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Capital Structure Decision and Its Impact on the Financial Performance of Real Estate Companies Listed on the Egyptian Exchange

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This is to certify that the doctoral dissertation by

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Abstract

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DBA, Eslsca University 2023

M.Phil., Walden University 2022

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Dissertation Submitted in Partial Fulfillment

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Abstract

Financial performance has been an ongoing challenge for real estate companies in Egypt

due to the devaluation of the currency in 2016, an increase in interest rates, and inflation

that led to an increase in the price of construction inputs, plus the effect of COVID-19 on

the local and world economy. The purpose of this quantitative correlational study was to

examine the relationship between company capital structure and the financial

performance of real estate companies in the Egyptian exchange during the years 2016 to

2020. The research questions focused on the effects of capital structure. Three financial

performance measures, return on assets (ROA), return on equity (ROE), and return on

investment (ROI), were dependent variables, and three capital structure measures: short-

term debt to total assets, long-term debt to total assets (LTDTA), and total debt to total

assets were independent variables. Size and growth were also control variables. Financial

Data encompassing 2016 to 2020 were collected and analyzed for 25 Egyptian real estate

companies. The regression analysis showed significant negative correlations between

ROA and various debt ratios but no significant correlation between ROE and debt ratios.

The finding of a negative correlation between ROI and LTDTA indicates that higher

levels of long-term debt were associated with lower ROI. No significant correlation was

found between the three financial measures and growth and size as control variables. This

study illustrates the importance of maintaining a prudent level of leverage to avoid the

adverse effects of excessive debt on a firm's financial performance. This insight may help

the leaders of Egyptian real estate firms avoid employment losses and business failures.

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Finally, to whom I owe all the credit and gratitude. To my first teachers, I dedicate my work to my mother and father, for whom I am utterly grateful, thankful, and appreciative.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Capital structure describes the choice made by a company's management in financing the company's current expenditure, investments, and assets. It involves how a company's management combines its internal funds from returns, debt, and equity to cover its financial requirements (Singh & Bagga, 2019). It is important to determine the optimal combinations of internal and external funds that work best for the company in a particular market system (Sunder & Harthi, 2015).

Capital structure is an important financial topic and a heavily researched element of business and investment studies. Its significance comes from the correlation between an individual firm's ability to meet its objectives and its capital structure, especially regarding its responsibility to stakeholders. However, financial managers still struggle to understand the application or the effect of capital structure on financial performance or overall profitability (Singh & Bagga, 2019). I examined the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange for 5 years (2016–2020).

Background of the Study

Discussions on capital structure happen daily among corporate officers, capital analysts, investors, and other stakeholders in corporate business. Capital structure is a key concept in the corporate world because of its impact on the health of an economy and firms' performances within the economy (Köksal & Orman, 2014). Many people may not know what capital structure entails or be interested in it, even though it influences the economy. Most economies are maintained and sustained by a collection of firms whose

performance directly affects the economy's health. Poor financial performance of these firms may have immediate and adverse consequences on an entire economy, leading to millions of losses in income and jobs. Therefore, firms' capital structure deserves attention.

Investors, corporate officers, and analysts also determine a company's survival ability during tough economic shocks such as severe stagnation or recession (Chung et al., 2013). The economy goes through ups and downs cycles, making such financial shocks inevitable. Thus, the ability of a firm to survive and remain profitable in the long run is important.

The capital structure adopted by firm management is crucial to the firm's financial performance. It influences the company's ability to achieve its short-term and long-term objectives of growth and profitability improvements (Abdullah & Tursoy, 2019). Therefore, as a corporate office or a professional investor, it is recommended to pay close attention to the capital structure and understand and determine if its shape can enable the company to remain profitable in the short and the long term.

In recent years, the management of domestic and international firms has experienced significant pressure due to unpredictable economic events and financial crises dominating today's market. As a result, firms have experienced increased risks, and some have been adversely affected, leading to their underperformance (Kang & Sadka, 2015). The cost of capital has also increased, putting more pressure on firms. The path to surviving the pressures depends on the capital these firms' managers adopt.

Therefore, corporate officers need to pay attention when balancing the capital structure to reduce risks and the cost of capital they use to fund various company activities. The firm management needs to find the most appropriate debt ratio to equity, consequently reducing insolvency risk and enabling the company to enjoy sustained profitability. The capital structure adopted by the company management determines the availability and cost of obtaining capital and thus influences the company's performance. In achieving sustained performance, the priority should be on the capital structure, which is the proportion of the capital from internal returns, equity, and debt financing the company. The capital structure is a key aspect of a firm's financial performance by enabling the company to fulfill the needs and expectations of the various stakeholders.

Modigliani and Miller (1958) theorized capital structure and its relationship with firm performance and corresponding value. They pioneered the idea that the only variable that can be used to determine firm value under perfect market conditions is expected cash flow. This assumption renders capital structure-related decisions insignificant. However, in the years since this work was released, this part of Modigliani and Miller's thinking has been, at least partly, disproven, as a growing number of theories have explained that capital structure influences market performance, stability, and profitability markers of overall performance. For example, theories such as the trade-off, pecking order, and market timing theories argue that capital structure directly affects firm performance (Jahanzeb et al., 2013). Thus, managers or corporate decision makers should consider capital structure decisions related to maximizing firm performance potential and intrinsic value (Brigham & Ehrhardt, 2011).

Management should measure business performance over time according to financial measures to demonstrate a company's fiscal strength or weakness. A company's financial performance is evaluated according to financial measures calculated using standard accounting measurements (Mahmoudi et al., 2013). Financial decisions and their appropriateness to corporate goals are aligned with a measurable increase in the firm's value over time or as a ratio against other financial performance factors. Tudose (2012) noted that financial performance must be theoretically and measurably separated from organizational performance of success. Thus, financial performance is measured using accounting metrics like return on assets (ROA), return on investment (ROI), and return on equity (ROE).

