for 24.% of world exports with a share of 19.9 % and 4.3 %, respectively. China, with a global portion of 11.8% and 15.1%, in the import and export of goods and services has a special place in the sample EAGLEs countries, while Poland, with a global portion of 1.5%, has taken first place in the import and export of goods and services in the group of sample NESTs emerging economies (IMF statistics, 2020. ITC, and 2019).

2.2. Literature Reviews

For many years, researchers have been conducting various researches on whether there is a relationship between the capital structure (Equity, Debt) and the performance of firms or not, if so, what is the nature of this relationship. In answering these questions, the results of researchers offer various responses, the results of some research shows that there is a positive association between financial leverage and the performance of related companies, while the results of some other studies call this relationship negative. In addition to the above results, the findings of some studies simultaneously present mixed results, and the results of a few other studies show that leverage does not affect the performance of a firm.

The reason for this argument, which says that the financial leverage has a positive impact on the performance of companies, is the cheapness of debt compared to other financing sources; therefore, increasing the level of debt causes the company's managers to be more encouraged to maximize the value of their Companies, exactly what the agency cost theory has dealt with. The "*agency cost theory*" was introduced in (1976) by Jensen and Meckling in which the ideal discrepancy of interests between stockholders and managers has been discussed. Since it is easy for stockholders to adjust the debt ratio rather than the equity ratio, therefore raising the level of debt in the capital structure of a firm can play an important role in managing firm agency conflicts.

Iqbal and Usman (2018), investigated the impacts of financial leverage on the performance of textile firms listed on the Pakistan stock exchange from (2011 to 2015). The findings of their study support the positive association between leverage and firm performance. They pointed out that these companies by creating a balance between their

debt and equity capital can improve the operating performance of their firms.

Kartikasari and Merianti (2016), using the fixed effect regression model, examined the relationship between leverage and the financial performance of Indonesian manufacturing throughout (2009-2014). They found that the level of debt and financial performance of Indonesian firms are positively associated, increasing the level of debt improves the performance of Indonesian companies.

Vijayakumaran (2017), investigated the impacts of financial leverage on the performance of 4181 listed firms operating in the Chinese industrial sector throughout (2003-2010). The result of the research shows the positive relationship between leverage and firm performance, which means with a higher level of debt mentioned firms have impressive productivity.

Ahmed et al (2019), and Akingunola et al (2017), have also proposed similar results, As companies increase the level of total and long-term debt in their capital structure, their corporate productivity (ROA and ROE) increases as well.

In the same way, as mentioned earlier, a group of researchers doubts a positive association between debt and firm performance, the results of their studies show that there is a negative association between the level of leverage and firms' performance, based on their studies, with increasing, the level of debts in the capital structure of a firm their operating performance remains unchanged or decreases. The idea that a firm's performance is irrelevant to its financial leverage is back to the irrelevance theory, which states as the level of debt in the capital structure increases, the value of companies also increases, but if this trend continues and exceeds the set limit, due to the increase in financial risk, the demands of the company's stockholders also increase and as a result, the privileges obtained from debt are neutralized.

Al-Kahtani and Al-Eraij (2018), in their research, mentioned the "*irrelevance theory*" which was introduced by Modigliani and Miller (1958), they argue that the firm's value is sovereign from its financial leverage, that is any change in the capital structure keeps the value of the firm invariant. But a few years later (1963) Modigliani and Miller discussed their capital structure theory concerning corporate taxation, and they concluded that in the case of taxation as the interest on the debt is paid before corporate taxation so increasing the debts level in the capital structure can increase the profit of the company, but due to augmented demand of stockholders this increase is coming back to its previous course.

Vătavu (2015), inquired about the impact of financial leverage on the performance of 190 companies listed in the Romania Stock market during the study period (2003-2010), he used STD, LTD, and TD as financial leverage indicators, and each of ROA and ROE as performance indicators, and asset tangibility, tax, risk, liquidity, and inflation are considered as determinants of capital structure in Romanian manufacturing companies. He found a negative relationship between financial leverage and corporate performance. This means that if Romanian companies in their capital structure rely more on their internal financing resources in exchange for the debt their performance will certainly increase.

Nassar (2016), examined the effect of leverage on the performance of 136 manufacturing companies listed in the Istanbul stock market for the period (2005-2012), he used each ROA, ROE, and EPS as measures for firm performance, and debt ratio (DR) as a measure for financial leverage. The empirical result he obtained from his study shows that the financial leverage and performance of mentioned companies are negatively related. That is, increasing debts in the capital structure of Turkish manufacturing companies will result in a decrease in ROA, ROE, and EPS of mentioned companies.

Chandrasiri et al. (2018), investigated the impact of financial leverage on the performance of 48 industrial public companies from 18 business sectors listed in the Colombo (Sri Lanka) stock exchange for the period (2009-2016), they used ROA, ROE, and Tobin Q as performance indicators and long term debt to total assets ratio & debt to equity ratio as capital structure measures also they consider the tangibility, size, and growth as control variables in their research. The finding of their study shows that the increase in non-current debt and the total debt in the capital structure leads to a negative impact on the performance of Sri Lankan manufacturing companies. The mentioned result is in line with the pecking order hypothesis, and inconsistent with each agency's cost and trade-off theory.

Ewayed M and Twairesh (2014), empirically studied the relationship between capital structure and the performance of 74 non-financial firms which are operating in the Saudi Arabian emerging market. The researcher used each return on asset (ROA) and returns on equity (ROE) as proxies for a firm's performance and used each short-term debt (STD), long-term debt (LTD), and total debt (TD) as proxies for the firm's capital structure, firm size is considered as a control variable. The result obtained from the research shows that all financial leverage variables (STD, LTD, TD) have a

significantly negative effect on the performance of mentioned companies for ROA, while for ROE only LTD has a significantly negative relationship with the performance of firms operating in Saudi Arabia. The firm's size shows a positive significant relationship with the firm's performance for ROA as a performance measure.

Thao Nguyen Thu (2016), using panel data, examined the impact of financial leverage on the performance of public listed companies operating in BRIC (Brazil, Russia, India, and China) emerging countries, during the normal and financial crisis of the period (2003-2013), he used each of return on asset (ROA) and return of equity (ROE) as performance indicators, short-term debt, long-term debt and leverage ratio as capital structure indicators and firm size and growth are considered as control variables. The empirical result of his research shows that financial leverage in all four emerging countries harms the firm's performance, which means that an increase in financial leverage level will result in a negative impact on the performance of firms in the mentioned emerging countries.

Dada and Ghazali (2016), using fixed and random effect models, examined the association between financial leverage and the performance of non-financial companies listed on the Nigerian stock exchange for the period (2010-2014), he used ROA and Tobin's Q as dependable variables, leverage, sales growth, firms' size, risk of the firm, asset turnover, tangibility, and firms' age as explanatory variables. The result of his research demonstrates that asset turnover and tangibility have a significantly positive impact on Tobin's Q of mentioned companies, while risk puts a significantly negative impact on Tobin's Q, and in the same way, sales growth has a significantly positive impact on the ROA of mentioned companies, while firms' age is significantly negative correlated with ROA. As can be seen, the results of the study for some variables support the pecking order hypothesis while the result of some other variables is in line with the trade-off theory.

Chancharat (2015), using fixed and random regression models, investigated the influence of financial leverage on the performance of manufacturing companies listed on the Thailand Stock Exchange for the period (2009 to 2011). He used STD/TA, LTD/TA, TD/TA, and TD/TE as explanatory variables and ROA, and ROE as independent variables. The empirical finding of their study shows that the STD/TA has a negative significant effect on the performance of firms for measuring ROA and ROE. LD/TA, TD/TA, and TD/TE have a negative significant impact on performance for ROE. Results also show that the financial leverage has a positive impact on

performance in the Agro & Food Industry. In general, from this study, it can be concluded that increasing the level of debt leads to a decrease in the performance of these companies. Also, it indicates the profitability of a particular sector compared to other sectors.

Narsaiah (2020), examined the impact of financial leverage on the performance of 100 manufacturing companies listed on the Indian stock exchange over the period (2014 to 2019). In this research, each ROA, ROE, EPS, and Tobin's Q are used as performance measures, and STDR, LTDR, and TDR are used as financial leverage measures. The result of the research notified that there is a negative relationship between STD, LTD, and ROE. Also, results add that LTD and TD have a negative significant relationship with ROA, EPS, and Tobin's Q. It can be concluded that when Indian manufacturing companies increase LTD and TL in their capital structure the performance of these companies will decrease and conversely when they increase the short-term debt in their capital structure their operating performance will also increase.

Al-Qudah (2017), investigated the relationship between financial leverage and the financial performance of firms operating in the Abu Dhabi securities exchange (ADX) from (2008 to 2015). He used ROA as an indicator for firms' performance and debt ratio as an indicator for capital structure. The result of the research shows that there is a negative association between financial leverage and firms' financial performance during the study period.

Cole, Yan, and Hemley (2015) examined the impact of financial leverage on the performance of 30 US firms operating in the Industrial, Healthcare, and Energy sectors (2009-2015), they used long-term liabilities to total assets ratio as capital structure indicator and market value per stock, ROA, operating return and profit margin as firm's performance indicators. The empirical finding of the study shows that financial leverage has a negative relationship with ROA and the operating return of mentioned companies in all three sectors, which suggests that the mentioned firms should search for alternative sources of finance. The result of research adds that Financial leverage has different impacts on profit margin in various sectors, in the industrial sector financial leverage has a positive relationship with profit margin, while in the energy sector there is a negative relationship between financial leverage and firms performance, but in the healthcare sector has no relationship with firm performance, which suggests that firms operate in industrial and healthcare sectors must use debt in their capital structure and those firms which are operating in the energy sector of united states must use an

alternative source of finance instead of debt.

Abeywardhana (2015), investigated the relationship of financial leverage with the performance of SMEs manufacturing companies operating in the UK for the period (1998 to 2008). She used ROA, ROCE as profitability indicators Debt / Equity ratio as financial leverage indicator, and size of the firm, sales growth, and liquidity ratio as control variables. The result of the study reveals that there is a significant negative relationship exists between leverage and the performance of firms; liquidity puts a significantly negative impact on the firm performance, while firm size puts a significantly positive impact on the performance of mentioned firms during the study period.

Rosink (2020), using the OLS model investigated the impact of financial leverage on the performance of non-financial listed companies operating in Western Europe (France, Germany, Italy, Belgium, Spain, Austria, United Kingdom, Netherlands, and Switzerland) throughout (2010-2018). He found the negative association between financial leverage and performance of these companies during the study period means further reliance of these firms on debt increases the cost of debt, which in turn reduces their operating performance.

CHAPTER III

RESEARCH METHODOLOGY

3.1. Introduction

Research methodology is one of the main parts of the research which includes the plan and techniques of the research method in the whole research process (from the beginning of data collection to the end of data processing). The methodology section describes each of the research designs, sample selection criteria, data collection method, variables used in this study, and the method of data analysis.

This study aims to investigate the impact of financial leverage on the performance of companies operating in the different levels of emerging markets. As mentioned earlier, according to the classification of the financial institution of BBVA (2010), considering the international monetary fund's (IMF) criteria emerging markets were classified into two major categories each EAGLEs and NESTs emerging markets. In this study 5 countries each China, India, Brazil, Indonesia, and Turkey are chosen from the EAGLEs category which is situated at the top of emerging markets in terms of contribution to the global GDP growth, and 5 other countries each Poland, Thailand, Sri Lanka, Saudi Arabia, and Chile are chosen from the NESTs category which is situated at the lower level of emerging markets throughout (2010-2019).

3.2. Source of the Data

In order to obtain the result of this empirical analysis, the data of large companies registered in the stock markets of 10 sample emerging economies including 5 countries (China, India, Indonesia, Brazil, Turkey) from EAGLEs emerging markets and the rest 5 countries (Poland, Chile, Saudi Arabia, Thailand, Sri Lanka) from NEST emerging markets have been used, to perceive the effect of leverage on the performance of companies operating in the above-emerging countries . The required data for this research has been obtained from 2 main secondary data sources:

First; from the official sites of each Morningstar and Finbox the global companies which addition to providing various financial services (investment research and management, analysis of global funds, stocks, & general market data) also prepare and organize financial data (financial statements) of companies worldwide and makes them

available to interested parties for analysis and various other decision-making purposes.

Second; the official annual financial reports of the companies that have been uploaded to the site of the relevant companies in order to be used by interested groups.

3.2.1. Study Population

This study is based on the list of manufacturing companies registered in the stock markets of 10 (5 EAGLEs & 5 NESTs) sample emerging countries mentioned above. In this study similar to the Chancharat (2015), Nguyen Thu (2016), and Narsaiah (2020) studies, financial companies (companies that operate in the finance, banking, insurance, and investment trusts sectors) are excluded from the population, because these companies are different from manufacturing companies in terms of capital structure and liquidity requirements. Because, companies operating in the banking and insurance sector have more liquid assets compared to companies operating in the manufacturing sector, therefore, including this type of company in research will challenge the validity of the study and lead to erroneous research results.

Based on the stock market information of 10 of those emerging countries that are to be investigated in this study, in (2020), the total number of registered companies operating in the stock markets of these sample countries was 15,126 companies, out of which 9032 are firms that are related to the financial, banking, insurance, and investment trusts sectors. Also, those companies that do not have complete data and companies that have just started operating are excluded from this population, the number of remaining companies operating in the manufacturing sectors of these 10 sample emerging countries reaches 4,550.

3.2.2. Selection and Size of the Sample

As we mentioned before, in this study, the total number of companies in the population reaches 4550, but due to the lack of access to all data of the population, we were compelled to use the sampling method to obtain the required data for research. In order to select the correct sampling method in which the sample can represent each sector correctly, we have used the stratified sample method.

A stratified sampling method is a sampling method in which samples are selected from different sections of the population to a specific percentage or proportion, and consequently, the result obtained from the analysis of this sample is linked to the whole

population. In this study, to construct our stratified sample, it was decided to select 20% of high-capitalized companies from manufacturing sectors. This means those companies that have been selected which has a high market capitalization (high capital) compared to other companies operating in the same industry, and their activity has a significant impact on the relevant sector. Consequently, when we selected 20% of the manufacturing companies as a sample from all 10 (5 EAGLEs & 5 NESTs) emerging countries, the total number of companies in our sample reached 907. This sample represents all the major sectors of the economies of all 10 emerging markets, 5 countries (China, India, Brazil, Indonesia, Turkey) from the EAGLEs emerging markets, and 5 other countries each (Poland, Thailand, Sri Lanka, Saudi Arabia, Chile) from the NESTs emerging economies.

3.3. Outliers

Based on statistical science Outliers refers to a data point or group of data points that are completely different from other observations in a population. There may be several reasons for the existence of outliers, which main of them are the differentiation in the methods of computation and making mistakes in the experiments, which in most cases cause outliers. If in the existence of outliers the data analysis is done, surely the results of the analysis will be biased (Pallant, 2010; Stevens, 1984).

In this study, in order to obtain a valid result from the study, using the winsorizing method, all variables, including dependent, independent, and control variables with a level of 2 % (1 99), we're freed from the existence of outliers.

3.4. Variables

Since the subject of this study is to investigate the impact of financial leverage on the performance of firms, therefore, after reviewing similar previous work on the relevant topic, like Vătavu (2015), Nguyen Thu (2016), Nassar (2016), Chandrasiri et al. (2017) and Tas et al. (2018) the indicators that are considered as criteria for each financial leverage and firm performance as well as the models used to test these relationships are as follows.

3.4.1. Measuring Capital Structure

The capital structure of a firm is generally decided based on its financial leverage,

which means that the financial leverage of a company represents the capital structure of that company. Various indicators such as short-term debt ratio, long-term debt ratio, total debt ratio, debt to equity ratio, etc. are used to measure corporate leverage. In this study, each of the indicators short-term debt (STD) ratio and long-term debt (LTD) ratio has been used as independent variables to measure the financial leverage of related firms.

STD ratio (Short-Term Debt/Assets): is a financial leverage measure that is obtained by dividing a company's short-term debt by its total assets.

LTD ratio (Long-Term Debt/Assets): is a financial leverage measure that is obtained by dividing a company's long-term debt by its total assets.

3.4.2. Measuring Firm Performance

To measure the performance of the firm, each of the indicators Return on Asset (ROA), Return on Equity (ROE), and earnings before interest, taxes, depreciation, and amortization (EBITDA) margin are used as dependent variables.

ROA (Net Income/Total Assets): is an important measure of firm performance, which represents the percentage of the profit which the company has earned in exchange for all of its resources.

ROE (Net Income/Equity): is also the measure of a company's performance which shows the ability of the company to obtain profit in exchange for the company's equity.

EBITDA margin (EBITDA/Total Assets): is a performance measure that shows a company's operating profit as a percentage of its revenue.

3.4.3 .Control variables

In some cases, in order to get the desired result from research, we have to assume certain factors to be fixed, like Chandrasiri et al (2017) and Nguyen Thu (2016) in their study assumed that firm's growth, size, and age to be constant. Therefore in this study in order to empirical model work properly and to get a fair result from our analytical test, each sales growth and firm size are considered as control variables.

Sales Growth: Sales growth is an indicator that shows the company's sales ability to

increase its revenue in a given period $(\text{Current year's sales} - \text{Previous year's sales}) / (\text{Previous year's sales}) * 100$.

Firm Size: The size of the company is the monetary value of the goods and services produced by the company, and it is obtained from the natural logarithm of sales.

3.5. Data Processing and Specification of Research Model

In this study, the data analysis process is done in three stages using Stata 16 software. In the first stage, a descriptive analysis is performed to show and present an overview of the research arena. Descriptive analysis, considering the relevant variables, provides basic statistical measures related to the study, such as mean, standard deviation, minimum and maximum values, etc.

In the second stage, to better understand the sample, covariance and correlation are formed between the existing variables. The correlation matrix defines the bilateral relationships between couples of dependent and non-dependent variables in a study. In this study in order to evaluate the stability of regression models simultaneously, traditional (Pearson correlation analysis) and modern (variance inflation factor analysis) correlation matrices have been used to diagnose collinearity problems.

In the third stage, multiple regression analysis models are used to test and evaluate the impact of the independent variable (Financial leverage) on the dependent variable (firm performance) using Stata 16.0 software package. Regression analysis is a mathematical technique used to measure the effects of one variable over another.