This research may provide corporate officers, analysts, investors, governments, control authorities, and the general public with insights into the relationship between a capital structure and financial performance. This study focused on real estate firms listed on the Egyptian exchange between 2016 and 2020. I examined the type and significant roles that a particular capital structure has on the performance of firms within a given economy.

The real estate industry in Egypt has remained largely steady despite the unrest and uncertainty brought on by the Egyptian Revolution in 2011. The Ministry of Investment claimed that real estate has experienced noticeable growth "despite political instability." Government data reveal that starting in the fiscal year 2010–2011, when it accounted for 14% of all investments, real estate has grown to become the largest sector in receipt of public and private investments, reaching 16.3% in the following fiscal year.

Real estate remained the greatest recipient of investments over the fiscal years and has become one of the largest real estate markets in the Middle East and Africa. Ministry of Investment, (Accessed 2017)

By understanding the relationship between a capital structure and financial performance, decision makers such as analysts, professional investors, and corporate officers can potentially make optimal decisions with positive social impacts on the economy. Many depend on these firms' performance for their income sources and basic needs. Therefore, the performances of these companies have direct and indirect social implications for society. Studying capital structure and its influence on a firm's financial performance has social change implications (Kumar & Colombage, 2015).

Problem Statement

The real estate business is one of Egypt's largest and most important sectors. Many of the real estate companies listed on the Egyptian stock exchange experience problems related to financial performance, difficulty increasing their financial performance, and the efficient exploitation of assets to achieve the maximum return to meet shareholder expectations. The management of real estate companies tries to maintain an appropriate capital structure to have funds to maintain their continuity and finance their operations (Eldomiaty, 2007). Maintaining the right mix of debt and equity to finance the business and its growth has always been the duty of company owners and financial executives. However, given the challenging mixture of interest rate swings, inflationary pressures, and emerging opportunities in the current economy, making sound decisions about capital structure has become more important than ever.

The existing literature on the relationship between capital structure and firm performance focuses on growing Asian and European markets, specifically developed economies (Oyedokun, 2018). Few researchers have examined the relationship between capital structure and firm performance in African countries (Fowowe, 2017). In the few studies of African markets, scant attention has been given to the relationship between capital structure and firm performance of companies listed on the Egyptian exchange market. (Ebaid, 2009) . However, Egypt plays a crucial role among the determinant economies of Africa, providing leadership on the continent's development goals.

The COVID-19 pandemic had an impact on every individual globally. At the onset of the pandemic in the first quarter of 2020, the commercial world came to a standstill, with most syndicates closing indefinitely (OECD, 2020). Others had already embraced flexible work arrangments, expanding school protocols to support working from home. (In this new reality, many businesses, from large-scale firms with several years of experience to newly established firms, felt the grappling effects of the pandemic (Mubeen et al., 2020).

In light of these apparent challenges, I sought to explore the financial preparedness needed by firm leaders to ensure their sustained operations in times of unforeseen challenges that carry high risk. According to Bartik et al. (2020), many small-, medium-, and large-scale enterprises felt the financial effects of the pandemic. Real estate companies are considered one of the largest sectors in Egypt and the world. Many individuals and business owners depend on these companies to buy homes, whether residential or tourist or whether in cash or installments. With the emergence of the

pandemic, all stakeholders were affected. This social problem was why I conducted this study to measure the readiness of the capital structure of real estate companies to face such risks.

Purpose of the Study

In this quantitative study, I examined the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange market for 5 years (2016–2020). I used three financial performance measures—return on assets (ROA), return on equity (ROE), and return on investment (ROI) —as dependent variables. Three capital structure measures—short-term debt to total assets (STDTA), long-term debt to total assets (LTDTA), and total debt to total assets (TDTA)—served as independent variables

Research Questions and Hypotheses

The research questions (RQs) and hypotheses were as follows:

RQ1. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA

$H_0$1: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

$H_1$1: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

RQ2. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI?

$H_0$2: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

$H_1$2: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

RQ3: What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and the business performance of Egyptian real estate companies based on ROE?

$H_0$3: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

$H_1$3: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

RQ4. How does firm size impact the capital structure and performance of real estate companies listed on the Egyptian exchange market?

$H_0$4: There is no significant impact of firm size on the capital structure and performance of real estate companies listed on the Egyptian exchange market.

$H_1$4: There is a significant impact of firm size on capital structure and performance of real estate companies listed on the Egyptian exchange market.

Theoretical Foundation

Three theories support the idea that capital structure influences a firm financial performance: the pecking order theory (Chittenden et al., 1996; Myers & Majluf, 1984;), the trade-off theory (Kraus & Litzenberger, 1973), and the more recent market timing theory (Baker & Wurgler, 2002). Market timing theory challenges the other theories and has had statistically significant findings in recent years (Jahanzeb et al., 2013). I selected these three theories as the theoretical framework for the study because they are all heavily substantiated as tools for measuring the relationship between capital structure and firm performance and have been empirically demonstrated to offer a meaningful explanation of the phenomenon.

Theorists have questioned whether financing decisions affect a firm's value. The pioneers who answered this question were Modigliani and Miller. Their modern capital structure theory, which they wrote about in 1958, nullified the effect of the capital structure on the firm's value given that the assumptions of a perfect market hold the following: (a) absence of brokerage costs, taxes, information asymmetry between investors and management, and bankruptcy costs; (b) consistent borrowing rate for investors and corporations; and (c) the independence of net profit before interest and taxes from debt (Graham, 2003).

Myers (2003) stated there is no general capital structure theory or justifiable excuse to anticipate one. There are helpful conditional theories, however. The theories differ in describing which factors could influence the choice between debt and equity. Each factor of debt and equity could be dominant for some firms or in some situations.

Since the pioneering work of Modigliani and Miller (1958), various issues relating to the corporate capital structure have been extensively studied. A detailed and careful perusal of the existing literature on the theoretical framework of corporate capital structure decisions enables one to categorize the capital structure. I will review pertinent research in Chapter 2.

Nature of the Study

I used the quantitative method in this study because I needed a mathematically oriented methodology to answer the RQs. The research data needed to be in numerical form. Quantitative researchers primarily focus on gathering numerical data to describe a specific occurrence; they analyze these data to generate knowledge and understand and describe or note changes in the numerical characteristics of the selected population (McCusker & Gunavdin,2015). My design choice was the correlation research design. Using this design, researchers can investigate the relationship between variables without having to control or manipulate these variables (Crawford, M. (2014). Notably, depending on the nature of a study, researchers may be compelled to manipulate variables to suit them in the analysis. Quantitative researchers evaluate the strength of the connection between the variables. As a result, correlation computation helps a researcher to determine whether the relationship between variables is strong and positive or negative (Humphreys & Jacobs, 2015).

In this study, I measured the correlation between Egyptian real estate companies' returns on assets, equity, investment return, and short-term debt. Therefore, correlation design was the most appropriate for this analysis. It made it possible to develop simple or

multiple regression models to predict how the financial performance indicators (ROA, ROE, and ROI) of the selected real estate companies changed as a result of the alteration of the capital structure. This study included ROA, ROE, and ROI as dependent variables. Three capital structure measures, STDTA, LTDTA, and TDTA, served as independent variables.

Definitions

Capital structure: A combination of debt and equity that firm leaders employ to drive the firm's operation; this can include a mixture of different securities and structures to maximize market value through the balance of equities and liabilities (Miglo, 2016).

Financial leverage: The proportion of fixed-income sources of funding used in a company's capital structure, such as debts and preference shares (Kazemian et al., 2017).

Financial performance: The measurement of business performance over time according to financial measures that demonstrate the company's fiscal strength or weakness. The evaluation of a company's financial performance is often based on financial measures that are calculated using standard accounting measurements (Mahmoudi et al., 2013)

Financial ratio : The relative magnitude of two chosen numerical values extracted from a company's financial statements. Numerous standard ratios are frequently used in accounting to assess a company or corporation's overall financial health. Managers inside a company and present and prospective shareholders (owners) and creditors may employ financial ratios. Financial ratios are a useful tool used by analysts to evaluate the strengths and weaknesses of different firms.

Whittington (1980) explains the importance of the financial ratio in measuring a firm's ratios to a standard, such as another firm or an industry average. Profit margins, returns, leverage, and stock prices are all financial variables that can be estimated using the financial ratio. Researchers employing prediction models for corporate failure, insolvency, and credit risk are examples of positive usage for financial ratios.

Firm size: A term that describes, among other things, a company's production capacity and the variety and quantity of services and products it can offer its consumers simultaneously (Mule et al., 2015).

Growth opportunities: Investment opportunities that have the potential to boost a company's worth (Goh et al., 2018).

Long-term debt: A company loan or debt with a maturity of more than one year (Berk & DeMarzo, 2017).

Optimal capital: The best mix of debt and equity financing that maximizes a company's market value while minimizing its cost of capital (Panda & Leepsa, 2017). In theory, debt financing offers the lowest cost of capital due to its tax deductibility. However, too much debt increases the financial risk to shareholders and the required ROE. Thus, company leaders must find the optimal point at which the marginal benefit of debt equals the marginal cost.

Return on assets (ROA): A ratio that analysts use to measure how lucrative a business is compared to its assets; the metric provides insight into a firm's financial status, performance, and prospects (Mankin & Jewell, 2010). ROA is one of several financial measures that may assess a company's financial strength.

Return on equity (ROE): The net income returned as a percentage of shareholders' equity (Dhaliwal et al. 2010). ROE is a financial ratio that equity investors carefully consider because it indicates how successfully a company's management creates value for its shareholders. (Dhaliwal et al .2010)

Return on investment (ROI): a ratio that assesses an investment's profitability by comparing its gain or loss with its cost. (Kumar, 2011). The changeover from resource spending to venture capital follows on recording as an ROI. It is also a success indicator for determining the efficacy of an investment or comparing the effectiveness of several different investments. The goal of ROI is to directly quantify the amount of return on a single investment versus the cost of the investment. The ROI is calculated by dividing the profit (or return) of an investment by the cost of the investment in percentages or ratios.

Short-term debt: A company loan or debt with a maturity of less than one year (Berk & DeMarzo, 2017).

Assumptions

Assumptions refers to what a researcher believes to be true without proof (Nkwake & Morrow, 2016). I had three assumptions in this investigation. The first was that the information in this study would derive from previously published data. The study's second premise was that the financial data of the companies under investigation would provide honest, complete, and accurate data for the period under consideration. The third assumption was that all market participants had homogeneous expectations because all market actors had access to the same information.

Scope and Delimitations

The purpose of this study was to address the issue of how to improve the financial performance of real estate companies listed on the Egyptian stock exchange. The leaders of real estate firms are attempting to maintain a capital structure that allows them to perform appropriate capital to sustain their continuity and finance their activities. Company owners and financial executives have always been responsible for maintaining the correct mix of debt and equity to support the firm and its growth. Secondary data collected from annual reports were sufficient to assess leaders' performance. Gathering primary rather than secondary data would not improve reliability in this scenario (see Björkholm & Johansson, 2015).

Delimitations are self-imposed restraints by a researcher to specify the research's boundaries (Halstead & Lare, 2018). According to Marshall and Rossman (2016), delimitations encompass the researcher's choice of study parameters. The first delimitation is that I focused on only a certain population of real estate companies, excluding all other industries, and the second delimitation is the study's geographic location. I focused on active companies listed on the Egyptian stock exchange from 2016 to 2020.