The following regression equations have been created to perform panel regression on empathic data provided from the financial sites and annual financial reports of the related companies to identify the impact of financial leverage on the performance of relevant firms.

$$ROA = \beta_0 + \beta_1 STDA + \beta_2 LTDA + \beta_3 GRW + \beta_4 SIZE + \epsilon$$

$$ROE = \beta_0 + \beta_1 STDA + \beta_2 LTDA + \beta_3 GRW + \beta_4 SIZE + \epsilon$$

$$EBITDA.M = \beta_0 + \beta_1 STDA + \beta_2 LTDA + \beta_3 GRW + \beta_4 SIZE + \epsilon$$

Where,

STDA – Shows short term debt (STD) to total assets (TA) ratio

LTDA – Shows long term debt (LTD) to total assets (TA) ratio

GRW – Shows sales increase compared to last year. $(\text{Current year's sales} - \text{Previous year's sales}) / (\text{Previous year's sales}) * 100$

SIZE – Shows the size of the company, and log of sales.

ε – The error term.

3.6. Methods of Estimation

As mentioned in the previous discussion, in order to investigate the effects of financial leverage on the performance of sample companies, panel data analysis is performed in three analytical stages. At first, in order to present the general information about variables the descriptive statistical analysis will be done, later on, to know the bilateral relationship between dependent and independent variables, the correlation analysis will be performed, and finally for examining the effects of financial leverage on the performance of firms the regression analysis will be conducted.

The regression model by taking the form of an ordinary least squares (OLS) model, the fixed-effect model (FEM), and the random effect model (REM) try to create the most appropriate regression for the data used in the study, which has the highest explanatory power (Chen, 2004; Salawu, 2007).

3.6.1. Ordinary Least Squares (OLS) Model

In this model, all observations are added together in order to perform regression. Also, this model does not take into account the cross-sectional and temporality nature of the data. The biggest problem of this model is that it looks the same to all existing firms in a study, that is, according to this model; all firms have the same characteristics. In other words, the ordinary least squares model pooled all firms and assumes that there is no heterogeneity between the firms used in the study, while in real life such a situation does not exist.

3.6.2. Fixed Effect Model (FEM)

The fixed-effect model allows for heterogeneity between companies which is used in a study by allowing every company to have its intercept value. Using a fixed model seems appropriate when it is assumed that there are eliminated variables that are associated with the variables which are used in the model. This model is used as a tool

to control the bias of eliminated or omitted variables. The reason this model is called a fixed model is that, because it may not even be the same slope between different firms, still, this slope does not change over time, that is, it is assumed to remain constant. This means, that whenever the eliminated variables have their effects on the subject, the mentioned effects will be felt the next time as well (Green et al, 2014).

The mentioned model is prepared to investigate the reason for change intra-companies which cannot be illustrated through constant time characteristics.

3.6.3. Random-Effects Model (REM)

The random effect model hypothesis is based on the principle, that all entities have a common average value for the interception. This model due to considering a narrower confidence interval compared to the fixed effects model is relatively considered a more efficient model. The use of this model seems appropriate when there is no relationship between the eliminated variables and the explanatory variables. Using this model, an unbiased approximation of the coefficients is generated, all available data is used and the number of standard errors is reduced. This is suitable for those models whose subjects are fixed which means they don't change over time (Green et al, 2014).

The usual tests used to identify the most appropriate model for study are each Breusch-Pagan Lagrange multiplier (LM), F test ,and Hausman test. Breusch-Pagan Lagrange multiplier test and F test are used to decide between pooled OLS and (Fixed & Random) panel models. The Hausman test is used to select the most consistent model between fixed effects and random effects models (Zeitun and Tian, 2007).

After selecting the most appropriate model for the study, before running this appropriate regression model, it must be ensured that the given variables do not suffer from the unit root and multicollinearity problems. Means Before running regression, the given variables must be stationary and have a low level of multicollinearity, because without performing unit root and multicollinearity and going directly to regression, it is not unlikely that the results of the research will not be free of errors and problems.

3.7. Panel Unit Root Test

Before going to regression, the properties of the unit root for the given variables must be studied. That is, before performing regression analysis, all given variables must be stationary. To test and examine the stationarity of the given variables analytically,

each of the Levin Lin Chu (LLC) and, Im Pesaran and Shin W-stat (IPS) tests will be performed, if the result of these Panel unit root tests shows a probability of less than 5%, means we accept the null hypothesis, which shows that the mean of variance and covariance are constant over time, that is our panels are stationary.

3.8. Multicollinearity

Multicollinearity refers to the condition in which two or more predictors are highly correlated with each other. Variance inflation factor (VIF) is generally used for measuring multicollinearity in a set of independent variables.

According to Myers (2001) if ($VIF > 10$), it indicates a high level of multicollinearity, which shows that there is a cause for concern. Therefore, to prevent this problem and obtain a clear and reliable result from the research, it would be better by employing VIF or alternative tests to make sure that our data is free from multicollinearity.

3.9. Autocorrelation

Autocorrelation which is also known as serial correlation is a statistical situation in which in a time series a relationship and correlation with a copy of past values are shown in the future. That is, it is a situation in which predictability is possible in a time series and thus, this situation makes it difficult to identify the significance of covariance and correlation (Yaffee, 2003).

Therefore, in order to reach the logical results of the research, the data to be used for analysis must be free of autocorrelation problems. There are various tests such as Durbin-Watson, Wooldridge, and Breusch–Godfrey, which are used for measuring autocorrelation in a given data. In this study, the Wooldridge test has been used to identify whether there is an autocorrelation problem in the panel data that is to be used for analysis or not.

3.10. Heteroscedasticity

According to statistical science, Heteroscedasticity refers to a condition in which the residual variance is not the same and equal within the scope of measured values. Based on one of the assumptions of the OLS regression model the observations of the error term with a constant variance should be traced from the distribution (Studenmund

and Cassidy,1997). If the error term has an unstable and variable variance, this situation is called a Heteroscedasticity. In statistical analysis, the presence of Heteroscedasticity in the data is considered a problem, so before running regression analysis, Heteroscedasticity must be prevented and controlled. Therefore, in this study, in order to achieve real and satisfactory results from research, the Modified Wald test has been used to identify and control the problem of Heteroscedasticity in the given data.

3.11. Robust Standard Error (RSE)

To obtain an accurate and valid result from the study, it is important that the data used in the study be controlled for autocorrelation and heteroscedasticity. Because the presence of autocorrelation and heteroscedasticity reduces the effectiveness of the estimators and negatively affects the validity of the results of the study. The presence of autocorrelation in a study invalidates the result of F, T, and Chi-square distributions (Praetz; Peter,1981).

Also, the existence of heteroscedasticity makes the OLS estimates and regression predictions unbiased and consistent and wrongly reflects the standard errors. To avoid and control the problems mentioned above, and obtain a valid result for the study, the Robust Standard Error (RSE) has been used. Robust standard error / Cluster robust standard error is a good option for controlling those data that suffer from the problem of autocorrelation and heteroscedasticity. Baltagi (2005) recommends that, since the variance of the error term in observations varies, the robust standard error can be used to correct this Heteroscedasticity.

CHAPTER IV

THE IMPACT OF CAPITAL STRUCTURE ON FIRM PERFORMANCE: DATA ANALYSIS AND EMPIRICAL RESULT OF COMPANIES OPERATING IN SAMPLE EAGLE & NEST EMERGING MARKETS

This section is the important part of the study, in which the impacts of independent variables (leverage) on dependent variables (firm's performance) are examined using different tests and, regression models to obtain the empirical result of the research.

In order to achieve the purpose and result of this study, which is to examine the effects of financial leverage on the performance of companies in the sample EAGLE and NEST emerging economies, the first stage of descriptive analysis is performed to show an overview of the research scene, then, to summarize and define the bilateral relationship between pairs of dependent and independent variables, a correlation analysis is done, later, in order to achieve a healthy and accurate result of the study, before running regression, some necessary tests such as unit root and multicollinearity test are performed, finally, different regression models are used to test and evaluate the impact of financial leverage on the performance of Intended manufacturing companies using the Stata 16 software package.

The analysis process of these 10 sample emerging countries will be as follows; first, the five sample EAGLEs countries, China, India, Brazil, Indonesia, and Turkey, discretely, will be analyzed according to the analysis steps mentioned above, later on, in the same way, the impact of financial leverage on the performance of remaining 5 NEST sample emerging countries (Poland, Thailand, Sri Lanka, Saudi Arabia, and Chile) will be investigated respectively. It should be said that in the mentioned study, the data analysis process is done separately for each of the sample countries. Means, e.g., to investigate the effects of leverage on the performance of Chinese companies, the analysis process begins with the descriptive analysis, followed by correlation analysis, and ends with the regression analysis accompanied by some other data control tests like unit root, multicollinearity, heteroscedasticity, and autocorrelation diagnosis tests. In the same way, the analysis process is done for each of the remaining 9 countries.

4.1. China

4.1.1. Descriptive Statistics

Table 1 shows the statistical summary of independent (Short-term debt, and Long-term debt), dependent (ROA, ROE, EBITDA margin), and, control variables (Sales growth, firm size) of 361 Chinese manufacturing companies from (2010 to 2019).

As shown in the table, the financial leverage variables each of short and long-term debt ratios with the mean values of 38.48 % and 10.71%, respectively, make up the total debt of 49.2%. Considering these numbers, Chinese companies operating in the manufacturing sector almost 50% rely on debts in their capital financing; also, most of the debts of these companies that have been used in their capital structure are short-term debts. The maximum value of 83.87 of short-term debt indicates that most Chinese companies leaned on short-term debt. The value of long-term debt varies from 6.94 to 66.1, which indicates that one of the companies has used equity capital and short-term debt in exchange for long-term debt in their capital structure, while one of the other companies has provided 66.1% of its assets using long-term debt.

On the other hand, the performance variables of return on asset (ROA), return on equity (ROE), and earnings before interest, tax, depreciation, and amortization margin (EBITDA.M), with mean values of 4.4, 8.57, and 15.34, respectively, indicate the relatively good performance of these companies during the study period. But the standard deviations of 13.22 and 12.21 of each ROE and EBITDA margin show a huge deviation compared to ROA, the main reason for which may be the excessive difference between their minimum and maximum values.

Regarding control variables, it should be said that the sales growth with an average value of 16.57, presents a relatively good situation for these companies, but its standard deviation shows a high figure of 23.78 which is considerable, also the difference in its values reports that, among the companies, one company has a negative growth in sales of 21.25, while one of the other companies has a positive growth of 73.48. Similarly, the size of the companies with the mean value of 8.46, lowest and highest values of 3 and 14.7, respectively, show that although these companies operate in different parts of the manufacturing sector, they are almost similar in size.

Table 1.

Descriptive statistics-China

Variables	Mean	Std. Dev.	Min	Max
ROA	4.408964	5.651003	-19.06	20.93
ROE	8.579875	13.2214	-61.08	43.57
EBITDA.M	15.34839	12.21391	-29.08	61.60
STD	38.48591	16.60256	4.29	83.87
LTD	10.71998	9.124693	6.94	66.10
Sales growth	16.57512	23.78892	-21.25	73.48
Firm size	8.469043	1.547247	2.996	14.73

4.1.2. Correlation Analysis

Table 2 shows the correlation between independent (STD, LTD, Sales growth, Firm size) and dependent variables (ROA, ROE, EBITDA.M) of Chinese sample companies operating in the manufacturing sector during the study period of (2010 to 2019).

According to the below table, the short-term debt (STD) and long-term debt (LTD) ratio have a negative impact of -32 and -23, respectively on the performance of companies for ROA, while sales growth and firm size respectively have a positive impact on 0.32 and 0.026 on the performance of mentioned companies for ROA. And so on short and long-term debt ratios sequentially have a negative impact of -0.14 and -0.12 on the performance of Chinese manufacturing companies for ROE, while Sales growth and firm size have a positive effect of 0.32 and 0.14 on the ROE of mentioned companies. Similarly, the Short-term debt ratio and firm size are significantly negatively correlated with the EBITDA margin, while the long-term debt ratio and sales growth are significantly positively associated with the EBITDA margin of sampled firms during the study period (2009-2019).

In general, it can be said that both short and long-term debt ratios are negatively correlated with the performance of Chinese manufacturing companies during the study period, which means by increasing the level of debts in the capital structure of these companies their operating performance decrease, while control variables (sales growth and company size) are positively related to the performance of mentioned companies.

Table 2.

Pearson Correlations – China

	ROA	ROE	EBITDA. M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.879***	1.0000					
EBITDA. M	0.584***	0.510***	1.0000				
STD	-0.324***	-0.14***	-0.37***	1.0000			
LTD	-0.230***	-0.12***	0.054***	-0.0151	1.0000		
Sales growth	0.326***	0.324***	0.121***	-0.0013	-0.0051	1.0000	
Firm size	0.026	0.143***	-0.212***	0.34***	0.19***	0.0360 **	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

In order to achieve a healthy and more accurate result of the research, before running regression analysis, some necessary tests such as unit root and multicollinearity tests should be performed.

4.1.3. Panel Unit Root Test

Before running regression analysis, the properties of the unit root for the given variables must be studied, that is before employing regression analysis all given variables must be stationary. Therefore, using Levin Lin Chu (LLC) and I'm Pesaran and Shin W-stat panel unit root tests we check whether the variables under study are stationary or not.

Table 3.

Panel Unit Root test-China

Variables	LLC	P-Value	IPS	P-Value
ROA	-29.2899 ***	0.0000	-8.7559 ***	0.0000
ROE	-30.8505 ***	0.0000	-9.8463 ***	0.0000
EBITDA.M	-31.3943 ***	0.0000	-8.8249 ***	0.0000
STD	-24.7989 ***	0.0000	-6.4308 ***	0.0000
LTD	-29.8793 ***	0.0000	-5.7357 ***	0.0000
Sales growth	-39.0971 ***	0.0000	-18.6838 ***	0.0000
Firm's Size	-10.2848 ***	0.0000	-4.2214 ***	0.0000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The result obtained from Table 3, shows that based on the LLC test all variables including dependent, independent, and control variables are free of unit root, similarly based on the IPS results for all variables some panels are stationary. In general, the result of both tests (LLC, IPS) indicates that the panels are stationary.

4.1.4. Multicollinearity

Multicollinearity refers to the condition in which two or more predictors are highly correlated with each other. Variance inflation factor (VIF) is generally used to measure multicollinearity in a set of dependent variables. According to Myers (2001) and Nachan (2006) if ($VIF > 10$), it indicates a high level of multicollinearity, which shows that there is a cause for concern.

Table 4.

Capital structure VIF results-China

Variables	VIF Test Results
STD	1.14
LTD	1.05
Sales growth	1.00
Firm size	1.19
Mean VIF	1.10

The results of Table 4 show that the regression equations of each of the independent variables of STD, LTD, sales growth, and firm size with the VIF value of 1.14, 1.05, 1, and 1.19 are free of multicollinearity as mean Variance inflation factor is less than 10.

4.1.5. Regression analysis

In order to select the appropriate model for regression analysis, each of the Breusch-Pagan Lagrange multiplier (LM) tests, F test, and Hausman test has been performed. Based on the results given in Table 5, the fixed Effects Model is selected as an efficient and most appropriate model for each ROA, ROE, and EBITDA margin. Employing Modified Wald and Wooldridge tests, Heteroscedasticity problems arising from cross-sectional data and autocorrelation problems arising from time series have been observed. Thus, to control and remove these problems, Robust Standard error regression models have been applied to obtain the most accurate results of research, as shown below in Table.

Table 5 shows the impacts of financial leverage (STD, LTD) on the performance (ROA, ROE, and EBITDA margin) of sample Chinese companies engaged in the manufacturing sector for the period (2010 to 2019).

The regression results as shown in the table below show that each of the financial leverage measures, short-term debt (STD), and long term debt (LTD) ratio has a significantly negative impact on the performance of mentioned companies for return on asset (ROA). STD ratio with the coefficient of -0.16 statistically negative significant with the ROA at the level of 1 %. This indicates that any increase in short-term debts in the capital structure will result in a decrease in the performance of mentioned companies for the ROA. Similarly LTD ratio with the coefficient of -0.155 is statistically negative and significant with ROA at the level of 1 %, which means an increase in long-term debts in the capital structure of the Chinese industrial companies will reduce their performance for the ROA. Regarding the control variables, it should be said that sales growth with a coefficient of 0.068 and firm size with a coefficient of 0.52 has a significantly positive relationship with the ROA of Chinese companies.

The ROE also indicates a similar situation, as shown in Table 5, the financial leverage measures each of short and long-term debt has a negative significant impact on the Chinese manufacturing firm's performance for ROE. Short and long-term debt ratios with the coefficient values of -0.305 and -0.255 are statistically negative significant

with the ROE of these companies at the level of 1% respectively. The control variables, which include each of the sales growth and firm size, have a significantly positive relationship with the performance of these firms for return on equity at the level of 1 %.

The EBITDA margin which is obtained by dividing firm's profit before interest, taxes, depreciation, and amortization by its sales also indicates a similar effect of financial leverage on firm's performance. As shown below each short and long-term debt which presents the leverage of firms with the coefficient values of -0.26 and -0.11 significantly negatively associated with the EBITDA margin of Chinese companies at the level of 1%. As the same sales growth with the coefficient of 0.046 has a significantly positive effect on the EBITDA margin of these companies during the study period.

According to the findings of this study, during the study period, the performance of Chinese companies engaged in the manufacturing sector has been negatively associated with debt, this means excessively increasing the level of debt in the capital structure of these firms, instead of improving their operational performance, lowers it, and as a result, damages the value and the profitability of these companies. This result is in line with the results of Tianyu He (2013), which pointed out that increasing the level of leverage in the capital structure of Chinese companies reduces their operating performance. Given these results, Chinese manufacturing companies in order to improve their operational performance should prefer internal financing sources in their capital structure instead of debt.

Table 5.

Fixed Effect (Robust) Regression – China

	ROA		ROE		EBITDAM	
Explanatory variables	Fixed Effect	P-Value	Fixed Effect	P-Value	Fixed Effect	P-Value
STD	-.1621671 (-10.18)	0.000	-.3050713 (-6.73)	0.000	-.2626762 (-6.80)	0.000
LTD	-.1557104 (-9.87)	0.000	-.2553625 (-5.83)	0.000	-.1180321 (-2.58)	0.010
Sales growth	.0682887 (18.04)	0.000	.1647479 (16.87)	0.000	.046676 (4.99)	0.000
Firm size	.523497 (2.73)	0.007	1.682237 (3.36)	0.001	.3723839 (0.91)	0.363
Constant	6.753911 (4.35)	0.000	6.080651 (1.6)	0.110	22.79563 (6.45)	0.000
F- Statistic	115.57	0.0000	87.70	0.0000	18.20	0.0000
R²	0.3587		0.1857		0.1819	
F- Statistic (FE)	5.50	0.0000	3.70	0.0000	7.66	0.0000
Hausman STC. (RE, FE)	27.42	0.0000	39.61	0.0000	55.62	0.0000
Number of companies	361		361		361	
Observation	3,610		3,610		3,610	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.2. India

4.2.1. Descriptive Statistics

Table 6 shows the descriptive statistics (Mean, St. Deviation, Minimum and Maximum values) of the financial leverage (Short and long-term debt), firms' performance (ROA, ROE, EBITDA.M), and control variables (Sales growth, Firm size) of 272 sample Indian firms operating in the manufacturing sector during (2010-2019).

The table below shows that the short-term debt ratio (STD) with the mean value of 38.11 % varies from 8.48 to 84.15 %, which means that the Indian companies operating in the industrial sector have secured 38.11% of their assets through short-term debt, also the changes in the value of short-term debt indicate that 8.48 % of the capital structure of one of the firms was assigned to short-term debt, while one of the other company, in order to finance their asset, utilized 84.15 % short term debt. The long-term debt (LTD) ratio, with the mean value of 18.13 %, shows a change of 0.56 to 57.69 %, which means that the sample companies that have been selected from this country to study have prepared 18.13 % of their required assets by using long-term debt (LTD), also the minimum and maximum value of long-term debt indicates that the share of long-term debt in the capital structure of one of the companies was just 0.5%, means they used a mix of equity and short term debt in their capital structure, while, 57.7 % of the capital structure of one of the other companies was financed by using long-term debt.

Based on the figures listed in the Table below, performance variables each of the return on asset (ROA), return on the equity (ROE), and EBITDA margin had the mean values of 5.64, 12.54, and 14 % respectively, which indicates that the Indian companies operating in the manufacturing sector performed pretty well during the study period. Results show that the stockholders of these companies have received an average profit of 12.54 % for each dollar of common equity investment. If the ROE standard deviation of 15.07% is compared with the average ROE, it can be concluded that the stock returns of these companies are lower compared to the risk involved.

The ROA of these companies had an average value of 5.64, which shows that the mentioned companies received 5.64 % of the income in exchange for the value of each dollar of the company's assets. Also, the disparity in returns (ROA) shows that during the study period one of these companies generated a 26.38 % return on assets, while some of these companies suffered a loss of 13.93 percent.

The EBITDA margin of mentioned companies with a mean value of 14.01 shows that these companies earned 14% operating cash for each dollar of revenue. This figure indicates that these companies manage their operating expenses well because their operating income is higher compared to their operating expenses, but its standard deviation of 9.33 % is relatively high that needs to be controlled.

Sales growth with an average value of 12.95 and a standard deviation of 19.3 shows a significant deviation from the mean, also the difference in sales growth shows that among the companies under the study one of the companies has negative sales growth

of -31.73, in contrast, the sales growth of one of the other companies reaches even to positive 71.4.

The average size of the companies investigated in this study is 9.3% and its maximum value is 15.2, which is relatively a close figure to its mean value, these figures show that the mentioned companies did not have a decrease in size growth during the study period (2010-2019).

Table 6.

Descriptive statistics-India

Variables	Mean	Std. Dev.	Min	Max
ROA	5.642353	6.324879	-13.93	26.38
ROE	12.54723	15.07076	-53.13	56.45
EBITDA.M	14.01752	9.333971	-20.4	49.39
STD	38.11522	15.00974	8.48	84.15
LTD	18.13688	12.59876	.56	57.69
Sales growth	12.95011	19.2926	-31.73	71.4
Firm size	9.317326	1.641746	3.892	15.253

4.2.2. Correlation Analysis

Table 7 shows the relationship of financial leverage variables (Short and long-term debt ratio) of Indian manufacturing companies with their performance variables (ROA, ROE, EBITDA.M) for the study period (2010-2019).

As shown in the below Table, the short-term debt ratio is significantly negatively correlated with the return on asset (ROA), return on equity (ROE), and earnings before interest, tax, depreciation, and amortization margin (EBITDA.M) of the mentioned

companies. Similarly, the long-term debt ratio has a statistically negative significant relationship with the ROA and ROE of these companies from 2010-to 2019.

The control variables in contrast to debts indicate a different relationship with the performance of mentioned firms. As shown below Table each sales growth and firm size are significantly positively correlated with all performance measures.

In short, debt is negatively correlated with the performance of Indian companies operating in the manufacturing sector, that is, by increasing the amount of debt in the capital structure of these companies, their performance decreases. While the control variables (Sales growth and Firm size) are in a positive relationship with the performance of these companies, that is, with the increase in sales growth and the size of companies, the performance of these companies also increases and improves.

Table 7.

Pearson Correlations-India

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.846***	1.0000					
EBITDA.M	0.511***	0.411***	1.0000				
STD	-0.30***	-0.137***	-0.4277***	1.0000			
LTD	-0.29***	-0.163***	-0.0078**	-	1.0000		
				0.158***			
Sales growth	0.24***	0.275 ***	0.0924***	0.0413**	-0.0020	1.0000	
Firm size	0.106***	0.1150***	0.1217***	-	0.14***	0.0223	1.0000
				0.087***			

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.2.3. Panel Unit Root Test

Before going to regression, the properties of the unit root for the given variables must be studied. For this purpose, we used the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) panel unit root test to analytically test the Stationarity of given variables.

Table 8.

Panel Unit Root test-India

Variables	LLC	P-Value	IPS	P-Value
ROA	-31.1837 ***	0.0000	-8.3925 ***	0.0000
ROE	-35.3464 ***	0.0000	-10.4708 ***	0.0000
EBITDA.M	-34.1203 ***	0.0000	-9.9163 ***	0.0000
STD	-6.7976 ***	0.0000	-5.3445 ***	0.0000
LTD	-14.1364 ***	0.0000	-10.036***	0.0000
Sales growth	-29.9466 ***	0.0000	-13.7562 ***	0.0000
Firm's Size	-17.3280 ***	0.0000	-6.7595 ***	0.0000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results obtained from the LLC test show that the P-value of none of the variables is greater than 10 %, which means that all variables are free of a unit root. Similarly, the result of the IPS panel unit root test also reports the Stationarity of some panels for all variables.

4.2.4. Multicollinearity

Multicollinearity indicates that two or more predictors are related to each other. The variance inflation factor is generally used to measure multicollinearity in a set of independent variables.

Table 9.

Capital structure VIF results –India

Variables	VIF Test Results
STD	1.03
LTD	1.04
Sales growth	1.00
Firm size	1.03
Mean VIF	1.03

The results of Table 9 show that the regression equations of independent variables are free of multicollinearity as the mean-variance inflation factor is less than 10.

4.2.5. Regression analysis

Table 10 shows the impact of financial leverage variables (STD, LTD) on the performance variables (ROA, ROE, EBITDA.M) of Indian companies engaged in the manufacturing sector for the period (2010 - 2019). To examine the effect of Short and long-term debts on the performance of mentioned companies for each ROA, ROE, and EBITDA margin the Random-effects regression model (REM) has been applied.

The regressions results shown in Table 10 show that the financial leverage variables (Short and long-term debt) of Indian manufacturing companies have a negative significant impact on the performance of these companies for return on assets (ROA). Short-term debt ratio with the coefficient of -0.1628 statistically negative significant with ROA of mentioned companies at the level of 1 %. Similarly, the long-term debt ratio with the coefficient of -0.1956 is statistically negative and significant with ROA at the level of 1 %. These results indicate that increasing the level of short and long-term debts in the capital structure of the Indian manufacturing companies causes damage to ROA and reduces their operating performance. The control variables, each of sales growth and firm size with the coefficients of 0.0613 and 0.4186 respectively have a statistically significant and insignificant impact on the company's performance for ROA. The same is almost true for ROE, as shown below in Table; the each of financial leverage measures of Indian manufacturing companies has a statistically negative significant effect on their performance for ROE. Short and long-term debt ratios with the coefficient values of -0.2375 and -0.3191 are statistically negative and significant with the ROE of mentioned companies at the level of 1 percent. This means that by increasing the level of debt in the capital structure of these companies, their performance for ROE decreases. Regarding the control variables, it should be said that the sales growth, has a significantly positive impact on the performance of mentioned companies for ROE at the level of 1 %. For EBITDA margin there is also the same result of relationships between financial leverage and firm performance variables. As can be seen below in Table the short and long-term debt ratios with coefficient values of -0.2280 and -0.1391 have a statistically negative significant effect on the performance of Indian manufacturing companies (2010-2019).

Similarly, sales growth with the coefficient of 0.042 has a significantly positive relationship with the performance of these companies for EBITDA margin during the study period.

The findings of this study show that, during the study period, the performance of Indian manufacturing firms was negatively associated with debt. That is, if Indian manufacturing firms increase the level of debt in their capital structure, the performance of the mentioned firms will decrease and as a result, the value of the company and their profitability will be damaged. Therefore, Indian manufacturing firms, in order to increase their operational performance, should assign more proportion of their capital structure to internal financing sources. The results of this study contradict the results of Pal Singh and Bagga's (2019) research, which shows that increasing the level of debt in the capital structure of Indian firms increases their performance.

Table 10.

Fixed Effect (Robust) Regression – India

	ROA		ROE		EBITDAM	
Explanatory variables	Fixed Effect	P-Value	Fixed Effect	P-Value	Fixed Effect	P-Value
STD	-.1628278 (-8.28)	0.000	-.2375813 (-2.90)	0.004	- .2280566 (-7.09)	0.000
LTD	-.195675 (-9.52)	0.000	-.3191918 (-5.06)	0.000	- .1391697 (-4.54)	0.000
Sales growth	.061368 (9.09)	0.000	.1684087 (9.81)	0.000	.0423268 (4.05)	0.000
Firm size	.4186218 (0.94)	0.348	.2358508 (0.24)	0.808	.0042757 (0.01)	0.995
Constant	10.70234 (2.38)	0.018	23.01342 (2.28)	0.023	24.64607 (3.69)	0.000
F- Statistic	56.79	0.0000	27.68	0.0000	17.82	0.0000
R²	0.3854		0.1770		0.2556	
F- Statistic (FE)	7.95	0.0000	5.01	0.0000	9.16	0.0000
Hausman STC. (RE, FE)	66.70	0.0000	57.20	0.0000	15.47	0.0038
Number of companies	272		272		272	
Observation	2,720		2,720		2,720	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.3. Brazil

4.3.1. Descriptive Statistics

Table 11 shows a statistical summary of the capital structure (STD, LTD) and firm performance variables (ROA, ROE, EBITDA.M) of 34 Brazilian sample companies operating in the manufacturing sector during the study period (2010-2019).

As shown in the below Table, the each of financial leverage variables, short and long-term debt ratios with their mean values of 26.15 % and 27.94%, respectively, make up a total of 54.1% of total debt. According to these figures, during the study period, the sample Brazilian companies operating in the manufacturing sector relied 54% on debts in their capital structure; also, these figures indicate that the Brazilian companies had somehow created a balance between short-term and long-term debt in terms of foreign financing. The minimum and maximum value of 2.97 and 82.15 of short-term debt indicate that one of the companies had prepared only 3% of assets using short-term debt, which means they used a mix of equity and long-term debt in their capital structure, while on the contrary, 82.15% of the capital structure of one of the other company was financed using long-term debt.

The performance variables of ROA, ROE, and EBITDA margin with the mean values of 3.18, 5.51, and 15.61, respectively, indicate the relatively a bit good performance of these companies during the study period. The standard deviations of 20.51 of ROE show a huge deviation from means compared to ROA and EBITDA margin, the main reason for which is the excessive difference between their minimum and maximum values. Similarly, the control variables of each sales growth and company size have average values of 8.05 and 7.35, respectively. The value of sales growth varies from - 36.8 to 67.2, which indicates that during the study period one of the companies had a decrease in revenue up to 36.8 while one of the other companies had an increase in revenue up to 67.2 which shows a considerable expanding of this company over the period. Among all the variables used in this study, ROE and sales growth have the largest number standard deviation of 20.1 and 17.85, and company size has the lowest standard deviation of 1.98.

Table 11.

Descriptive statistics-Brazil

Variables	Mean	Std. Dev.	Min	Max
ROA	3.188765	9.40093	-51.76	27.99
ROE	5.519676	20.10596	-73.62	44.43
EBITDA.M	15.61871	13.8447	-16.5	58.96
STD	26.15605	17.1487	2.97	82.15
LTD	27.94391	17.84437	6.5	60.31
Sales growth	8.054482	17.85526	-36.83	67.2
Firm size	7.351668	1.989297	3.135	11.41

4.3.2. Correlation Analysis

Table 12 presents the correlation and nature of the correlation between the independent (STD, LTD, Sales growth, Firm size) and dependent variables (ROA, ROE, EBITDA.M) during the study period (2010-2019).

As seen in the Table below, financial leverage variables which include each short and long-term debt have a significantly negative association with the performance of Brazilian firms for ROA, while the sales growth which is a control variable has a significantly positive relationship with the ROA of the mentioned companies. In the same way, long-term debt and sales growth are significantly negative and positively correlated with the ROE of sample companies respectively. Regarding EBITDA margin it should be said that short and long-term debt ratios which represent the capital structure of companies significantly negatively associated with the performance of mentioned firms while sales growth which represents the control variable is significantly positively correlated with the performance of Brazilian manufacturing firms during 2010-2019.

In general, it can be said that financial leverage variables are negatively correlated with the performance of Brazilian manufacturing firms during the study period from (2010 to 2019).

Table 12.

Pearson Correlations-Brazil

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.60***	1.0000					
EBITDA.M	0.54***	0.325**	1.0000				
STD	-0.11**	0.044	-0.20***	1.0000			
LTD	-0.43***	-0.27***	-0.100*	0.12**	1.0000		
Sales growth	0.13**	0.167***	0.217***	-0.11**	-0.041	1.0000	
Firm size	0.0393	0.043	0.0700	-0.09*	-0.17**	0.062	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.3.3. Panel Unit Root Test

Before running the regression analysis, using the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) unit root tests, we check whether the variables are stationary or not.

Table 13.

Panel Unit Root test-Brazil

Variables	LLC	P-Value	IPS	P-Value
ROA	-4.2437***	0.0000	-1.6110 *	0.0536
ROE	-4.103 ***	0.0000	-2.5056 ***	0.0061
EBITDA.M	-4.395 ***	0.0000	-2.1965 **	0.0140
STD	-9.497 ***	0.0000	-3.5802 ***	0.0002
LTD	-6.994 ***	0.0000	-5.5150***	0.0000
Sales growth	-5.976 ***	0.0000	-3.2658 ***	0.0005
Firm's Size	-9.075***	0.0000	-2.1346 **	0.0164

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results obtained from Table 13 show that for the LLC test all dependent, independent, and control variables are free of unit root, because the P-value of no one of the variables is higher than 10%, similarly the result of the IPS test shows that for all variables some panels are stationary.

4.3.4. Multicollinearity

Multicollinearity is a state in which two or more variables are related to each other. Variance inflation factor (VIF) is used to measure multicollinearity in a set of dependent variables.

Table 14.

Capital structure VIF results-Brazil

Variables	VIF Test Results
STD	1.04
LTD	1.06
Sales growth	1.02
Firm size	1.06
Mean VIF	1.05

The results of Table 14 show that the regression equations of all independent variables of STD, LTD, sales growth, and firm size with the VIF value of 1.04, 1.06, 1.02, and 1.06 are free of multicollinearity as the mean Variance inflation factor is less than 10.

4.3.5. Regression Analysis

Table 15 indicates the effect of financial leverage variables (STD, LTD) on the performance variables (ROA, ROE, EBITDA.M) of Brazilian manufacturing companies using regression analysis during the study period (2010-2019).

In order to investigate these relationships the Fixed and Random effects, regression model has been used. To test and examine the impacts of short and long-term debts on the ROA and ROE of Brazilian manufacturing companies, the Random effect model (REM) has been used, and so the fixed effects model (FEM) has been applied to

investigate the effect of financial leverage on the performance of these companies for EBITDA margin.

The results of the tests which are shown in the table below indicate that there is no significant relationship exists between short-term debt and the performance of Brazilian industrial companies during the study period, while long-term debt has a significantly negative impact on all performance variables (ROA, ROE, and EBITDA.M).

According to the results, the long-term debt ratio with the coefficient value of - 0.2025 has a statistically negative significant effect on the return on asset (ROA). Regarding the control variables, it should be said that sales growth with the coefficient of 0.0692 has a significantly positive effect on the performance of companies for return on asset (ROA), while the size of the firms with the coefficient of 0.70 has a statistically insignificant effect on the ROA of mentioned companies.

The ROE shows almost a similar situation, as shown in Table 15, the financial leverage measures each of short and long-term debt ratios respectively has a statistically insignificant positive and significant negative impact on a firm's performance for return on equity (ROE). Sales growth with the coefficient of 0.2087 has a significantly positive impact on the performance of mentioned companies for ROE.

In the same way, the long-term debt (LTD) ratio with the coefficient value of 0.2341 has a significantly negative effect on the firm's performance for EBITDA margin, while the short-term debt ratio (STD) is insignificantly associated with the firm's performance during the study period.

Based on the findings of this study, the use and non-use of short-term debt in the capital structure of Brazilian manufacturing companies do not affect the performance of the mentioned company; this means that the company can refer to any financial source (equity or STD) it wants without any difference, but this is not the case for long-term debt, because long-term debt and the performance of Brazilian companies are inversely related, so any increase in the level of long-term debt will lead to a decrease in the performance of these companies during the study period (2010-2019). With these results in mind, the mentioned companies can increase their operational performance by forming an optimal capital structure of short-term debt and equity capital.

The results of this study are consistent with the result of Cruz Machado et al.'s (2015) study, who states that the debt has no direct effect on the performance of Brazilian companies listed on the BM & FBOVESPA stock market.

Table 15.

Fixed and Random Effect (Robust) Regression – Brazil

	ROA		ROE		EBITDAM	
Explanatory variables	Random Effect	P-Value	Random Effect	P-Value	Fixed Effect	P-Value
STD	-.0758076 (-0.84)	0.402	.0097833 (0.12)	0.906	-.0166059 (-0.19)	0.849
LTD	-.202521 (-3.31)	0.001	-.364567 (-3.45)	0.001	-.2341345 (-2.91)	0.006
Sales growth	.0692853 (2.82)	0.005	.2087215 (4.16)	0.000	.0929112 (1.94)	0.061
Firm size	.7007959 (1.06)	0.288	.4475906 (0.37)	0.715	2.723874 (0.74)	0.464
Constant	5.120745 (1.53)	0.126	10.47953 (1.16)	0.246	1.822319 (0.07)	0.942
F- Statistic					4.60	0.0046
Wald -Statistic	28.04	0.0000	39.51	0.0000		
R²	0.2068		0.1110		0.0346	
Breusch-Pagan STC. (RE)	285.94	0.0000	154.46	0.0000		
F- Statistic (FE)					11.11	0.0000
Hausman STC. (RE, FE)	4.21	0.3787	5.54	0.2359	27.66	0.0000
Number of companies	34		34		34	
Observation	340		340		340	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.4. Indonesia

4.4.1. Descriptive Statistics

Table 16 shows descriptive statistics (Mean, St. deviation, Minimum and maximum values) of each financial leverage (Short-term debt ratio, Long-term debt ratio) and performance variables (ROA, ROE, EBITDA.M) of 43 sample Indonesian companies operating in the manufacturing sector from (2010) to (2019).