Limitations

Anything beyond a researcher's control that has the potential to compromise the study's conclusions is considered a limitation (Leedy & Ormrod, 2015). Limitations are circumstances outside the researcher's control that may impact the methodology and results of the study (Simon, 2011). According to Tabachnick and Fidell (2013),

limitations are flaws that cannot be avoided and extend to the study's results. The study has potential limitations. I examined only listed companies, not nonlisted companies, because my focus was the relationship between the capital structure and performance of companies listed on the Egyptian exchange market.

The performance indicators were all accounting-related, which may provide a limited scope or view of the companies' performance and may not adequately measure growth, customer loyalty, traction, and other variables. I did not include all factors that could confound the measurements or affect performance, including interest rates, economy-related issues like inflation and unemployment, tax and government policy related to business operations, etc. Another limitation is that the data collected focused on the real estate industry and excluded all other industries listed on the Egyptian exchange market. The third limitation is the effects of the firms' geographical location and the ongoing global economic downturn on capital structure decisions. The corporate performance of Egyptian firms was not included in the study.

Significance of the Study

Company leaders try to maintain an optimal mix of debt and equity to finance their operations. The significance of the study comes from its potential to help the leaders of Egyptian listed real estate companies choose the optimal capital structure, whether from equity or debt, to improve their financial performance. The findings may enable CEOs and CFOs to choose the capital structure that affects their financial performance. Researchers, regulators, corporate and finance executives, and corporate and individual investors interested in knowing or using a strong capital structure for their business may

benefit from the findings of this study. The study may also assist government officials

and governmental bodies recognize the implications of their policy decisions on listed

firms within the country or industry. The findings from this study may help investors

create a portfolio that yields them maximum profits by guiding them in building their

investment decisions in any company, depending on ROI, ROA, and earnings per share

(EPS).

Significance to Theory

The research findings may contribute to the literature on capital structure and a

firm's financial performance. I conducted this study to address the theoretical gap in

understanding and answering the theoretical puzzle of capital structure theories and their

influence on a firm's financial performance under different contexts. The research

findings may also provide insights to decision-makers such as corporate officers,

analysts, and professional investors regarding companies' capital structure and

understanding how it might affect their financial performance. These insights may help

these decision-makers to make capital structure decisions that may positively impact the

performance of their firms. The study findings may also be important in providing

insights to the government and other relevant authorities on assessing the potential

problems in the corporate sector based on an analysis of the capital structure of the

crucial firms in the economy. The authorities can then have a clear view of what state the

economy is likely to be in. The study findings may also be important reference points for

firm managers in making decisions on their capital structure and what they can do to

improve their company's performance. Academics and researchers may consider the

study a theoretical basis for further investigation of the influence of capital structure on

firms' financial performance in Egypt, Africa, and other countries worldwide.

Significance to Practice

An awareness of an organization's capital structure practice can indicate the extent

of financial distress the company is experiencing. Business analysts may profit from the

study's findings, leading to new ways of determining a company's financial position.

Examining the company's capital structure, as shown in its financial statements, may aid

in establishing its financial health. The study is significant to the larger body of work

because it addresses a gap in existing literature related to the Egyptian market. The study

may support Egyptian corporations, especially real estate business owners and investors,

in using a capital structure shown to support a stronger financial performance in the long

term. It may also enable Egyptian business leaders or decision-makers to regard the effect

of capital structure on different subsets or elements of fiscal performance. Regulation and

policy bodies may use the study findings to formulate policies to protect minority

shareholders against exploitation by larger shareholders in a particular firm.

Support for Egyptian corporations affects their overall financial performance and

decisions related to debt financing and obtaining capital that can optimize firm

performance. Debt holders can also use the insights from the study findings to evaluate

the company's performance in the case of credit facilities. Investors can use the study's

insights to evaluate the company's performance and gauge the success of the corporate or

company managers in appropriating their capital to ensure better returns. Investors may

also use the insights to determine their appropriate capital mix by evaluating the firm's financial performance through its capital structure.

Significance to Social Change

Knowing the relationship between capital structure practices and financial hardship could aid managers of distressed companies and other healthy businesses in determining the practices that should drive their capital structure decisions. Avoiding financial difficulty could strengthen the social structure of their employees' immediate economy by ensuring family income stability and the opportunity for higher income, resulting in positive social development. Financially sound businesses can pay their tax duties, resulting in positive societal development by providing all citizens with social goods and services. Firms that fulfill their debt obligations contribute to good social development by improving the financial system, providing other businesses and individuals access to a greater pool of capital for expansion and improved quality of life.

Managers of investment houses and pension funds can benefit from a more accurate assessment of a company's financial health by looking at its capital structure practices. This assessment could aid these managers in making better investment decisions that protect individual investors' money and pensions. Such managers may be able to invest in viable enterprises with respectable returns if they make better decisions. Individual investors would benefit from avoiding loss and the chance of an increase through investment return.

Summary and Transition

Capital structure decisions are an important aspect of any firm's finance function. A good capital structure can help leaders of a corporation to increase the corporation's profitability and financial health while preventing deterioration because the goal of forming a company is to produce a profit, and good business performance is the goal of the business's operations. The source, composition, and proportion of a company's equity and debt capital are all measured by capital structure. It is not only related to the internal operating environment of listed companies but also to shareholder rights and responsibilities. It has a strong connection to the business's future growth direction, decision-making bodies, and changes in the governance structure. Short-term liabilities can meet the company's goals for sustainable growth and improve the industry's competitiveness, thus raising the company's operating income. A weak capital structure, on the other hand, might have a negative effect on a company's finances. Better capital structure decisions of a publicly traded business can be improved by bolstering the corporate governance framework, strengthening the financing structure, and the management of operating risks; as a result, the company's financial situation can be sustainable and healthy (Singer et al., 2015).