Table 16 reports that the short-term debt (STD) ratio with an average value of 33.75 varies from 8.31 to 82.01, which means that the Indonesian companies operating in the manufacturing sector have secured 33.75 % of their assets through short-term debt. The long-term debt (LTD) ratio, with an average value of 19.30 %, shows a change of 0.74 to 58.01 %, which means that mentioned companies have prepared 19.30 % of their required assets through long-term debt, also the change in its values indicates the sample companies that have been selected from this country to study, the capital structure of some of these companies has no or very low level of leverage, means they relied more on the equity capital, while on the contrary, several other companies in this country relatively relied more on leverage (debt capital).

According to the Table below, the stockholders of the sample Indonesian companies operating in the manufacturing sector earned an average of 7.74 % earnings for each dollar of common equity investment between 2010 and 2019. The figures also indicate that during the study period some of these companies generated up to 36 % return on equity, while some other these companies even suffered a loss of -69 %. The standard deviation of these companies for ROE is 22 %, if this figure is compared with the average ROE of these companies, it can be concluded that the return on equity of these companies is too lower compared to the risk involved.

The ROA of these firms with the mean value of 5.56 shows that these firms received 5.56% of the income in exchange for the value of each dollar of the firm's assets.

The EBITDA margin of mentioned companies with the mean value of 9.38, in proportion to other performance variables, shows a relatively high number, but still, it indicates the relatively poor performance of these companies for EBITDA margin, and it is necessary to manage operating costs properly to greatly increase operating income.

Sales growth with an average of 10.34 and a standard deviation of 18 shows a relatively high deviation from the mean value, also, the difference in the minimum and maximum values of sales growth shows that, in addition to that, some companies have negative sales growth of -31.43, in contrast, the sales growth of some other companies reaches even to positive 63.83 which indicates a significant sales growth of these companies. The average size of the companies investigated in this study is 13.53% and its maximum value is reached 19.3, which is almost a close figure to the mean value of mentioned companies, therefore, it can be concluded that these companies did not have a decrease in size growth during the study period (2010-2019).

Table 16.

Descriptive statistics-Indonesia

Variables	Mean	Std. Dev.	Min	Max
ROA	5.560279	7.93356	-27.39	37.25
ROE	7.748279	22.03044	-69.01	35.99
EBITDA.M	9.380581	12.12734	-26.15	60.64
STD	33.75747	16.26023	8.31	82.01
LTD	19.3048	14.64737	.74	58.01
Sales growth	10.34269	18.00221	-31.43	63.83
Firm size	13.53755	3.68022	5.056	19.293

4.4.2. Correlation Analysis

As seen in Table 17 each of the financial leverage measures (Short and long-term debt ratios) is statistically negative significant with the performance (ROA, ROE, EBITDA.M) of Indonesian manufacturing firms throughout (2010-2019).

Table 17 shows that the short-term debt (STD) ratio of Indonesian manufacturing companies significantly negatively correlated with the ROA, ROE, and EBITDA margin of the mentioned companies. This means an increase in the short-term debt (STD) will harm the operating performance of the Indonesian manufacturing companies. The long-term debt ratio shows similar effects on the performance of these companies, as seen below the long-term debt (LTD) ratio has a statistically negative significant relationship with the mentioned company's performance for each of ROA, ROE, and EBITDA margin measures at the level of 1%. Regarding the control variables, it should be said that sales growth has a significantly positive relationship with all performance variables of Indonesian sample firms operating in the manufacturing sector, while the company's size is significantly and positively correlated

with the ROA and EBITDA margin of the mentioned companies during the study period (2010-2019). In general, it can be concluded that any increase in debts, including short-term and long-term debt, has negative effects on the performance of Indonesian companies operating in the manufacturing sector, while sales growth and firm size have positive impacts on the performance of mentioned firms.

Table 17.

Pearson Correlations-Indonesia

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.81***	1.0000					
EBITDA.M	0.751***	0.64***	1.0000				
STD	-0.43***	-0.34***	-0.49***	1.0000			
LTD	-0.32***	-0.35***	-0.25***	-0.19***	1.0000		
Sales growth	0.26***	0.24***	0.14***	-0.018	0.053	1.0000	
Firm size	0.22***	0.074	0.10**	-0.053	-0.09*	-0.050	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.4.3. Panel Unit Root Test

In Table 18, using the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) panel unit root test, we check the Stationarity of all variables used in this study.

Table 18.

Panel Unit Root test-Indonesia

Variables	LLC	P-Value	IPS	P-Value
ROA	-13.330***	0.0000	-3.2205 ***	0.0006
ROE	-8.0080 ***	0.0000	-2.6359 ***	0.0042
EBITDA.M	-5.5315***	0.0000	-2.2706 **	0.0116
STD	-6.7784***	0.0000	-1.8168 **	0.0346
LTD	-6.2131 ***	0.0000	-2.4594 ***	0.0070
Sales growth	-11.2048***	0.0000	-6.6654***	0.0000
Firm's Size	-6.4566 ***	0.0000	-4.5914 ***	0.0000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively

The result of the Levin Lin Chu test shows that the P-value of all variables used in the study is less than 5%, which means that all variables are Stationary, likewise based on the IPS test some panels for all variables are stationary.

4.4.4. Multicollinearity

The Variance inflation factor (VIF) test has been employed to find out if there is multicollinearity between the dependent variables used in the study or not.

Table 19. *Capital structure VIF results-Indonesia*

Variables	VIF Test Results
STD	1.05
LTD	1.05
Sales growth	1.01
Firm size	1.02
Mean VIF	1.03

The VIF results presented in Table 19 indicate that the regression equations are free of multicollinearity as the mean VIF is less than 10.

4.4.5. Regression Analysis

After performing the Breusch-Pagan Lagrange multiplier (LM) test, F test, and Hausman test, we concluded that the fixed effects model (FEM) is the most appropriate model for examining the impacts of financial leverage variables (STD, LTD) on the firm performance for each of the ROA, and EBITDA margin, while Random effect model is the most suitable model for investigating the effect of financial leverage on the return on equity (ROE) of Indonesian manufacturing firms.

The regressions results shown in Table 20 below, show that each of the financial leverage variables (STD, LTD) has a negative significant effect on the performance of mentioned companies for return on assets (ROA). Short-term debt (STD) ratio with the coefficient of -0.14 statistically negative impact on the ROA of mentioned companies at the level of 1 %, similarly the long-term debt (LTD) ratio with the coefficient of -0.2562 statistically negative sign on the ROA of mentioned companies at the level of 1 %. And so on the sales growth with the coefficient of 0.0719 has a positive significant impact on the company's performance for ROA. These results report that increasing the level of short and long-term debts in the capital structure of the Indonesian manufacturing companies has a reduction in the operating performance of these companies during the study period.

In the same way, the short and long-term debt ratios with the coefficient values of -0.3884 and -0.6652 have a significantly negative effect on the return on equity (ROE) of Indonesian manufacturing firms at the level of 1 percent, while sales growth is significantly positively associated with ROE of mentioned firms. This means that increasing the level of short and long-term debts in the capital structure of these companies will cause the value of these companies to decrease.

The control variables which include each sales growth and firm size have a statistically significant and insignificant positive relationship with ROE respectively.

There is almost the same result for EBITDA margin, as seen in the Table below long-term debt (LTD) ratio with a coefficient of -0.3222, showing a statistically negative significant effect on the performance of Indonesia manufacturing companies for EBITDA margin. While for the short-term debt (STD) ratio, there is an insignificant relationship between short-term debt and the performance of the firm (2010-2019).

The findings of this study show that in general during the study period, the performance of Indonesian companies operating in the manufacturing sector is

negatively related to both short-term and long-term debt. This means that by increasing the level of debt in the capital structure of these companies, their operating performance decreases, causing the profitability of the companies to suffer. Therefore, if the mentioned companies use their internal financing resources to promote and sustain their activities in exchange for debts, it will increase the performance of these companies.

This result is in line with the result of Nini and Patrisia's (2020) research, which investigated the impact of financial leverage on the performance of 360 manufacturing companies operating in Indonesia from 2014 to 2018. Their research results show that by increasing the level of leverage in the capital structure of Indonesian manufacturing companies their operating performance decrease. While this result contradicts the result of Vijayakumaran (2017) who found that leverage and performance of Chinese companies operating in the manufacturing sector are positively related.

Table 20.

Fixed and Random Effect (Robust) Regression – Indonesia

	ROA		ROE		EBITDAM	
Explanatory variables	Fixed Effect	P-Value	Random Effect	P-Value	Fixed Effect	P-Value
STD	-.144765 (-2.84)	0.007	-.3884082 (-3.89)	0.000	-.1419929 (-1.67)	0.103
LTD	-.2562987 (-5.01)	0.000	-.6652131 (-4.65)	0.000	-.322244 (-5.29)	0.000
Sales growth	.0719274 (3.63)	0.001	.2126199 (4.80)	0.000	.0691401 (2.81)	0.007
Firm size	2.175889 (1.32)	0.195	.3768076 (0.64)	0.521	6.078296 (3.14)	0.003
Constant	-14.80515 (-0.64)	0.528	26.40165 (2.78)	0.005	-62.60557 (-2.23)	0.031
F- Statistic	8.18	0.0001			10.49	0.0000
Wald -Statistic			44.38	0.0000		
R²	0.2699		0.3327		0.0386	
Breusch-Pagan STC. (RE)			406.35	0.0000		
F- Statistic (FE)	6.58	0.0000			16.78	0.0000
Hausman STC. (RE, FE)	13.09	0.0109	6.20	0.1847	106.95	0.0000
Number of companies	43		43		43	
Observation	430		430		430	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.5. Turkey

4.5.1. Descriptive Statistics

Table 21 shows the descriptive statistics of each of the independent (STD, LTD) dependent (ROA, ROE, EBITDA.M) and control variables (Sales growth, Firm size) of 46 sample Turkish firms operating in the manufacturing sector from (2010) to (2019).

The below table indicates that all the variables have positive mean values. Each of the financial leverage variables, short and long-term debt ratios with the mean values of

36.52 % and 21.26 %, respectively, make up a total of 57.78 % of total debt. Based on these figures, it can be said that Turkish manufacturing companies have devoted 57.78% of their capital structure to debt, which relatively most of these debts are short-term debts.

On the other hand, the performance variables of ROA, ROE, and EBITDA margin, with the mean values of 4.01%, 8.15%, and 13.31% respectively, indicate that the mentioned companies had a satisfactory operational performance during the study period. The standard deviations of 22.15 of ROE show a huge deviation from means compared to ROA and EBITDA margin, the main reason for which is the excessive difference between their minimum and maximum values.

Regarding the control variables it should be said that Sales growth with the mean value of 17.95 shows that these companies during the study period had a good sales growth, but its standard deviation of 19.3 indicates the existence of a relatively high level of risk, also the difference in its value shows that, among the investigated companies, one of the companies had negative growth of -15.3, while one of the other companies has a positive growth of 73.8, which shows a considerable expanding of this company during the study period. The size of the companies with the mean value of 6.8, Min and Max values of 1.3 and 11.9 shows that even though these companies operate in different fields of the industry sector, they are almost similar in size.

Among all the variables used in this study, return on asset (ROE) has the largest value of the standard deviation of 22.15, while the size of the companies has the lowest standard deviation of 1.7 percent.

Table 21.

Descriptive Statistics-Turkey

Variables	Mean	Std. Dev.	Min	Max
ROA	4.014174	7.721535	-31.07	32.78
ROE	8.157217	22.15923	-72.01	48.18
EBITDA.M	13.31698	13.22827	-46.75	87.84
STD	36.52235	16.23281	6.37	79.86
LTD	21.26691	12.34099	1.19	61.54
Sales growth	17.95972	19.2961	-15.31	73.85
Firm size	6.821659	1.727018	1.386	11.94

4.5.2. Correlation Analysis

Table 22 summarizes the nature of the relationship between the independent variables (STD, LTD, Sales growth, Firms size) and dependent variables (ROA, ROE, EBITDA.M) of Turkish manufacturing companies for the period of (2010-2019).

The table below shows that the short-term debt (STD) ratio has a significantly negative impact of -0.26, -0.11, and -0.37 on each of the performance measures of return on asset(ROA), return on equity(ROE), and earnings before interest, tax, depreciation, and amortization (EBITDA) margin respectively. And so on the long-term debt (LTD) ratio has a significantly negative impact of -0.23 and -0.16 on the ROA and ROE of mentioned companies, while it has a negative insignificant impact on the EBITDA margin during the study period.

Related to control variables it should be said that, the firm's size has significantly and positively correlated with all performance variables, while the sales growth has a positive significant relationship with the ROA and ROE of mentioned companies.

As a result, it can be said that during the study period, short and long-term debt ratios are negatively correlated with the performance of Turkish companies operating in the manufacturing sector, which means an increase in the level of short-term and long-term debt reduces the operating performance of these companies.

Table 22.

Pearson Correlations-Turkey

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.850***	1.0000					
EBITDA.M	0.657***	0.511***	1.0000				
STD	-0.268***	-0.11 **	-0.372***	1.0000			
LTD	-0.233***	-0.16***	-0.068	-	1.0000		
				0.12***			
Sales growth	0.241*****	0.2549***	-0.078*	-0.041	-0.018	1.0000	
Firm size	0.35***	0.35***	0.222***	0.058	0.049	-0.032	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.5.3. Panel Unit Root Test

Before going to regression analysis, we test whether the variables are stationary or not using the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) panel unit root test.

Table 23.

Panel Unit Root Test-Turkey

Variables	LLC	P-Value	IPS	P-Value
ROA	-8.6630***	0.0000	-1.724 **	0.0424
ROE	-2.7426***	0.0030	-1.482 *	0.0692
EBITDA.M	-19.8240***	0.0000	-6.362***	0.0000
STD	-2.1238**	0.0168	-5.831***	0.0000
LTD	-6.8338***	0.0000	-2.073 **	0.0191
Sales growth	-14.9523***	0.0000	-6.852***	0.0000
Firm's Size	-9.6203 ***	0.0000	-5.761*	0.1000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results obtained from Table 23 show that all variables are free of unit root because the P-values of both tests for any of the variables used in this study are not greater than 5%.

4.5.4. Multicollinearity

Using the Variance inflation factor (VIF), we check whether there is multicollinearity between the dependent variables used in the study or not.

Table 24.

Capital structure VIF results-Turkey

Variables	VIF Test Results
STD	1.02
LTD	1.02
Sales growth	1.00
Firm size	1.01
Mean VIF	1.01

The VIF results presented in Table 24 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.5.5. Regression analysis

Tables 25 indicate the effects of financial leverage (Short and Long-term debt) on the performance (ROA, ROE, EBITDA.M) of Turkish companies engaged in the manufacturing sector during the period (2010-2019).

In order to investigate the impact of financial leverage measures (STD, LTD) on the performance of mentioned companies for ROA and ROE, the Fixed-effects regression model (FEM) has been employed, and so the Random effects model (REM) has been used to examine the effect of financial leverage on the performance of these companies for EBITDA margin.

The regressions results are shown in Table 25 report that the each of financial leverage variables (short and long-term debt ratios) has a significantly negative impact on the performance of Turkish manufacturing companies for ROA. The short-term debt ratio with the coefficient of -0.3085 is statistically negative and significant with the

ROA of mentioned companies at the level of 1 %. In the same way, the long-term debt ratio with a coefficient of -0.2397 is negatively significant with the ROA of Turkish manufacturing companies at the level of 1 %.

These results show that the debt and performance of Turkish manufacturing companies are inversely related, hence the increase of debt in the capital structure of these companies instead of improving, caused damage to ROA and reduces the operating performance of these companies. Sales growth and firm size which are considered control variables with the coefficient values of 0.0784 and 2.48 have a statistically positive significant relationship with the ROA of mentioned companies during the study period.

ROE indicates a similar situation, as shown in the below table; the financial leverage measures of mentioned companies have a statistically negative significant effect on the performance of these companies for ROE. Short and long-term debt ratios with coefficient values of -0.6868 and -0.6284 are statistically negative and significant with the return on equity (ROE) of mentioned companies at the level of 1 percent. This means that by increasing the level of debt in the capital structure of Turkish manufacturing companies, their operating performance for ROE decreases. The control variables each sales growth and size of the firm have a significantly positive relationship with the performance of mentioned companies for ROE at the level of 1 %.

Similarly, the below Table presents the same result for the relationship between short and long-term debt and the EBITDA margin of these companies. Short and long-term debt ratios with the coefficients of -0.3245 and -0.2202 show a statistically negative significant effect on the performance of these companies for EBITDA margin at the level of 1 and 5% respectively. Similarly, firm size with the coefficient value of 1.95 was significantly positive combined with the EBITDA margin of Turkish manufacturing companies at the level of 5 percent during the study period.

The findings of this study report that each of the performance measures of ROA, ROE, and EBITDA margin of Turkish manufacturing companies is negatively associated with the debt. This means that by increasing the level of short and long-term debts in the capital structure of Turkish manufacturing companies, their performance decreases and causes the value of the companies to decline. Therefore, Turkish manufacturing companies should devote a big proportion of their capital structure to internal financing sources to improve their operational performance and increase the value of their companies.

The result of this study is consistent with the result of Nasar's (2016) study, who states that debt has a negative significant effect on the performance of Turkish manufacturing companies listed on the Istanbul stock market. This result is inconsistent with the findings of Tripathy and Singh (2018) who found that the debt and operating performance of Indian manufacturing companies are positively correlated, that is, with the increase in the level of debt in the capital structure, the performance of Indian companies also increases.

Table 25.

Fixed and Random Effect (Robust) Regression – Turkey

	ROA		ROE		EBITDAM	
Explanatory variables	Fixed Effect	P- Value	Fixed Effect	P- Value	Random Effect	P- Value
STD	-.3085237 (-7.23)	0.000	-.686898 (-3.54)	0.001	-.3245483 (-5.27)	0.000
LTD	-.2397462 (-4.56)	0.000	-.6284379 (-6.45)	0.000	-.2202757 (-2.37)	0.018
Sales growth	.0784063 (4.25)	0.000	.1996385 (3.76)	0.000	.0622607 (1.64)	0.101
Firm size	2.480654 (3.65)	0.001	6.471761 (2.65)	0.011	1.959099 (2.26)	0.024
Constant	2.050517 (0.49)	0.630	-1.124309 (0.08)	0.939	15.37234 (1.99)	0.046
F- Statistic	15.68	0.0000	13.16	0.0000		
Wald -Statistic					45.34	0.0000
R²	0.3691		0.1898		0.2220	
Breusch-Pagan STC. (RE)					177.83	0.0000
F- Statistic (FE)	7.60	0.0000	11.97	0.0000		
Hausman STC. (RE, FE)	12.86	0.0120	12.92	0.0117	3.17	0.5298
Number of companies	46		46		46	
Observation	460		460		460	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.6. Poland

4.6.1. Descriptive Statistics

Table 26 shows the statistical summary of independent (Short and long-term debts), dependent (ROA, ROE, EBITDA.M), and control variables (Sales growth, firm size) of 40 sample Polish companies operating in the industrial sector throughout (2010-2019).