This research adds to the possible link between capital structure and financial performance. It may also help managers make better financial decisions. Understanding the relationship between capital structure and financial performance could benefit social change. A good financial performance leads to good social performance because more profitable organizations have more resources to invest in social activities. When local real

estate companies implement capital financing methods and policies that positively impact their revenues and overall performance, there is an opportunity to participate in other community projects that improve communities' overall status by raising their living standards (Weisul, 2017). The study's findings may impact social change by revealing a method of capital structure that provides better returns for real estate companies in Egypt, thereby providing opportunities for giving back to Egypt's communities in need, especially with high inflation affecting living standards.

In this study, I investigated the relationship between capital structure and firm financial performance in Egypt for real estate-listed companies. To address the research topic, I used the quantitative research method. I examined the financial statements of listed companies in Egypt using a correlation study design to assess their capital structure and its relation to financial performance. The study's data came from financial statements on the Egyptian stock exchange's website. This chapter included the introduction, which consisted of the study's background, problem statement, purpose, RQs and hypotheses, theoretical foundation, study nature, definitions of terms, assumptions, scope and delimitations, limitations, and significance. In Chapter 2, I review the literature on capital structure and financial performance.

Chapter 2: Literature Review

In this study, the Researcher will include an overview of the documented theories

and literature on the impact of capital structure on real estate business financial

performance in Chapter 2. I expected that exploring these sources would give the

investigation a solid and credible foundation. The sections of Chapter 2 serve as the basis

for generating knowledge and determining the appropriate scope for streamlining

research topics and objectives regarding existing theories on capital structure and

financial performance.

Various research has demonstrated that capital structure is tied to financial

performance (Tailab, 2014; Vatavu, 2015; Chaklader & Chawala, 2016). They show that

as the world's economies are increasingly tied to one another, the market is globalized,

and opportunities to gain financiers are increasing. Overall dependence on capital

markets also increases (Singh & Baga, 2019). However, the dependence of business on

capital does not change over time. Regardless of the financing forms available, funds are

required for the firm to stabilize and expand.

All firms must, therefore, choose between debt and equity capital to finance their

operations. Generally, research shows that a mixture of debt and equity financing in the

capital structure of a business is the best route to long-term stability and success

(Azhagaiah & Gaoury, 2011). However, what remains unclear is the exact way financial

managers can use this knowledge to guide business decisions, the specific nature of the

relationship, and how it practically applies to choosing a capital structure when building

out a company's financial plan. Firms need to manage their capital structure to maximize

firm value by minimizing the cost of capital (Tailab, 2014). But no clear structure for doing so exists.

Literature Search Strategy

I used the following databases and search engines to review the literature: Business Source Complete, Emerald Insight, ProQuest Dissertations, Thesis Global, SAGE Journal, SAGE Knowledge, Science Direct, and Google Scholar. Using reference lists of studies and articles obtained in searches and studying suggested articles during database searches were among the search tactics used. Some of the terms I used in my search. Capital structure, capital structure theories, pecking order theory, trade-off theory, capital structure determinants, leverage ratio, debt structure, equity structure, capital irrelevance theory, financial distress, financial difficulty model, bankruptcy, debt to maturity, asset tangibility, profitability, capital structure, and corporate strategy

The capital structure model was based on Modigliani and Miller's theories (1958). The majority of the literature studied in this study was from that period. There have been few studies conducted in the past 5 years. The majority of the literature evaluation focuses on investigations undertaken when the theorists announced their conclusions; despite these constraints, the current research is based on established theoretical frameworks. The study's material spans a wide period, from 1958 to the present. Capital structure, earnings, dividend, growth, liquidity, profitability, and sustainability were among the keywords searched from the targeted databases. To justify the apparent Problem, I included summaries of recent scholarly works and analytical explanations pertinent to the notion of capital structure and financial performance.

Ajibola et al. (2018) examined the influence of the capital structure on the financial performance of the Nigerian manufacturing firms listed between 2005 and 2014. The findings show a significant positive relationship between the long-term and total ratio and the returns on equity and an insignificant negative relationship between the short-term, long-term, and total debt ratios and the returns on assets. The study is essential to my research because it provides information on how the various debt ratios influence the financial performance parameters of ROE and ROA.

Adesina et al. (2015) investigated the impact of post-consolidation of the capital structure on the financial performance of 10 quoted banks in Nigeria. The findings indicate that debt and equity have a positive and significant relationship with the profit before tax of the banks listed on the Nigerian stock exchange. The study is important in providing information on how the debt and equity in the post-consolidated capital structure impact the company's profits before tax.

Albert et al. (2020) investigated the controlling role of ownership on capital structure and financial performance. The findings show that a company's institutional or managerial ownership determines the leverage that a company adopts, which influences financial performance. The study is important in providing information on the crucial role institutional management and ownership play in determining capital structure, which has an eventual consequence on financial performance.

Birru (2016) investigated the effects of the debt ratio, debt-to-equity ratio, loan-to-deposit, and bank size on ROA and ROE. The results show that ROA has a negative and significant correlation with the capital structure variables. The study provides

information on the correlation between debt ratios and debt-to-equity ratios as components of the capital structure on the returns on assets a firm should expect.

Choi et al. (2016) examined the role debt plays in the balance of exploration and exploitation. The findings indicate that debt as a component of the capital structure provides incentives for engagements in exploitation, thus imposing cash flow obligation and increasing the company's risk of going bankrupt. The study is important in providing information on the role of debt in promoting innovation by increasing exploitation and maintaining the balance from leaning towards suboptimal exploration that may adversely impact financial performance.

Das and Swain (2018) investigated the determinants of capital structure and how these factors influence financial performance. The findings show that debt, equities, and internal returns build the capital structure adopted by the company, which significantly and positively influences financial performance. The research is important in providing a broad range of possible determinants of capital structure and how they collectively influence the firm's financial performance.

Iqbal and Javed (2017) explored the moderating effects of corporate governance on the correlation between capital structure and financial performance. The findings indicate that by including the corporate governance index as an influencing factor, the relationship between the capital structure and the financial performance is positive and significant. The study is important in providing information on good corporate governance's role in bettering the financial performance realized from a given capital structure.

Le and Phan (2017) investigated the effect that debt ratios have on companies' financial performances in Vietnam, a developing country. The findings show that debt ratios have an inverse correlation with financial performance. The study is important in examining some negative consequences, such as financial distress, including more debt in the capital structure on financial performance in developing economies.

Oyedokun (2018) investigated the importance of a balanced capital structure on the financial performance variables of listed companies in the Nigerian manufacturing sector. The findings indicate that the capital structure has significant and non-significant impacts on financial performance. The significance of these effects depends on the financial performance variables in question. The study is important for the current research problem given that it broadens information sources of capital structure variables that significantly and insignificantly impact a company's financial performance.

Ramli et al. (2019) investigated the mediation effect of leverage in Malaysia and Indonesia and how it affects firm performance. The findings indicate that the correlation of firm leverage differs with regions or economies. There was a significant positive relationship between firm leverage and financial performance in Malaysia but not in Indonesia. The study is thus important in providing more information to understand the relationship that firm leverage has on financial performance in different contexts and economic environments.

Theoretical Foundation

Modigliani and Miller's Theory of 1958

The debate on the relationship between capital structure and a firm's financial performance is based mainly on the controversies of Modigliani and Miller's (1958) theorem. It holds the primary argument that the capital structure adopted by a particular company does not influence the firm value and, thus, does not affect the firm's financial performance. However, the first version of the theory exposed it to limitations that led to controversies. For example, it assumes an efficient market and that firms do not pay taxes and have information symmetry in the market with no bankruptcy cost, which is not the case in the whole market system. The second version included the elements of taxes, asymmetry in information, and the cost of bankruptcy, stating that the equity cost directly relates to the leverage level. They argued that when a company increases the leverage level in its capital structure, its probability of defaulting increases. As a result, the higher default probability results in investors demanding higher returns due to the additional risks, raising the company's capital cost.

Ahmeti and Pranaj (2015) concluded that Modigliani and Miller's theory provides the basis for evaluating the firm's capital structure and financial performance but does not prove that the capital structure has an irrelevant relationship with the firm's financial performance. Scholars criticize the theory, stating that the assumptions held by theorists depend on an imagined world with controlled market environments, which are different from the real world. Brusov et al. (2011) conducted deeper research applying the theory to study how debt financing influences investment project effectiveness. They state that

the effectiveness of an investment project carried out by a firm will depend on those who own the debt and equity used in financing. They conclude that when a company increases its leverage, implying an increase in equity and debt, it decreases the net present value of its investment project. Krstevska, Nenovski & Pogacnik Kostovska (2017) tested Modigliani and Miller's theory on the Macedonian banking system and failed to prove the argument that the theory holds.

Therefore, according to Modigliani and Miller's theory, firms should consider not including more debts and equity in the capital structure because it increases the cost of investment and significantly decreases the net present value of the company investments. No tax element makes the argument ideal but different from the real world, where companies have to pay taxes and incur costs during bankruptcy. Models that include taxes emphasize increasing debt funding in the capital structure to help tax management and increase company profitability. Debts attract no taxes, which means that as a company increases debt funding in its capital structure, it attracts less debt and thus increases its profits after tax. However, increasing debts in the capital structure also increases the probability of the company going bankrupt. Thus, a company must consider an optimal combination that weighs and balances the leverage benefits and the insolvency costs.

Static Trade-Off Theory

The static trade-off theory suggested by Jensen and Meckling (1976) suggested that the optimal capital structure adopted by a company involves a trade-off. It strives to balance the cost that financial distress implicates on a firm and the benefits the firm

experiences in the form of the tax shield effect of the debts. Thus, the theory suggests an optimal structure that combines debt and equity to reduce the cost of financial distress and maximize the benefits accrued from the tax shield effect of leverage.

Based on the static trade-off theory and its impacts in Sri Lanka, Banda and Rooly (2016) have researched the company's corporate financing decisions. Their findings are tough, giving mixed results to support the concept of trade-off cost and the benefits of reaching an optimal combination of debt and equities. This provided significant evidence that holds the theory crucial. The findings also indicate that corporate financing decisions on optimal capital structure differ from those of developed and developing countries such as Sri Lanka. No general optimal formula exists for balancing the trade-off costs and benefits to achieve optimality in the capital structure. It depends on the company's environment and the context on which the analysis is based.

Agency Cost Theory

The agency theory focuses on the conflicts that arise between interests among agents of capital, such as between shareholders and company executives. Shareholders expect the executives to create wealth that maximizes returns on the equities and raises the share values (Jensen & Meckling, 1976). Therefore, the cash flow in the company causes the greatest conflict between managers and the equity holders. Company managers are thus forced to act in the shareholders' best interest by maximizing shareholder wealth, reducing waste, and increasing profitability (Panda & Leepsa, 2017). In reducing the agency cost to maximize shareholder value, managers tend to use high leveraging in the capital structure, involving more debt than equities for funding the company operations.

The second source of conflict occurs when the executives or managers do not enjoy sufficient benefits from their actions, such as low company ownership in terms of shares awarded to the manager (Rashid, 2014). Increasing the stocks leads to lower ownership, which causes the managers to have low company ownership. They, therefore, prefer to increase dent funding relative to stock to avoid decreasing the managers' ownership interests. Payment of the debts reduces the cash flow, which significantly reduces investment opportunities. Therefore, leveraging helps shareholders monitor the manager's activities, increases investment opportunities, and reduces other inefficiencies attributed to agency costs, thus raising the expected performance of the firm.