As seen in the below Table, each of the financial leverage variables, short and long-term debt ratios with the mean values of 34.76 % and 15.86 %, respectively, make up 50.62 % of total debt, which shows that the Polish companies provided 34.76 and 15.86 percent of their required assets using short and long-term debts. Based on these numbers, it can be said that during the study period the Polish companies that operating in the manufacturing sector in order to carry out their business activities; have financed their capital symmetrically from internal and external financing sources, also most of the debt that these companies have used in their capital structure was short-term debt.

The performance variables of return on asset (ROA), return on equity(ROE), and earnings before interest, tax, depreciation, and amortization (EBITDA) margin with mean values of 4.58, 9.98, and 9.83 respectively, indicate a relatively good operating performance of these companies during the study period. The standard deviations of 15.9 and 14.2 of each ROE and EBITDA margin show a huge deviation from their means values compared to ROA, the main reason for which is the excessive difference between their minimum and maximum values.

Similarly, the control variables of sales growth and company size have an average value of 12.35 and 6.79, respectively. The value of sales growth varies from -28.21 to 83.47, which indicates that during the study period one of the companies had a decrease in revenue of -28.21 while one of the other companies had an increase in revenue up to 83.47, which shows a considerable expansion of this company during the study period.

Among all the variables used in this study, sales growth and return on equity (ROE) have the largest standard deviation of 23.02 and 15.95 respectively, while the size of the company has the lowest standard deviation of 2.2 throughout (2010-2019).

Table 26.

Descriptive Statistics-Poland

Variables	Mean	Std. Dev.	Min	Max
ROA	4.58425	7.949724	-37.92	43.92
ROE	9.98805	15.9548	-37.295	64.675
EBITDA.M	9.836525	14.20422	-59.65	64.925
STD	34.76258	15.62572	1.9	84.32
LTD	15.86974	9.745875	0	49.45
Sales growth	12.35973	23.02568	-28.215	83.47
Firm size	6.791905	2.27114	1.386	15.52

4.6.2. Correlation Analysis

Table 27 shows the relationship and nature of the bilateral relationship between an independent (STD, LTD, Sales growth, Firm size) and dependent variables (ROA, ROE, EBITDA.M) of polish manufacturing firms during the study period (2010-2019).

According to Table 27, the short-term debt (STD) and long-term debt (LTD) have a significantly negative impact of -0.119 and -0.18 respectively on the performance of mentioned companies for return on asset (ROA). While each of the control variables, sales growth, and firm size have a significantly positive impact of 0.22 and 0.20 on the performance of these companies for return on asset (ROA).

Regarding ROE it should be said that the long-term debt ratio has a significantly negative impact of -0.18 on the ROE, while the short-term debt ratio is significantly positively correlated with the return on equity (ROE) of polish manufacturing companies during the study period. The control variables which include each of the sales growth and firm size have significantly positively correlated with the ROE of mentioned companies at the level of 1 and percent.

Similarly short and long-term debt ratios respectively have a significantly and insignificantly negative correlation with the EBITDA margin of polish manufacturing companies during the study period (2010-2019).

In short, it can be said that debt harms the operating performance of polish manufacturing companies during the study period that is by increasing the level of debt in the capital structure, reducing the performance of these companies.

Table 27.

Pearson Correlations Variables-Poland

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.86 ***	1.0000					
EBITDA.M	0.74 ***	0.569 ***	1.0000				
STD	-0.119**	0.1309***	-0.1821***	1.0000			
LTD	-0.18***	-0.102**	-0.0466	-0.27***	1.0000		
Sales growth	0.22 ***	0.1881***	0.1184 **	-0.0075	0.0066	1.0000	
Firm size	0.204***	0.244***	0.1315 ***	0.1272**	0.1 **	-0.0276	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.6.3. Panel Unit Root Test

Before running regression analysis, all given variables must be stationary, that's why the Levin Lin Chu (LLC) and the Im-Pesaran-Shin (IPS) panel unit root test has been employed to analytically test the Stationarity of the given variables.

Table 28.

Panel Unit Root test-Poland

Variables	LLC	P-Value	IPS	P-Value
ROA	-8.3111***	0.0000	-4.1888 ***	0.0000
ROE	-8.5348***	0.0000	-3.7172 ***	0.0001
EBITDA.M	-13.4824***	0.0000	-5.0086 ***	0.0000
STD	-7.4455***	0.0000	-2.3035**	0.0106
LTD	-5.8311***	0.0000	-1.9398 **	0.0262
Sales growth	-15.1550***	0.0000	-7.3143 ***	0.0000
Firm's Size	-4.2238***	0.0000	-4.2804 ***	0.0000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results shown in the above Table 28 show that based on the LLC test all variables, including dependent, independent, and control variables are free of unit root because the P-value of none variable is higher than 5%. Similarly, the result of the IPS test presents the same result, based on which for all variables some panels are free of a unit root.

4.6.4. Multicollinearity

Using the Variance inflation factor (VIF) test, we find out whether there is multicollinearity between the independent variables or not.

Table 29.

Capital structure VIF Results-Poland

Variables	VIF Test Results
STD	1.11
LTD	1.10
Sales growth	1.00
Firm size	1.04
Mean VIF	1.06

The VIF results presented in Table 29 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.6.5. Regression Analysis

To select the appropriate regression model for analysis, each of Breusch-Pagan Lagrange multiplier (LM) test, F test, and Hausman test has been performed. Based on the results given in Table 30, the Fixed Effects Model is selected as an efficient and consistent model for ROA and ROE, while the Random Effects Model is selected as the most appropriate and suitable model for EBITDA margin. Employing Modified Wald and Wooldridge test, Heteroscedasticity problems arising from cross-sectional data and autocorrelation problems arising from time series have been observed. Thus, to control and remove these problems, Robust Standard error regression models have been applied to obtain the most accurate results of research.

Table 30 shows the impacts of financial leverage (Short and long-term debts) on the

performance (ROA, ROE, EBITDA.M) of Polish companies engaged in the manufacturing sector for the period (2010-2019). The test results shown in the table below indicate that each financial leverage measures short-term debt and long-term debt has a significantly negative impact on the performance of these companies for return on asset (ROA).

The short-term debt (STD) ratio with the coefficient of -0.29 is statistically negative and significant with the ROA of Polish companies at the level of 1 %. This means that any increase in short-term debts in capital structure will result in a decrease in the return on assets of these companies. Similarly, the long-term debt ratio with the coefficient of -0.21 is statistically negative and significant with ROA at the level of 5 %, which shows that any increase in long-term debts in the capital structure of the mentioned companies will reduce their performance for the ROA. Regarding the control variables, it should be said that sales growth and firm size with the coefficient values of 0.08 and 2.06 have a significantly positive relationship with the ROA of these firms during the study period (2010-2019).

The ROE also indicates an almost similar situation, as shown in Table 30, the financial leverage measures each of short and long-term debt ratios has a statistically negative effect on the firm's performance for ROE. Short and long-term debt ratios with the coefficient values of -0.3999 and -0.263 statistically negative significance with the operating performance of Polish manufacturing firms for ROE. The sales growth and firm's size with the coefficient values of 0.169 and 3.12 have a significantly positive effect on the performance of these companies for ROE at the level of 1 and 10 %.

In the same way, the short-term debt ratio with the co-efficient value of -0.251 has a significantly negative association with EBITDA margin, while the long-term debt ratio is insignificantly negative associated with the performance of Polish manufacturing companies for EBITDA margin. Similarly, control variables which include sales growth and firm size show a statistically positive impact on the EBITDA margin of mentioned companies for the period of (2010-2019).

The findings of this study show that the performance of Polish industrial companies is negatively affected by increasing debt levels. This means that by increasing the level of debt in the capital structure of these companies, their performance decreases. Therefore, Polish manufacturing companies in order to increase the operational efficiency and value of their manufacturing firms must rely more on their internal sources rather than external ones.

This result is similar to the finding of Majerowska et al. (2017), which examined the effects of financial leverage on the performance of 90 non-financial companies registered in the Poland Stock market between 2000 and 2015. The result they obtained from their study is consistent with the pecking order theory, which says that increasing the level of debt in the capital structure reduces the performance and value of the mentioned companies.

Table 30.

Fixed and Random Effect (Robust) Regression – Poland

Explanatory variables	ROA		ROE		EBITDAM	
	Fixed Effect	P-Value	Fixed Effect	P-Value	Random Effect	P-Value
STD	-.2903351 (-3.92)	0.000	-.399922 (-3.61)	0.001	-.2513325 (-3.17)	0.002
LTD	-.211344 (-2.45)	0.019	-.2633268 (-1.86)	0.071	-.2106411 (-1.60)	0.110
Sales growth	.0844821 (5.81)	0.000	.1691968 (5.63)	0.000	.084859 (3.45)	0.001
Firm size	2.062986 (1.71)	0.095	3.129792 (1.86)	0.070	1.391988 (1.93)	0.054
Constant	2.975244 (0.44)	0.666	4.720821 (0.50)	0.617	11.41322 (1.48)	0.138
F- Statistic	11.12	0.0000	13.74	0.0000		
Wald -Statistic					23.67	0.0001
R²	0.1701		0.0149		0.0875	
Breusch-Pagan STC. (RE)					44.46	0.0000
F- Statistic (FE)	6.72	0.0000	14.26	0.0000		
Hausman STC. (RE, FE)	11.50	0.0215	13.90	0.0076	9.04	0.0600
Number of companies	40		40		40	
Observation	400		400		400	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.7. Thailand

4.7.1. Descriptive Statistics

Table 31 shows the descriptive statistics (Mean, St. Deviation, Minimum and maximum values) of the financial leverage (STD, LTD) and firm's performance variables (ROA, ROE, EBITDA.M) of 57 sample Thai manufacturing companies operating in the industrial sector during the period of (2010-2019).

Table 31 shows that the short-term debt (STD) ratio with an average value of 35.45 varies from 3.3 to 76.54 percent. This means that Thai manufacturing companies secured 35.45 % of their assets through short-term debt, also the change in the values of short-term debt indicates that one of the companies had devoted only 3.3 percent of its capital structure to short-term debt (STD), while on the contrary, 76.54% of the capital structure of one of the other companies, which is a significant figure, is financed by using short-term debt. The long-term debt (LTD) ratio, with an average value of 16.81 %, shows a change of 0.15 to 64.04 %. This shows that the mentioned companies have prepared 16.81 % of their required assets by using long-term debt, also the sample companies that have been selected from this country to study, the capital structure of some of these companies has a very low level of long-term debt, while on the contrary, several other companies in this country relied heavily on long-term debt.

The descriptive statistics of the performance of the Thai manufacturing firms which are used as a sample in this study show that the stockholders of these companies have earned an average profit of 8.77 % for each dollar of common equity investment (ROE). The figures in the Table below also show that during the years (2010 to 2019), some of these companies generated as much as 52.82 % return on equity, while some of these companies suffered a loss of -66.66 percent. The mean value of ROA of these companies shows that the mentioned companies received 4.26% of the income in exchange for the value of each dollar of the company's assets. The EBITDA margin of these companies with the mean value of 11.53 varies from -20.8 to 44.5 percent. Regarding the performance of Thai manufacturing companies it should be said that considering the ROA, ROE, and EBITDA margin mean figures, these firms performed relatively not too bad during the study period.

Sales growth with an average value of 7.2 and a standard deviation of 20 shows a significant deviation from the mean value, also, the difference in the minimum and maximum values of this control variable indicates that, in the study period, one

company had negative sales growth of -24.9, while sales growth of one other company, reaches even to positive 68.7 %. The average size of the companies investigated in this study is 8.9 % and its maximum value is reached 14.8, which is an almost close value to the mean value of these companies, therefore, it can be concluded that these companies did not have a decrease in size growth during the study period of (2010-2019).

Table 31.

Descriptive Statistics-Thailand

Variables	Mean	Std. Dev.	Min	Max
ROA	4.266474	7.159075	-59.14	37.34
ROE	8.777895	16.63582	-66.66	52.82
EBITDA.M	11.53846	9.153719	-20.79	44.55
STD	35.4517	15.46297	3.3	76.54
LTD	16.81762	12.56222	.15	64.04
Sales growth	7.198	20.01789	-24.93	68.69
Firm size	8.985104	1.758913	4.466	14.8

4.7.2. Correlation Analysis

Table 32 shows the correlation between independent (STD, LTD, Sales growth, Firm size) and dependent variables (ROA, ROE, EBITDA.M) of Thai manufacturing companies during the study period (2010-2019).

As shown below Table, the short-term debt (STD) ratio of these companies significantly negatively correlated with the ROA, ROE, and EBITDA margin of the mentioned companies. This means that the increase in the level of short-term debt in the capital structure of these companies implies a negative impact on the performance of mentioned firms. But on the contrary, the long-term debt ratio tells a different situation,

as can be seen in the below Table, that the long-term debt ratio has a statistically positive significant relationship with the company's performance measures of ROE and EBITDA margin, while it has an insignificant negative relationship with ROA of Thai manufacturing companies during the study period (2010-2019).

The control variables of sales growth and firm size show a significantly positive relationship with all performance measures of Thai manufacturing companies during the period (2010-2019).

Table 32.

Pearson Correlations-Thailand

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.86***	1.0000					
EBITDA.M	0.66***	0.65***	1.0000				
STD	-0.30***	-0.31***	-0.420***	1.0000			
LTD	-0.0096	0.097 **	0.13***	-0.37***	1.0000		
Sales growth	0.309 ***	0.34 ***	0.1961***	-0.0101	0.0439	1.0000	
Firm size	0.14***	0.147***	-0.0152	-0.14***	0.45***	0.054	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.7.3. Panel Unit Root Test

Before applying regression analysis, the properties of the unit root for the given variables must be studied. For this purpose, we applied the Levin Lin Chu, and Im-Pesaran-Shin panel unit root test to analytically test the Stationarity of given variables.

Table 33.

Panel Unit Root Test-Thailand

Variables	LLC	P-Value	IPS	P-Value
ROA	-9.7878***	0.0000	-3.9580 ***	0.0000
ROE	-9.6538***	0.0000	-4.4684 ***	0.0000
EBITDA.M	-8.8191***	0.0000	-3.3982 ***	0.0003
STD	-6.4595***	0.0000	-1.7964 **	0.0362
LTD	-14.4187***	0.0000	-3.7178 ***	0.0001
Sales growth	-12.1764***	0.0000	-6.9694 ***	0.0000
Firm's Size	-11.1534***	0.0000	-4.1509 ***	0.0000

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results obtained from each of the LLC and, IPS tests show that all independent (STD, LTD), dependent (ROA, ROE, EBITDA.M), and control variables are stationary because the P-value of all variables is less than 5 %.

4.7.4. Multicollinearity

Multicollinearity indicates that two or more predictors are related to each other. Variance inflation factor (VIF) is used to find out, whether there is multicollinearity in a set of dependent variables.

Table 34.

Capital structure VIF results-Thailand

Variables	VIF Test Results
STD	1.17
LTD	1.44
Sales growth	1.00
Firm size	1.26
Mean VIF	1.22

The VIF results presented in Table 34 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.7.5. Regression Analysis

Table 35 shows the impacts of each of the financial leverage measures (Short and long-term debt) on the performance measures (ROA, ROE, EBITDA.M) of Thai companies operating in the manufacturing sector during the study period (2010-2019).

In order to examine this impact of financial leverage on the performance of sample Thai manufacturing companies the Random effect regression model has been selected as the most efficient and appropriate regression model. The regressions results shown in Table 35 show that the financial leverage variables of Thai manufacturing companies that include each short and long-term debts ratios have a significantly negative impact on the performance of mentioned companies from 2010 to 2019. The short-term debt (STD) ratio with the coefficient of -0.1807 is statistically negative significant with the ROA of Thai manufacturing firms at the level of 1%, similarly long-term debt ratio with the coefficient of -0.1710 statistically negative significant with the return on asset (ROA) of mentioned companies at the level of 1 percent. These results indicate that increasing the level of short and long-term debts in the capital structure of the Thai manufacturing companies hurts the ROA of mentioned companies and reduces their operating performance. And so on in control variables, Sales growth with the coefficients of 0.1044 has a positive significant impact on the company's performance for return on asset (ROA).

The same is almost true for return on equity (ROE), as shown in the below Table; Short-term debt (STD) ratio with a coefficient of -0.4068 and long-term debt ratio with a coefficient value of -0.2082 statistically negative significant with the ROE of mentioned companies at the level of 1 and 5% respectively. Sales growth has a significantly positive effect on the performance of mentioned companies for ROE at the level of 1 percent.

Similarly, the Short-term debt ratio with a coefficient of -0.2579 shows a statistically negative significant impact on the performance of Thai manufacturing companies for EBITDA margin, while the long-term debt ratio has an insignificant impact on the performance of these companies.

This finding of this study shows that by increasing the level of debt in the capital structure of these companies, their performance decrease, therefore, Thai manufacturing companies to increase the performance of their activities, should devote a large proportion of their capital structure to their internal financing resources. If these

companies want to go into debt, it would be good to go into long-term debt, because according to the regression results, having an effective combination of internal resources and long-term debt can help companies to increase their operational performance.

This result is in line with the result of Chancharat's (2015) research, which investigated the impact of financial leverage on the performance of firms listed on the Thailand stock exchange (2009-2011).

The result of his research shows that by increasing the level of leverage in the capital structure of Thai manufacturing companies their operating performance decrease. While this result rejects the empirical finding of Vijayakumaran (2017) who found that debt and operating performance of Chinese manufacturing companies are positively related.

Table 35.