Signaling Theory

The theory suggested by Ross (1977) indicates how debt provides a signal that differentiates good firms from bad firms. The signaling theory is based on the asymmetric nature of the information that exists in the real market. The firm's executives and the shareholders do not have the same level of information, with managers having more information than the shareholders. The managers, as the insiders, possess true information about the company and know the distribution of returns. At the same time, investors have insufficient information to know the true valuation of the firm and the distribution of returns (de Wet, 2006). According to the theory, a good firm separates itself from the bad ones by sending signals that the bad firms find difficult to mimic.

The theory holds that good firms have higher debts in their capital structure to show an optimistic future by their managers and thus attract more scrutiny. However, bad firms have low debt levels in their capital structure and shy away from responding with

the same signals of issuing debt to hide from scrutiny and getting discovered for their

poor performance.

When the executives are convinced that the company is currently undervalued,

they start by including debts first to fund its activities. Then, they only turn to issuing

equities as a last resort to provide external funding. If the executives are convinced that

the company is overvalued, they will issue stock first to generate external funding and

only turn to debts as a last option. Ross (1977) discusses the costly signaling equilibrium,

which involves consuming resources or loss in welfare during the signaling. On the other

hand, Bhattacharya and Heinkel (1982) discuss costless signaling, which does not involve

a cost in producing the signals.

The Pecking Order Theory

Myers and Majluf (1984) coined the Pecking order theory, arguing that a

company's capital structure depends on a preference order where internal finance funding

comes first, followed by debt and then equity (Chen & Chen, 2011). It is based on the

information asymmetry that exists between the company executives and the outsiders,

such as investors. The theory suggests that the information costs determine the actions of

the managers, who tend to issue debts or equities based on the ones with low information

costs.

The theory holds that a company financing its operations through internal finance

is strong, while one using debts is optimistic and confident of meeting its obligations and

a brighter future (Serrasqueiro & Caetano, 2014). However, financing of issuing equity

indicates a negative signal that the company may be struggling and may not meet its

monthly obligations. The managers thus prefer the option with the least resistance and move down the pecking order only if the option is insufficient.

Literature Review

Research Demonstrating the Impact of Capital Structure and Firm Performance Connection

Various research studies have been conducted over the years to demonstrate the degree to which capital structure can be used to explain firm performance or the direct connection between capital structure decision-making and a firm's ability to generate a profit. Tailab (2016) studied the effect of capital structure on financial performance, using multiple regression to prove an empirical link. The results demonstrated that total debt has a negative impact on performance, as measured by both ROE and ROA. However, the short-term debt had a positive influence on ROE. Long-term debt has no statistically significant relationship with debt to equity or overall profitability, and that is interesting because it shows that while there is a clear and statistically significant relationship between capital structure and firm performance, it does not necessarily apply equally across all measures and may have a positive or negative correlation, depending on the circumstances.

A closely related study was conducted by Chaklader & Chawla (2016), who used descriptive statistics and regression to determine the relevance of pecking order theory and trade-off theory as explanatory of capital structure as it relates to financial leverage and performance. The Researcher found that the trade-off theory was useful in explaining

companies' growth and profitability. However, the pecking order theory was only useful in describing or defining the relationship between capital structure and financial liquidity.

The previous study's findings contrasted with those of Chadha and Sharma (2016). They use ratio analysis and panel data to determine the impact of capital structure on firm performance, which is described as financial leverage. The researchers found that financial leverage, as a measure of capital structure, does not directly or statistically significantly impact financial performance when measured by ROA. However, it had a negative and statistically significant correlation with ROE. This is significant because, like Tailab (2016), it found that capital structure may not impact ROI, ROE, and ROA in the same way, so not all forms of financial performance seem to be influenced, to a statistically significant degree, by capital structure. This makes it challenging to determine a specific relationship and related set of best practices for decision-making as they relate to capital structures' impact on firm financial performance. It is this gap, specifically as it relates to the Egyptian market, that the current research will seek to address.

The choice of capital structure is one of the most crucial financial decisions that firms make that ultimately impact their profitability because the company's primary goal is to maximize the shareholders' profits. As an outcome, the company must make the appropriate decisions that affect its profitability. Researchers' interest in finance has recently increased due to the relationship between capital structure and performance. Numerous studies have underlined the significance of examining the link between capital

structure and the financial performance of companies, including (Shamsuddin et al. 2018), (Olang 2017), and (Patjoshi 2016).

In recent years, more information has been added about the impact of various capital structure proxies on firm performance. Research conducted in particular nations has investigated The direct impact of various types of debts on business performance. A significant inverse association between debt levels and company performance was found in the majority of these investigations. For seven years, Chakrabarti and Chakrabarti (2019) studied macroeconomic and firm-specific variables for 18 Indian non-insurance enterprises. Low insurance, low input prices, low inflation rates, higher ROI, liquidity, and profitability were all positively correlated. Between 2008 and 2016, Dalci (2018) examined how capital structure affected 1503 manufacturing companies listed on the Chinese stock exchange. They discovered a negative and positive association between financial leverage (a measure of capital structure) and profitability and an inverted U-shaped relationship between capital structure and profitability. This important study highlighted the relevance of evolving credit market regulations and policies for developing various-sized Chinese manufacturing companies.

Managers constantly try to make decisions that will boost a company's profit while avoiding those that would have a negative impact on profitability. The choice of capital structure is crucial because it directly affects an enterprise's potential to be profitable. Therefore, due care and attention must be used when choosing the capital structure (Alomari & Azzam, 2017).

Li and Stathis (2017) looked at the factors that affect the capital structure of listed Australian manufacturing companies. The eight variables used in the study were profitability, log of assets, median industry leverage, industry growth, market-to-book ratio, tangibility, capital expenditure, and investment tax credits. They discovered less evidence for the pecking order theory and growing support for the trade theory.

In a 2016 study by Gambo et al., the effect of capital structure on financial performance was investigated among Nigerian cement sector enterprises. Four listed companies in all served as the study's sample. Twenty observations of the chosen companies from a balanced panel of data collected between 2010 and 2014 were examined. This study used the ex-post factor with two models to analyze the effects of long-term and short-term indebtedness on ROA and ROE. Descriptive statistics, correlation, and regression were used in the analyses. The findings revealed a statistically significant relationship between long-term and short-term liabilities' ROA and ROE.