Random Effect (Robust) Regression –Thailand

Explanatory variables	ROA		ROE		EBITDAM	
	Random Effect	P-Value	Random Effect	P-Value	Random Effect	P-Value
STD	-.1807914 (-5.38)	0.000	-.4068 (-2.99)	0.003	-.2579651 (-5.33)	0.000
LTD	-.1710736 (-4.25)	0.000	-.2082239 (-2.17)	0.030	-.0068031 (-0.08)	0.934
Sales growth	.1044557 (5.30)	0.000	.2750164 (5.83)	0.000	.0881489 (3.23)	0.001
Firm size	1.235704 (1.59)	0.111	1.308606 (1.41)	0.157	-.270875 (-0.51)	0.608
Constant	1.698088 (0.22)	0.829	12.96395 (1.45)	0.147	22.59751 (5.68)	0.000
Wald -Statistic	102.82	0.0000	71.28	0.0000	39.21	0.0000
R²	0.2277		0.2233		0.2199	
Breusch-Pagan STC. (RE)	230.78	0.0000	404.73	0.0000	448.09	0.0000
Hausman STC. (RE, FE)	7.66	0.1047	1.31	0.8603	0.79	0.9402
Number of companies	57		57		57	
Observation	570		570		570	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.8. Sri Lanka

4.8.1. Descriptive Statistics

Table 38 shows the statistical summary of each of the independent (STD, LTD) dependent (ROA, ROE, EBITDA margin) and control variables (Sales growth, firm size) of 19 Sri Lankan sample manufacturing companies from (2010 to 2019).

As shown in Table 38 below all variables used in this study have positive mean values. The leverage variables of short-term debt (STD) and long-term debt (LTD) ratio have mean values of 34.79% and 15.74 %, respectively; this indicates that during the study period, those Sri Lankan companies that operate in the manufacturing sector have financed their capital by creating a balance between internal and external financing resources. Also, most of the debt of these firms that have used in their capital structure is short-term debt.

The performance variable of ROA, ROE, and EBITDA margin with the mean values of 8.8, 19, and 13.58 sequentially indicates that the Sri Lankan manufacturing companies had a very good operational performance during the study period. The average values of each ROA and ROE show that Sri Lankan manufacturing companies earned 8.8 and 19 percent of earnings in exchange for investing every dollar of the company's assets and capital provided by stockholders. Similarly, the mean value of EBITDA margin indicates that the mentioned firms generate 13.58% earnings before interest, taxes, depreciation, and amortization as a fraction of income. The standard deviation of 20.45 of ROE shows a huge deviation from means compared to ROA and EBITDA margin, the main reason for which is the excessive difference between their minimum and maximum values. Similarly, the control variables of each sales growth and company size have an average value of 13.23 and 9.5, respectively. The value of sales growth varies from -18.9 to 58.7, which indicates that during the study period one of the companies had a decrease in revenue of -18.9 while one of the other companies had an increase in revenue up to 58.7, which shows a considerable expansion of this firm over the period. Also, the change in firm size values reports that none of the Sri Lankan manufacturing firms experienced negative growth in size during the study period. Among all the variables used in this study, ROE and sales growth have the largest number standard deviation of 20.45 and 17.22, while the size of the firm had the lowest standard deviation of 1.4 during the study period.

Table 36.

Descriptive statistics-Sri Lanka

Variables	Mean	Std. Dev.	Min	Max
ROA	8.81379	10.9849	-12.78	51.77
ROE	19.09084	20.4507	-2.76	81.44
EBITDA.M	13.58863	9.500504	-11.5	60.69
STD	34.79813	15.39905	.01	65.38
LTD	15.74943	11.31193	-1.1	48.55
Sales growth	13.23643	17.22521	-18.89	58.72
Firm size	9.553705	1.429927	3.642	11.85

4.8.2. Correlation Analysis

Table 37 presents the correlation and nature of the correlation between each independent (STD, LTD, Sales growth, Firm size), and dependent variables (ROA, ROE, EBITDA.M) of Sri Lankan manufacturing companies throughout (2010-2019).

As seen in the table below, the long-term debt ratio has a negative significant relationship with the performance of Sri Lankan manufacturing companies for ROA, while the short-term debt ratio has no significant relationship with the performance of mentioned firms for ROA. Similarly short and long-term debt ratios have a significantly positive relationship with the ROE of Sri Lankan firms during the study period. For the EBITDA margin, there is a mixed result; the short-term debt (STD) ratio has no significant relationship with the mentioned firm's performance, while the long-term debt (LTD) ratio has a significantly positive relationship with the performance of Sri Lankan manufacturing companies during (2010-2019). Regarding the control variables, it should be said that sales growth and firm size have a statistically positive insignificant relationship with the performance of Sri Lankan manufacturing companies.

In general, Short-term debt (STD) has no significant effect on the performance of Sri Lankan manufacturing companies, while long-term debt (LTD) has significant negative effects on ROA and significantly positive effects on the ROE and EBITDA margin of Sri Lankan companies during the study period (2010-2019).

Table 37.

Pearson Correlations-Sri Lanka

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.92***	1.0000					
EBITDA.M	0.43***	0.331***	1.0000				
STD	-0.0006	0.1669**	-0.0594	1.0000			
LTD	-0.28***	0.1639**	0.1877 ***	0.0318	1.0000		
Sales growth	0.0110	0.0903	0.0636	0.1166	0.1937	1.0000	
Firm size	0.0225	0.1179	0.1574 **	0.43 ***	0.54***	0.0813	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.8.3. Panel Unit Root Test

Before performing the regression analysis the unit root among variables must be tested, that's why by performing Levin Lin Chu (LLC) and, Im-Pesaran-Shin (IPS) panel unit root test we check whether the below variables are stationary or not.

Table 38.

Panel Unit Root Test-Sri Lanka

Variables	LLC	P-Value	IPS	P-Value
ROA	-7.8360***	0.0000	-2.2805 **	0.0113
ROE	-9.8271***	0.0000	-3.7872 ***	0.0001
EBITDA.M	-10.2052***	0.0000	-4.2332 ***	0.0000
STD	-3.7375 ***	0.0001	-1.3752 *	0.0845
LTD	-2.2333 **	0.0128	-2.3278 ***	0.0100
Sales growth	-7.5860***	0.0000	-3.0443 ***	0.0012
Firm's Size	-2.3562***	0.0092	-2.3330 ***	0.0098

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results shown in Table 38 show that based on the LLC test all variables, used in this study are free of unit root because the P values of all variables are less than 5 %. In the same way, the IPS test also reports that some panels are stationary for all variables used in this study.

4.8.4. Multicollinearity

Multicollinearity indicates that two or more predictors are related to each other. Variance inflation factor (VIF) is used to find out whether multicollinearity is a set of dependent variables that exists or not.

Table 39.

Capital structure VIF Results-Sri Lanka

Variables	VIF Test Results
STD	1.36
LTD	1.59
Sales growth	1.06
Firm size	1.89
Mean VIF	1.48

The VIF results presented in Table 39 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.8.5. Regression Analysis

Table 40 indicates the effect of financial leverage variables (STD, LTD) on the performance variables (ROA, ROE, EBITDA.M) of Sri Lankan manufacturing companies using regression analysis throughout (2010-2019).

In order to investigate the impacts of short and long-term debts on the performance of Sri Lankan manufacturing companies for ROA and ROE, the Random effect model (REM) has been used, while for investigating the effects of financial leverage on the EBITDA margin of these firms the Fixed-effects regression model has been applied.

According to the Table below, the long-term debt (LTD) ratio with the coefficient value of -0.3702 has a statistically negative significant impact on the ROA of Sri

Lankan manufacturing companies at the level of 1 percent, which means the increase of long-term debt in the capital structure of Sri Lankan manufacturing companies, their operating performance for ROA decreases.

In the same way, the short-term debt ratio has a statistically insignificant impact on the return on equity of Sri Lankan firms, while the long-term debt ratio with the coefficient value of -0.5137 has a significantly negative impact on the firm's performance for ROE. This means by increasing long-term debts in the capital structure of Sri Lankan manufacturing companies, the performance of these companies for ROE decreases.

As shown in Table 40 short and long-term debt ratios respectively have a statistically insignificant positive and negative impact on the firm's performance for EBITDA margin. This means that increasing and decreasing the level of debt does not have a significant impact on the performance of Sri Lankan manufacturing companies. And so on the Sales growth has a positive significant effect on the EBITDA margin of mentioned companies during the study period.

In short, it can be said that, since long-term debt (LTD) has a significantly negative impact on the performance of these companies, therefore, Sri Lankan manufacturing companies in order to increase their operating performance should design an optimal capital structure of equity capital and short-term debts (STD).

In general, the findings of this study show that the performance of Sri Lankan companies operating in the manufacturing sector is negatively related to debts, especially short-term debt. This means that by increasing the level of debt in the capital structure of these companies, their performance decreases. Therefore, Sri Lankan manufacturing companies to increase their operating performance, at first should refer to their internal financing resources, if their financial requirements were not met, then they can go into long-term debt.

The results of this study are consistent with the results of Chandrasiri et al.'s (2018) research, which states that increasing the non-current debts in the capital structure of Sri Lankan manufacturing companies decreases their operating performance. The results of this study are inconsistent with the results of Pal Singh and Bagga's (2019) research, which shows that increasing the level of debt in the capital structure of Indian companies increases their operating performance.

Table 40.

Fixed and Random Effect (Robust) Regression -Sri Lanka

	ROA		ROE		EBITDAM	
Explanatory variables	Random Effect	P-Value	Random Effect	P-Value	Fixed Effect	P-Value
STD	-.05912 (-0.80)	0.426	.0405141 (0.28)	0.779	.1108802 (0.85)	0.408
LTD	-.3702531 (-3.40)	0.001	-.5137459 (-2.90)	0.004	-.0395077 (-0.26)	0.794
Sales growth	.1376279 (4.64)	0.000	.3201614 (3.76)	0.000	-.0060335 (-0.15)	0.886
Firm size	1.000772 (0.99)	0.324	2.508036 (1.98)	0.047	-3.663854 (-0.96)	0.352
Constant	5.319553 (0.54)	0.588	-2.4266 (-0.16)	0.872	45.43567 (1.47)	0.159
F- Statistic					1.44	0.2605
Wald -Statistic	40.71	0.0000	25.90	0.0000		
R²	0.1020		0.0833		0.1277	
Breusch-Pagan STC. (RE)	566.77	0.0000	513.25	0.0000		
F- Statistic (FE)					18.73	0.0000
Hausman STC. (RE, FE)	2.82	0.5878	3.14	0.5341	13.28	0.0100
Number of companies	19		19		19	
Observation	190		190		190	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.9. Saudi Arabia

4.9.1. Descriptive Statistics

Table 41 shows the descriptive statistics (Mean, St. deviation, Minimum and maximum values) of each financial leverage (Short and long-term debt) and performance variables (ROA, ROE, EBITDA.M) of 16 sample Saudi Arabian manufacturing companies for the period of (2010-2019).

The below Table reports that the short-term debt (STD) ratio with an average value of 29.48 varies from 6.14 to 74.06 %, which means that the Saudi Arabian companies

operating in the manufacturing sector have secured 29.48 % of their assets through short-term debt. The long-term debt (LTD) ratio, with an average value of 25.9 %, shows a change of 2.19 to 68.4 %. This indicates that the Saudi Arabian manufacturing companies have prepared 25.9 % of their required assets by using long-term debt (LTD), and in these sample companies that have been selected from this country to study, the capital structure of some of these companies has a very low level of leverage, means that these companies relied more on the equity capital, while on the contrary, several other companies in this country relied heavily on leverage (debt capital).

Based on the firm's performance numbers mentioned for the ROE, the stockholders of the sample Saudi Arabian companies operating in the manufacturing sector earned an average of 4.91% earnings for each dollar of common equity investment during the years 2010-2019, also numbers show that during the study period some of these companies generated up to 36.65 % return on equity, while some of these companies even suffered a loss of -79.86 percent. The standard deviation of these companies for ROE is 18.32 %, if this figure is compared with the average ROE, it can be concluded that the return on equity of these companies was lower compared to the risk involved. The ROA of these firms has a mean value of 3.77, which shows that the mentioned firms received 3.77 % of the income in exchange for the value of each dollar of the company's assets. The EBITDA margin of mentioned companies with a mean value of 18.9, in proportion to other performance variables, shows a relatively high figure, which means these companies earned 18.9% operating cash for each dollar revenue. This figure represents the effective management of operating costs by companies.

Sales growth with an average value of 6.56 and a standard deviation of 23.85 shows a significant deviation from the mean value. Also, the difference in the minimum and maximum values of sales growth shows that, in addition to that, some companies have negative sales growth of -31.6, in contrast, the sales growth of some other companies, reaches even positive 69.5 which shows a significant sales growth of these companies during the study period. The average size of the companies investigated in this study is 8 % and its maximum value is reached 12, which is a close figure to the mean value of mentioned companies, means that these companies did not have a decrease in size growth during the study period (2010-2019).

Table 41.

Descriptive Statistics-Saud Arabia

Variables	Mean	Std. Dev.	Min	Max
ROA	3.7785	7.252645	-19.35	21.77
ROE	4.913	18.32986	-79.86	36.65
EBITDA.M	18.90881	19.46005	-39.26	66.97
STD	29.48804	20.5578	6.14	74.06
LTD	25.99114	17.79921	2.19	68.4
Sales growth	6.566563	23.85797	-31.605	69.555
Firm size	8.033938	1.771261	5.247	12.154

4.9.2. Correlation Analysis

Table 42 below shows the correlation between each of the financial leverage (STD, LTD) and performance variables (ROA, ROE, EBITDA.M) of Saudi Arabian manufacturing companies during the study period (2010-2019).

The below table shows that the short-term debt ratio of the mentioned companies is significantly negatively correlated with the performance of these companies for each ROA, ROE, and EBITDA margin during the study period. This means, that with the increase of short-term debt in the capital structure of Saudi Arabian manufacturing companies, their operating performance decrease. While long-term debt ratio is significantly negatively correlated with the ROA of Saudi Arabian manufacturing firms and insignificantly positive combined with the EBITDA margin of mentioned firms during the study period. Regarding the control variables, it should be said that Sales growth has a positive significant relationship with the firms' performance of Saudi Arabian firms, while the company's size shows a significantly positive relationship with the ROE and EBITDA margin of these companies.

Table 42.

Pearson Correlations –Saudi Arabia

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.847***	1.0000					
EBITDA.M	0.60 ***	0.54 ***	1.0000				
STD	-0.38***	-0.37***	-0.52***	1.0000			
LTD	-0.18**	-0.09	0.0900	-0.5***	1.0000		
Sales growth	0.23* **	0.313***	0.3211***	-0.2***	0.26*	1.0000	
					**		
Firm size	0.117	0.266***	0.257**	-0.060	0.3***	-0.0011	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.9.3. Panel Unit Root Test

Table 43 below presents the Stationarity of the variables used in the study using the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) panel unit root test.

Table 43.

Panel Unit Root test-Saudi Arabia

Variables	LLC	P-Value	IPS	P-Value
ROA	-3.1306***	0.0009	-2.945***	0.0016
ROE	-2.7778***	0.0027	-3.233***	0.0006
EBITDA.M	-2.9965 ***	0.0014	-2.8728***	0.0020
STD	-1.8240 **	0.0341	-3.4539***	0.0003
LTD	-7.6014 ***	0.0000	-1.6359*	0.0509
Sales growth	-7.1827 ***	0.0000	-3.7969 ** *	0.0001
Firm's Size	-4.8188 ***	0.0000	-1.9905**	0.0233

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The result of the Levin Lin Chu test shows that the P-value of all variables used in the study is less than 5%, which means that all variables are Stationary. Similarly, the results of the IPS test also show that some panels of all given variables used in the study are stationary.

4.9.4. Multicollinearity

The Variance inflation factor (VIF) test has been employed to find out if there is multicollinearity between the independent variables used in the study.

Table 44.

Capital structure VIF results-Saudi Arabia

Variables	VIF Test Results
STD	1.38
LTD	1.54
Sales growth	1.09
Firm size	1.12
Mean VIF	1.28

The VIF test results presented in Table 44 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.9.5. Regression Analysis

After performing the Breusch-Pagan Lagrange multiplier (LM) test, F test, and Hausman test, we concluded that the Random effect regression model (REM) is the most efficient and appropriate model for examining the impacts of financial leverage (short and long-term debt) on the performance of Saudi Arabian manufacturing companies for the period of (2010-2019).

The regressions results shown in Table 45 indicate that the short and long-term debt ratios with the coefficient values of -0.2786 and -0.2579 are statistically negative significant with the ROA of mentioned companies at the level of 1 percent. These results show that by increasing the level of short and long-term debts in the capital structure of the Saudi Arabian companies their operating performance for ROA decreases. The control variables each of the sales growth and firm's size with the values of the coefficients of 0.069 and 1.10 have a statistically positive significant relationship with the ROA of mentioned companies.

In the same way, the short and long-term debt ratios with the coefficient values of -0.6310 and -0.6853 respectively are statistically negative significant with the ROE of mentioned companies at the level of 1 %. This means that by increasing every unit of

short and long-term debt in the capital structure of these companies, respectively their 0.63 and 0.68 unite return on equity (ROE) decreases. Control variables show that the sales growth and firm size have a statistically positive significant effect on the ROE of mentioned companies for the period of (2010 to 2019).

There is almost the same result for EBITDA margin, as seen in the Table below short and long-term debt ratios with coefficient values of -0.7424 and -0.4894 show a statistically negative significant impact on the performance of Saudi Arabian manufacturing companies during (2010-2019).

The findings of this study report that the operating performance of Saudi Arabian manufacturing companies is negatively associated with the level of debt. This means that by increasing the level of leverage in the capital structure of Saudi Arabian companies, their operating performance decreases. Therefore, these companies to increase the performance and value of their companies should prefer debts as a second option, this means that these companies should rely more on their internal financing resources and then refer to external financing sources if needed.

This result is in line with the result of Ewayed and Twairesh's (2014) research, which investigated the impact of financial leverage on the performance of 74 non-financial companies from 2004 to 2012. The results of his research indicate that by increasing the level of leverage in the capital structure of Saudi Arabia's non-financial companies their performance decrease.

Table 45.

Random Effect (Robust) Regression -Saudi Arabia

	ROA		ROE		EBITDAM	
Explanatory variables	Random Effect	P-Value	Random Effect	P-Value	Random Effect	P-Value
STD	-.2786984 (-5.69)	0.000	-.6310466 (-4.06)	0.000	-.7424367 (-6.23)	0.000
LTD	-.2579728 (-5.39)	0.000	-.6853434 (-3.11)	0.002	-.4894443 (-4.19)	0.000
Sales growth	.0698098 (2.37)	0.018	.1985784 (3.09)	0.002	.138906 (4.25)	0.000
Firm size	1.103095 (1.90)	0.058	4.350745 (2.20)	0.028	2.569785 (1.60)	0.109
Constant	9.381169 (1.98)	0.048	5.076597 (0.40)	0.690	31.96541 (2.61)	0.009
Wald -Statistic	37.48	0.0000	28.87	0.0000	48.14	0.0000
R²	0.4434		0.4667		0.4452	
Breusch-Pagan STC. (RE)	45.37	0.0000	39.21	0.0000	333.59	0.0000
Hausman STC. (RE, FE)	8.27	0.0822	8.63	0.0710	2.29	0.6828
Number of companies	16		16		16	
Observation	60		60		60	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

4.10. Chile

4.10.1. Descriptive Statistics

Table 46 below shows the descriptive statistics of each of the independent (STD, LTD), dependent (ROA, ROE, and EBITDA.M), and control variables (Firm growth and size) of 19 Chilean sample manufacturing companies throughout (2010-2019).

The blow Table indicates that all the variables used in this study have positive mean values. The financial leverage variables each of short and long-term debt ratios have the means value of 20.43% and 29.6 %, respectively, which make up a total of 50.03 % of total debt. Based on these figures, it can be said that Chilean manufacturing companies

have not relied very heavily on debt in their capital structure during the study period (2010-2019). Also, the figures show that the big portion of these debts that mentioned companies have included in their capital structure is long-term debts.

On the other hand, the performance variables of ROA, ROE, and EBITDA margin with the mean values of 6.2%, 12.2%, and 15.22 respectively, indicate that the Chilean manufacturing companies had a very good operating performance during the study period (2010-2019). The average values of each ROA and ROE show that Chilean industrial firms earned 6.2 and 12.2 percent of earnings in exchange for investing every dollar of the company's assets and capital provided by stockholders.

Regarding control variables, it should be said that Sales growth during the study period had a mean value of 5.9 and its standard deviation value is 15.86 which is relatively high, and the difference in its value shows that, among the investigated companies, one company had negative growth of -35.3, while one of the other companies had a positive growth of 53.18 in sales, which shows a considerable expanding of this company during the study period. The size of the companies with the mean value of 9.97, Min and Max values of 5.2 and 14.4, sequentially, shows that even though these companies operate in the different fields of the manufacturing sector, they are almost similar in size. Among all the variables used in this study, sales growth has the largest number standard deviation of 15.86, while the size of the company had the lowest standard deviation of 2.5 during the study period (2010-2019).

Table 46.

Descriptive Statistics-Chile

Variables	Mean	Std. Dev.	Min	Max
ROA	6.196579	7.388309	-31.99	42.34
ROE	12.20426	11.29155	-10.13	47.44
EBITDA.M	15.22347	13.18709	-39.86	71.83
STD	20.43226	6.805096	7.19	58.6
LTD	29.6002	13.95272	.19	65.62
Sales growth	5.909121	15.86446	-35.29	53.18
Firm size	9.978442	2.546295	5.263	14.445

4.10.2. Correlation Analysis

Table 47 summarizes the nature of the relationship between each independent (STD, LTD, Sales growth, Firms size) and dependent variables (ROA, ROE, EBITDA.M) of Chilean manufacturing companies for the period of (2010-2019).

The table below shows that the short-term debt (STD) ratio is significantly positively correlated with the ROE of Chilean manufacturing firms, while the long-term debt (LTD) ratio is significantly negatively correlated with the ROA of Chilean sample firms during the study period. Regarding the control variables, it should be said that the sales growth is significantly positively correlated with the firm's performance, while the size of the companies has a negative significant relationship with the ROA of these companies.

Table 47.

Pearson Correlations-Chile

	ROA	ROE	EBITDA.M	STD	LTD	Sales growth	Firm size
ROA	1.0000						
ROE	0.899***	1.0000					
EBITDA.M	0.775***	0.76***	1.0000				
STD	0.0950	0.017**	-0.0622	1.0000			
LTD	-0.221***	-0.0680	0.0060	-0.1162	1.0000		
Sales growth	0.1761**	0.18**	0.12*	0.023	0.013	1.0000	
Firm size	-0.0591*	-0.025	-0.1195	0.17**	0.230***	-0.05	1.0000

Note: * significant at 0.1, ** significant at 0.05 and *** significant at 0.01 level.

4.10.3. Panel Unit Root Test

Before running the regression analysis, we test whether the variables are stationary or not, using the Levin Lin Chu (LLC) and Im-Pesaran-Shin (IPS) panel unit root test.

Table 48.

Panel Unit Root test-Chile

Variables	LLC	P-Value	IPS	P-Value
ROA	-11.2952***	0.0000	-3.5610 ***	0.0002
ROE	-9.2002***	0.0000	-2.3922***	0.0084
EBITDA.M	-17.9556***	0.0000	-6.7528 ***	0.0000
STD	-8.2613***	0.0000	-3.2007 ***	0.0007
LTD	-5.1415***	0.0000	-2.2952 **	0.0109
Sales growth	-6.5676 ***	0.0000	-2.9046 ***	0.0018
Firm's Size	-6.0516***	0.0000	-2.0871 **	0.0184

Note: *, **, *** significant at the level of 10%, 5% and 1% respectively.

The results of Table 48 show that based on the LLC and IPS test all variables are free of unit root because the P-value of variables used in this study is not greater than 5 percent.

4.10.4. Multicollinearity

Using the Variance inflation factor (VIF), we check whether there is multicollinearity between the dependent variables used in the study or not.

Table 49.

Capital structure VIF results-Chile

Variables	VIP Test Results
STD	1.06
LTD	1.09
Sales growth	1.02
Firm size	1.11
Mean VIF	1.07

The VIF results presented in Table 49 indicate that the regression equation is free of multicollinearity as the mean VIF is less than 10.

4.10.5. Regression Analysis

Table 50 indicates the effects of financial leverage variables (STD, LTD) on the performance variables (ROA, ROE, EBITDA.M) of Chilean companies engaged in the manufacturing sector for the period (2010 to 2019).

To investigate the impact of financial leverage on the performance of Chilean manufacturing sample companies, the Random-effects regression model has been selected as the most efficient and appropriate model.

The regressions results shown in Table 50 show that the short-term debt ratio has no significant effect on the performance variables of Chilean manufacturing companies during the study period, while the long-term debt ratio with the coefficient of -0.2364 has a significantly negative association with the ROA of these firms at the level of 5 percent. This means the long-term debt and performance of Chilean manufacturing companies are inversely related, therefore, an increase of long-term debts in the capital structure of these companies instead of improving, causes damage to ROA and reduces the performance of these companies. Among control variables, sales growth has a significantly positive effect on the ROE and EBITDA margin of Chilean firms during the study period (2010-2019).

The finding of this study shows that the short-term debts have no significant impact on the performance of mentioned companies, therefore Chilean manufacturing companies can enjoy the privileges of tax saving and increase their operating performance by using the effective combination of equity and short-term debt.

The result of this study is consistent with the result of Sakr and Bedeir's (2019), a study which states that by increasing the level of long-term debt in the capital structure of Egyptian industrial firms, their operating performance for ROA decreases.

Table 50.

Random Effect (Robust) Regression –Chile

Explanatory variables	ROA		ROE		EBITDAM	
	Random Effect	P-Value	Random Effect	P-Value	Random Effect	P-Value
STD	-.0945175 (-0.74)	0.457	.1007459 (0.42)	0.978	.0188667 (0.08)	0.935
LTD	-.236415 (-2.38)	0.017	-.1636272 (-0.89)	0.336	-.1284513 (-1.02)	0.310
Sales growth	.0684862 (1.42)	0.157	.0937843 (2.01)	0.054	.0912586 (1.82)	0.069
Firm size	.339622 (0.86)	0.391	.2031832 (0.28)	0.583	-.0727161 (-0.09)	0.932
Constant	11.33213 (2.97)	0.003	12.40756 (1.75)	0.978	18.8265 (3.04)	0.002
Wald -Statistic	29.09	0.0000	13.59	0.0087	16.28	0.0027
R²	0.0598		0.0338		0.0061	
Breusch-Pagan STC. (RE)	164.75	0.0000	232.37	0.0000	315.47	0.0000
Hausman STC. (RE, FE)	5.78	0.2159	2.82	0.5883	2.29	0.6831
Number of companies	19		19		19	
Observation	190		190		190	

Note: The values shown in parentheses are T-values, and each of the abbreviations STD, LTD, FE, RE represent Short-term debt, Long-term debt, Fixed effects, and Random-effects model, respectively.

Considering the regression results of all sample EAGLE & NEST emerging countries, the impact of financial leverage on the performance of relevant companies can be summarized as follows:

Table 51.

Regressions summary of the impact of financial leverage on the performance of firms in sample EAGLEs & NESTs emerging countries during 2010-2019.

Countries	Debt Types	Debt %	ROA	ROE	EBITDA.M
China	STD	38.48	-.1621***	-.3050***	-.2626***
	LTD	10.71	-.1557***	-.2553***	-.1180***
	TD	49.2			
India	STD	38.11	-.1628***	-.2375***	-.2280***
	LTD	18.13	-.1956***	-.3191***	-.1391***
	TD	56.2			
Brazil	STD	26.15	-.0758	.0097	-.0166
	LTD	27.94	-.2025***	-.3645***	-.2341***
	TD	54.1			
Indonesia	STD	33.75	-.1447***	-.3884***	-.1419
	LTD	19.30	-.2562***	-.6652***	-.3222***
	TD	53.05			
Turkey	STD	36.52	-.3085***	-.6868***	-.3245***
	LTD	21.26	-.2397***	-.6284***	-.2202**
	TD	57.8			
Poland	STD	34.76	-.2903***	-.3999***	-.2513***
	LTD	15.86	-.2113**	-.2633*	-.2106
	TD	50.6			
Thailand	STD	35.45	-.1807***	-.4068***	-.2579***
	LTD	16.81	-.1710***	-.2082**	-.0068
	TD	52.3			
Sri Lanka	STD	34.80	-.0591	.0405	.1108
	LTD	15.74	-.3702***	-.5137***	-.0395
	TD	50.5			
Saudi Arabia	STD	29.48	-.2835***	-.6607***	-.7660***
	LTD	26.00	-.2561***	-.6721***	-.4856***
	TD	55.48			
Chile	STD	20.43	-.0945	.1007	.0188
	LTD	29.60	-.2364**	-.1636	-.1284
	TD	50.03			

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1. Summary of the Study

The main purpose of this study is to investigate the impact of financial leverage on the performance of manufacturing firms that according to the classification of the multinational financial services company of BBVA, operating in the different levels of emerging markets in terms of share in the global growth over the period (2010-2019).

For this purpose 5 countries each China, India, Brazil, Indonesia, and Turkey are selected from the emerging and growth-leading economies (EAGLEs), which are situated at the top level of emerging countries in terms of contribution to global growth, and 5 other countries each Poland, Thailand, Sri Lanka, Saudi Arabia and Chile have selected from the NEST emerging markets, which had the status of potential EAGLE emerging markets, and it is expected that these markets will eventually include into the EAGLE group.

EAGLEs: Includes those emerging countries whose share in global growth is expected to be higher than the average share of G6's economies between (2015) and (2025).

NESTs: Includes those emerging countries whose share in the world's growth is expected to be higher than the average share of non-G7 developed economies during (2015-2025).

In order to assess and evaluate the impact of financial leverage on the performance of companies in the above sample markets, this study used each short-term debt (STD) ratio and long-term debt (LTD) ratio as independent variables which represent the financial leverage of the companies, also each of return on asset (ROA) return on equity (ROE) and earnings before interest, tax, depreciation, and amortization (EBITDA) margin are used as dependent variables which represents the performance of the companies and in the same way each of sales growth and firm size are considered as control variables in this study.

The data analysis process using Stata16 software is done in three steps, in the first step, a descriptive analysis is performed to show and present an overview of the research arena. In the second step, to detect multicollinearity between variables and to

better understand the sample, correlation is formed between the existing variables. In the third step, multiple regression analysis models are used to test and evaluate the impact of the dependent variable (leverage) on the independent variable (firm performance). In the same way, to select the most appropriate regression model among Pooled, Fixed effect, and Random effect, each of the Breusch-Pagan Lagrange multiplier (LM) test, F test, and Hausman test has been performed, and later on, to achieve a healthy and accurate result of the research, before running regression, panel unit root and multicollinearity tests were performed. And finally, to get a research result free of heteroscedasticity and autocorrelation problems, robust standard error (VCE) regression models have been applied.

Regarding the impact of financial leverage on the performance of the firm, many literature reviews have been presented, but the results obtained from these studies are contradictory, which means, these studies have not yet been able to provide a single solution that is responsive to all contexts. Vithessonthi and Tongurai (2015) investigated the impact of financial leverage on the performance of domestically and internationally-oriented Thai non-financial companies during the period (2007-2009). Thiers findings show that leverage harms the performance of domestically-oriented companies and has a positive effect on the performance of internationally-oriented companies. Cole et al. (2015) examined the effects of leverage on the performance of US companies operating in the Industrial, Healthcare, and Energy Sectors, they found that the effects of leverage on firm performance varied from sector to sector as well as from variable to another variable. Similarly, Nguyen Thu (2016) investigated the impact of financial leverage on the performance of BRIC emerging markets in normal and abnormal economic situations, from 2003 to 2013. He found that under normal circumstances, debt hurts the operating performance of companies in all countries, while in times of economic crisis; these effects are exacerbated in China and India, while in Brazil these effects take the opposite form, and in Russia debt puts insignificant effects on firms performance. Similarly, Vijayakumaran (2017), who examined the effects of financial leverage on the performance of a large population of Chinese industrial companies, reported a positive relationship between leverage and the performance of these companies (2003-2010).

Considering the results of the above pieces of literature, as can be seen, the relationship between financial leverage and corporate performance varies from one country, sector, and situation to another country, sector, and situation, which means

there is no single theory and solution on which all aspects are unanimous. Therefore, to understand these impacts, we have to empirically examine this relationship (Financial leverage and Firm performance) in various contexts. Bearing in mind the various results obtained from previous literature reviews, this study seeks to find out whether there is a specific capital structure for the emerging countries examined in this study, if the answer is no, to which extent does the financial leverage and its related performance change from one emerging country to another as well as from one group to other.

Emerging markets refer to those markets that are in a state of transition from developing to developed. Emerging markets due to the existence of opportunities such as more volatility, higher returns, the existence of favorable investment opportunities, and the independence of these markets from developed markets, have made these markets more attractive to investors to move from global markets to these markets and take advantage of diversity preference. In emerging markets, unlike advanced markets, investors are very flexible and easily can switch from public debt to private, which has a considerable impact on the choice of equity and debt capital and significantly affect the firms' performance, that's why the determination of capital structure more interested in emerging markets.

The results of this empirical study show that the financial leverage hurts the performance of manufacturing companies operating in each EAGLEs and NESTs sample emerging markets during the study period (2010-2019). This means that as the level of debt in the capital structure of these sample emerging countries increases, their operational performance decreases. This result is consistent with the finding of Habimana's (2014) study, which investigated the impact of financial leverage on the performance of 18,876 firms operating in the emerging markets of Africa, Eastern Europe, the Middle East, China, and Russia. The results of his research show that leverage and systematic risk are negatively related to the performance of relevant companies. Nguyen Thu's (2016) results also confirm the results of this study; his findings show that in BRIC emerging countries, leverage and the performance of relevant companies are negatively related.

5.2. Conclusion and Findings

In this study, we investigated the impact of financial leverage on the performance of manufacturing companies in 5 EAGLE (China, India, Brazil, Indonesia, Turkey) and

5 NESTs (Poland, Thailand, Sri Lanka, Saudi Arabia, Chile) emerging countries throughout (2010-2010).

The empirical results obtained from this study show that the performance of companies in all countries investigated is influenced by financial leverage. Based on the study results, except for some insignificant positive relationships between debt and corporate performance, in general leverage (Debt) hurts the operating performance of manufacturing companies in each EAGLEs (China, India, Indonesia, Turkey) and NESTs (Poland, Thailand, Sri Lanka, Saudi Arabia, Chile) sample emerging countries during the study period. This means that the financial leverage and operating performance of manufacturing companies in each of the sample EAGLEs and NESTs emerging markets are negatively associated; increasing the level of leverage and over-reliance of these companies on debt causes these companies to sacrifice part of their operating performance and value.

This result is consistent with the findings of Manawaduge et al. (2011), Awah (2016), Mouna et al. (2018), and Bokhtiar Hasan (2014), those who studied the effects of financial leverage on the performance of manufacturing companies in various emerging markets and reported the inverse relationship of financial leverage with the performance of companies.

Based on the descriptive statistics of the sample countries, among all ten countries investigated, in the EAGLEs group of emerging economies, Turkey and India are the countries whose companies are most relied on debt, while in NEST emerging markets the Saudi Arabia and Thailand are the countries whose capital structure are more indebted compare to other countries of the group. Similarly, among the 5 sample EAGLE emerging economies, the country whose manufacturing companies relied mostly on its internal resources as China, while in NEST sample emerging countries, Chile was at the top of the list whose firms have devoted most of their capital structure to their internal resources.

In the sample emerging countries investigated in this study, among the EAGLEs group of emerging markets, the short-term debt (STD) has the most negative impact on the performance of Turkish and Chines manufacturing companies, respectively. In the same way, the long-term debt has the most negative impact on the performance of Indonesian and Turkish companies operating in the manufacturing sector. Similarly, in NEST emerging markets, short-term debt (STD) has the most negative impact on the performance of Saudi Arabian and Polish manufacturing companies, while long-term

debt (LTD) has the most negative impact on the performance of Saudi Arabian and Sri Lankan manufacturing firms. That is, these are the countries whose, companies are sacrificed and lost the largest part of their performance in proportion to the remaining countries of the group by increasing each unit of short-term and long-term debt throughout (2010-2019).

Interestingly, among the 10 emerging countries examined, in EAGLE sample emerging markets short-term debt (STD) had no significant impact on the performance of Brazilian manufacturing companies during the study period, while in NEST emerging markets short-term debt had no significant effect on any performance variables of Sri Lankan and Chilean manufacturing companies. Since in these countries, short-term debt does not have a significant impact on the performance of companies, therefore the companies of mentioned countries in order to improve their operating performance by combining their internal resources and short-term debt can arrange their desired optimal capital structure. This result is consistent with the finding of Cruz Machado et al.'s (2015) study, which states that the debt has no direct effect on the performance of Brazilian companies listed on the BM & FBOVESPA stock market. Shailender Singh and Amar Singh (2018) also obtained a similar result, which shows that there is no significant relationship between the financial leverage and the performance of Taiwanese companies. These results are in line with Miller and Modigliani's (1958) theory, which argues that the financial leverage of a company is irrelevant from its financial performance, based on this theory companies can indifferently refer to any source of finance (equity or debt) they want because each of financing source will have the same impact on the performance of firms.

In general, the results of this study can be interpreted as companies whose capital structure relies more on debt have lower operating performance compared to companies that have been more conservative in their capital financing. For example, in the sample EGALE emerging countries, Turkish manufacturing companies with the highest degree of financial leverage are at the top of the list of the most affected by the negative effects of debt, similarly, in the NEST group, Chilean industrial firms with the least reliance on debt are at the bottom of the list which is least affected by the effects of debt.

This result is in line with the pecking order hypothesis which explains that financing through debt is quite expensive and has more information asymmetry compared to internal financing, which means, if a company the financing its assets, in the availability of sufficient retained earnings, goes to debt, surely it will lower its

value, therefore, in case of financing, internal financing must be preferred over external financing (Myers and Majluf, 1984). Also, the result of this study is inconsistent with the trade-off theory, which states that if a company devotes more of its capital structure to debt, this will cause the company to benefit from tax savings, and ultimately it will help the company in increasing its operating performance (Brealey and Myers, 2003).

Generally, high-interest rates, the dominance of the conditions of the pecking order hypothesis, risk aversion of borrowing companies and reluctance of managers from investing in lucrative projects, continuous increase in financing costs due to the existence of high financial risk, and the possibility of companies going bankrupt are considered as major factors that cause a negative relationship between financial leverage and corporate performance in various markets (Abor, 2007; Chiang et al, 2002; Green and Tong, 2005).

Regarding the control variables, it should be said that the sales growth in EAGLE group, has a positive effect on the performance of Chinese, Indian, Indonesian, and Brazilian manufacturing companies, except for the negative relationship it has with the ROA of Indonesian companies. For Turkey, there is no evidence to prove, that there is a significant relationship between sales growth and firms' performance. In the NEST group of sample emerging markets, sales growth has a positive effect on the performance of all manufacturing companies in the sample countries. This positive relationship of sales growth with the performance of relevant companies indicates that as companies grow in sales, their performance also improves. If a company manages its sales properly and increases them, in addition to increasing its current performance, it can also guarantee the future expansion of its business by providing sufficient funding. (Asimakopoulous et al, 2009). If the high-cap investment does not deter demand, sales growth can play a significant role in enhancing the performance of companies (Scherer and Ross, 1990).

Similarly, the size of the company, in EAGLE emerging markets has a positive impact on the performance of the firm in all sample economies, except Brazil, where it has no significant relationship with any of the performance variables. In NEST emerging countries size of the company has a positive effect on the performance of companies, unlike Sri Lankan and Thai companies, where none of the performance variables have a significant relationship with firm size. In general, there is a positive relationship between firm size and corporate performance, which indicate that these companies in addition to gaining economy of scale, bypassing each day become more

specialized in the field of human capital and their performance, something that paves the way for the further improvement of the performance of these companies. This result is in line with the trade-off hypothesis which states that by increasing the size of the company, its risk diversification ability also increases, therefore companies benefited from tax savings in exchange for getting debt, which in turn increases the performance of companies (Sheikh and Wang, 2013).

In short, the overall results obtained from this study are consistent with the alternative hypotheses of the study and show a significant relationship for each of the variables used in the study, except for some limited non-significant relationships that exist for some variables in some sample emerging countries.

5.3. Recommendations

The results and findings of this study in which the impact of financial leverage on the performance of manufacturing companies in terms of contribution to global growth are situated in the different groups (EAGLEs & NESTs) of emerging markets were examined, except for some insignificant relationships generally indicate a significantly negative relationship between financial leverage and firm's performance in all sample countries throughout 2010-2019. Considering the results of the study, the following recommendations can be made;

- As the results of the study showed that the level of financial leverage and performance of sample companies are in a negative relationship, company officials are advised to avoid devoting more of the capital structure to debt, when they formulating the capital structure, on the contrary, efforts should be made to use internal financing sources to meet the company's financial needs and improve the performance of firms.
- Based on descriptive statistics, the capital structure of some countries such as China, India, Turkey, Thailand, Sri Lanka, and Poland shows a higher proportion of short-term debt (STD) compared to long-term debt (LTD) since the repayment period of short-term debt is shorter compared to the long-term debt, that's why the default risk of short term debt is also very high, therefore, it is recommended to the companies, if they want to go into debt, it would be at least good to refer to long-term debt instead of short-

term debt. Also, it should be added that from the point of view of policymakers, one of the main reasons for companies that refer to short-term debt is the lack of advanced long-term debt markets, therefore, it is recommended that policies should be adopted which facilitate the creation of organized long-term debt markets in the respective countries so that these companies can obtain their required long-term financing sources at the suitable time and lower cost.

- In some countries like Brazil, Chile, and Sri Lanka where debt or a specific type of debt has no significant effect on the majority of corporate performance variables, companies by creating an effective combination of equity and debt, alongside lowering agency costs, can positively affect the performance of relative companies.

5.4. Limitations of the Study

The major limitations of this study, which have affected the results of this study to some extent, are as follows;

- In this study, the impacts of the financial leverage only on the manufacturing sector have been investigated, that is, other sectors such as the financial sector are not included in this study.
- In this study, due to the lack of access to financial databases, from the manufacturing sector of all emerging countries understudy, a sample of 20% of companies has been selected. This means that the mentioned study does not include all manufacturing companies operating in the sample emerging countries.
- In order to investigate the impacts of financial leverage on the performance of relevant companies, for the financial leverage which is the independent variable, each of the indicators of short-term debt (STD) and long-term debt (LTD) and for the performance of companies that is the dependent variable, each of ROA, ROE, and EBITDA margin is considered. While for each of the financial leverage and firm's performance the other measures such as Debt/Equity ratio, Total debt ratio, Tobin's Q, Price / Book ratio also exist including them in the study may lead to different results of the study.

5.5. Further Research

Considering the limitations of this study, if future researches in addition to the manufacturing sector also include other sectors in the study, the results that will be obtained from the study may be more comprehensive and reliable.

Similarly, if instead of selecting sample companies, all companies in a sector are considered, the obtained results may reflect the real situation to a large extent.

In the same way, if instead of a few limited variables that represent the financial leverage and performance of companies, multiple variables are considered for each of the dependent and independent variables, the result of the study may be more realistic.



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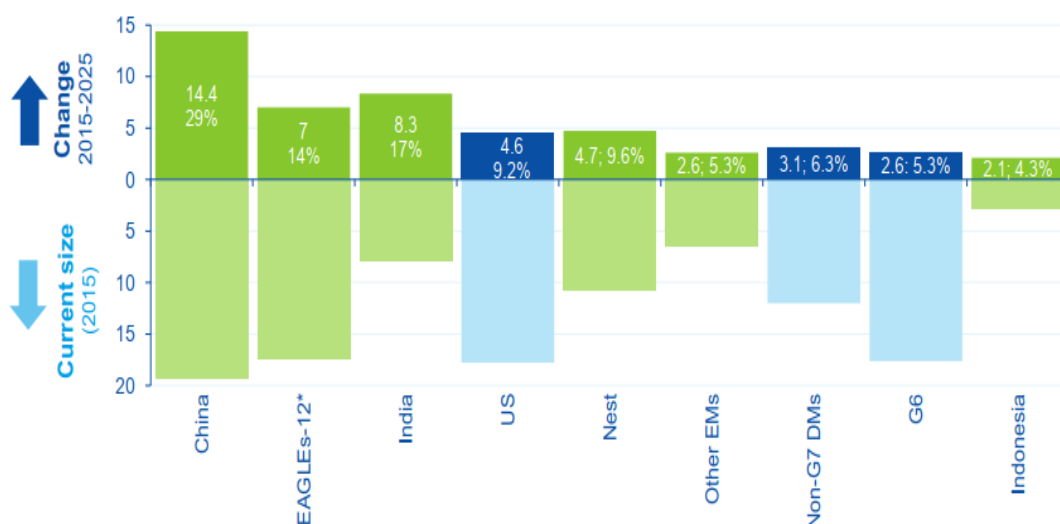
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APPENDICES

Appendix 1: The share of the world's major economies in global growth during 2015-025.

PPP-adj. 2015 USD GDP (USD trn) % of world growth

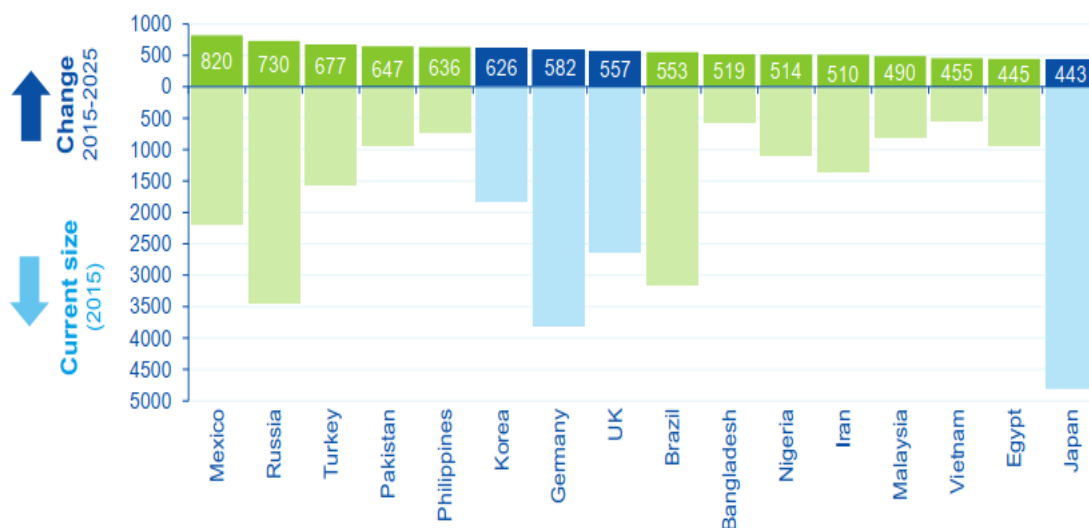


Explanation: Appendix1 above shows the current and the next 10 years (2015-2025) contribution of the world's major economies (G7 countries, non- G7 developed countries, EAGLE, NEST, and other emerging economies) to global growth.

Based on the figure above, it is expected that in the next decade, EAGLE member countries with their global stock of 64% will be at the top of all world contributors in terms of stock in global growth. Similarly, G7 countries, NEST economies, non-G7 developed countries, and other emerging countries will be ranked first, second, third, and fourth respectively.

Appendix 2. The contribution of EAGLE member economies to the global growth during 2015-2025.

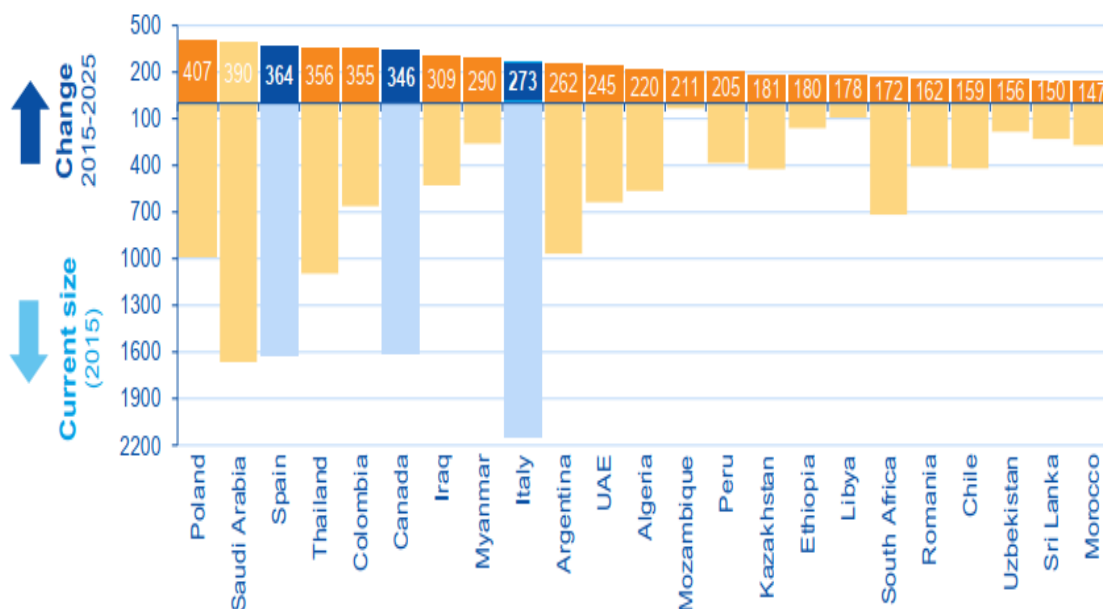
PPP-adj. 2015 USD GDP (USD bn)



Explanation: Appendix 2 above shows the significant stock of EAGLE countries in global growth. Given the current growth trend of member countries, it is expected that by 2025 the stock of each of Mexico, Russia, and Turkey in global growth will be higher than the contribution of the United Kingdom and Germany which are developed countries and have a special place in the world economy.

Appendix 3. Contribution of NESTs economies to the global growth during 2015-2025.

PPP-adj. 2015 USD GDP (USD bn)



Explanation: Appendix 3 above shows the contribution of each of the NEST emerging countries to global growth over the next decade. It is estimated that these countries will play a significant role in global growth over the next 10 years, during this period, Poland will be at the top of this group, followed by Saudi Arabia.

Appendix 4. The current share of EAGLE and NEST member countries in global nominal & PPP-based GDP, PCI, Population, and world trade during 2020.

	GDP/N	GDP/PPP	PCI		Population	Imports	Exports
Countries	Share %	Share %	Share %	GDP-Grwth	Share %	Share %	Share %
China	17.40	18.30	94.8	2.27	18.47	11.80	15.10
India	3.20	6.77	17.8	-7.97	17.70	2.10	1.60
Russia	1.74	3.11	90.8	-3.06	1.87	1.30	2.00
Brazil	1.70	2.40	61.3	-4.06	2.73	0.90	1.20
Mexico	1.27	1.86	76.2	-8.24	1.65	2.20	2.40
Indonesia	1.25	2.51	35.5	-2.07	3.51	0.80	1.00
Turkey	0.85	1.93	77.3	1.79	1.08	1.30	1.00
Iran	0.75	0.84	68.3	1.52	1.08	0.10	0.10
Nigeria	0.51	0.81	18.8	-1.79	2.64	0.20	0.20
Philippines	0.43	0.70	30.1	-9.51	1.41	0.50	0.40
Egypt	0.43	0.98	32.4	3.57	1.31	0.30	0.20
Vietnam	0.40	0.80	31.6	2.91	1.25	1.50	1.60
Malaysia	0.40	0.69	92.9	-5.59	0.42	1.10	1.40
Bangladesh	0.39	0.66	18.1	3.80	2.11	0.30	0.20
Pakistan	0.31	0.82	11.4	-0.39	2.83	0.30	0.10
Saudi Arabia	0.83	1.24	182	-4.15	0.45	0.80	1.00
Poland	0.70	0.98	142	-2.72	0.49	1.50	1.50
Thailand	0.59	0.97	65	-6.09	0.90	1.20	1.30
Argentina	0.46	0.72	77.4	-9.96	0.58	0.30	0.30
UAE	0.42	0.49	289	-5.92	0.13	1.00	0.90
South Africa	0.36	0.55	45.8	-6.96	0.76	0.40	0.50
Colombia	0.32	0.55	48.3	-6.85	0.65	0.20	0.20
Chile	0.30	0.35	117	-5.84	0.25	0.30	0.40
Romania	0.29	0.45	116	-3.90	0.25	0.50	0.40
Peru	0.24	0.30	55	-11.12	0.42	0.20	0.20
Iraq	0.20	0.31	38.8	-10.89	0.52	0.20	0.40
Kazakhstan	0.20	0.38	79	-2.60	0.24	0.20	0.30
Algeria	0.17	0.37	29.5	-5.99	0.56	0.20	0.10
Morocco	0.13	0.21	28.6	-7.02	0.47	0.30	0.20
Ethiopia	0.11	0.22	8.99	6.06	1.47	0.10	0.00
Myanmar	0.10	0.21	13.8	3.19	0.70	0.10	0.10
Sri Lanka	0.10	0.22	33.3	-3.57	0.27	0.10	0.10
Uzbekistan	0.07	0.19	15.4	1.65	0.43	0.10	0.10
Libya	0.03	0.03	29.7	-59.72	0.09	0.10	0.0
Mozambique	0.02	0.03	4.07	-0.50	0.40	0.00	0.0
Eagles & Nests global %	36.7	51.9	62.2	-4.8	70.1	32.5	36.5
EAGLEs global Share	31.0	43.2	50.5	-1.8	60.1	24.7	28.5
NESTs global Share	5.6	8.8	70.9	-7.1	10.0	7.8	8.0

Explanation: Based on the data in Appendix 4 above EAGLE & NEST emerging countries with their joint contributions of 36 and 51.9 percent in global nominal and PPP-based GDP, 70 % of the world population and 32.5 & 36.5 percent share in global imports & exports have played a vital role in global economic growth. Given the current share of EAGLE and NEST member countries, it is expected that these countries are moving in the right direction towards the next 10-year vision envisioned by the BBVA in 2015.

Appendix 5 The share of 5 Sample countries of EAGLEs and NESTs emerging markets in global nominal & PPP-based GDP, PCI, Population, and world trade during 2020.

	GDP/N	GDP/PPP	PCI		Population	Imports	Exports
Countries	Share %	Share %	Share %	GDP-Grwth	Share %	Share %	Share %
China	17.40	18.30	94.80	2.27	18.47	11.80	15.10
India	3.20	6.77	17.80	-7.97	17.70	2.10	1.60
Brazil	1.70	2.40	61.30	-4.06	2.73	0.90	1.20
Indonesia	1.25	2.51	35.50	-2.07	3.51	0.80	1.00
Turkey	0.85	1.93	77.30	1.79	1.08	1.30	1.00
Saudi Arabia	0.83	1.24	182	-4.15	0.45	0.80	1.00
Poland	0.70	0.98	142	-2.72	0.49	1.50	1.50
Thailand	0.59	0.97	65	-6.09	0.90	1.20	1.30
Chile	0.30	0.35	117	-5.84	0.25	0.30	0.40
Sri Lanka	0.10	0.22	33.30	-3.57	0.27	0.10	0.10
Eagles & Nests global %	26.9	35.7	82.6	-3.2	45.9	20.8	24.2
EAGLEs global Share	24.4	31.9	57.3	-2.0	43.5	16.9	19.9
NESTs global Share	2.5	3.8	107.9	-4.5	2.4	3.9	4.3

Explanation: Appendix 5 above shows the global contribution of the 10 sample emerging countries of the EAGLE and NEST group examined in this study in the global economic indicators during 2020. The above sample countries are among the major players in the EAGLE and NEST emerging economies, the trend of these groups of emerging markets (EAGLE & NEST) depends on the movement of these sample markets, which way they are moving. Based on the data in Table 1.2 above these sample EAGLE & NEST emerging countries with their joint contributions of 26.9 and 35.7 % in global nominal and PPP-based GDP, 45.9 % of the world population, and 20.8 & 24.2 percent share in global imports & exports have accounted for most of the growth of the EAGLE & NEST groups of emerging economies during 2020.