The impact of capital structure on manufacturing performance companies in the UK from 1998 to 2008 was investigated by Abeywardhana & Krishanthi (2016). Researchers gathered secondary information from published studies of SMEs in the UK's manufacturing sector. Multiple regression analysis was used using the E-view statistical program. The capital structure measures are the independent variables for this study. The ROA and return on capital employed are used to calculate the ratios of TDTA, LTDTA, STDTA, and short-term debt to total debt. This study's findings show a highly significant positive association between size and firm performance and an extremely significant negative relationship between capital structure and firm performance (ROA, ROCE).

According to Ardalan (2017), the specific relationship between capital structure and company performance may vary depending on the context. The Researcher found in the existing research that certain factors, such as the nation's degree of development and company size, tend to change the relationship between capital structure and business performance. This study compares sample countries according to their level of development and enterprises according to their size.

Business size can be an essential factor in determining the relationship between leverage and firm performance, regardless of the country's level of development. Leverage had a negative effect on company performance for a sample of 101 small non-financial firms in Nigeria between 2003 and 2007, according to Ibhagui and Olokoyo (2018). The impact tended to be favorable when the business size was disproportionately large. Additionally, Jaisinghani and Kanjilal (2017) discovered that increasing the leverage ratio had a favorable impact on the performance of Indian manufacturing enterprises with a size bigger than a certain threshold (148 m rupees). Similarly, Saona and San Martin's (2018) findings show that in the case of firms in Latin America, the national level and firm size have a critical influence.

Between 2005 and 2017, the data of listed Jordanian companies was analyzed by Hussein et al. (2019). They found a significant positive relationship between firm size and asset growth, a significant negative relationship between short-term debt and long-term debt, and a significant positive relationship between ROA using three measures of firm performance: ROA, Tobin's Q and ROA, and total and short-term debt as a proxy for capital structure. However, they could not discover any appreciable negative correlation

between short- and long-term indebtedness and the company performance metric, ROE. Finally, between 2009 and 2012, Yazdanfar looked at 15,897 businesses operating in five SME sectors of the Swedish economy. They discovered that debt ratios (trade-credit, short-term, and long-term debts) harm a company's profitability.

Siddik et al. (2017) looked at the effect of capital structure on bank performance in Bangladesh. As a result, the writers compiled information from 122 banks' annual reports from 2005 to 2014. This study's dependent variable, the construct of performance, was measured using three proxies: ROA, ROE, and EPS. Regarding the capital structure variables, these are the ratios of short-term, overall, and long-term debt to total assets. They included liquidity, firm size, and growth prospects as the control variables. Additionally, this study used the variables of economic growth and inflation rate to exert control over the effects of the macroeconomic situation. The authors deduced from the findings that capital structure variables had a considerable negative impact on ROA and ROE.

In Pakistan, Habib et al. looked into the relationship between capital structure and performance among non-financial enterprises (2016). In this study, Researchers used panel data spanning 10 years (from 2003 to 2012). The study's independent variables were the ratios of overall debt to assets, short-term debt to assets, and long-term debt to assets. On the other hand, the dependent variable included ROA as a performance indicator. The company's size, the growth of its revenues, and the opportunity for growth are used by the Researcher as the control variables. The log of sales was used to calculate the size, and random effect regression analysis was used to determine the influence of

debt on performance. The authors of this study concluded that there is a strong and unfavorable relationship between overall debt, short-term debt, and ROA.

Chang et al. (2014) examined the performance of non-financial companies listed on the Vietnam Ho Chi Minh Stock Exchange from 2007 to 2011. They looked at the relationship between financial structure and performance. This period includes the years leading up to, during, and following the global economic crisis, which started in the United States before spreading to other nations, including Vietnam. The paper analyzed profitability using ROA, ROE, Tobin'Q (derived by dividing total assets by the market price of equity plus book value of liabilities), and market-to-book value ratio. Financial structure is determined by the ratios of total debt to assets, total debt to short-term debt, and total debt to long-term debt. The control variables are firm size, the proportion of fixed assets to total assets, and the corporate income tax rate.

Chang et al. (2014) chose the fixed effects model to represent the relationship between capital structure and performance after considering it alongside the random effects model, ordinary least squares, and the Hausman test. They revealed an inverse relationship between debt (including total, long-term, and short-term debt) and ROA. In all variations of capital structure, the statistical relationship between firm size and ROA is positive. The proportion of fixed assets to total assets and ROA are inversely correlated. The tax rate is statistically insignificant in the short-term debt model and weakly related to ROA in the long-term and total debt models. The researchers found that the ratios of short-term debt and overall debt to total assets are inversely correlated with ROE, using ROE as a measure of business success. Long-term debt, on the other hand, has no impact

on ROE. In each short-term, long-term, and total debt model, the firm size is correlated favorably with ROE. In the short-term debt model, the ratio of tangible fixed assets is statistically significant and inversely correlated with ROE. In all research models, the tax rate has a statistically small impact on ROE.

Ramadan and Ramadan (2015) examined the performance of 72 firms listed on the Amman stock exchange between 2005 and 2013 and determined the impact of capital structure on those companies' results. The ratios of LTDTA and TDTA were employed by the authors as measures of profitability and capital structure, respectively. The authors claimed that performance is negatively impacted by debt ratios after using OLS regression. One of the findings is that companies performing well rely less on credit.

In their 2010 study, David and Olorunfemi looked at the connections between dividend per share and leverage ratio and EPS and leverage ratio in the Nigerian petroleum sector. Performance metrics include EPS and dividend per share. The researchers use pooled regression, fixed, random, and maximum likelihood estimation in their panel data analysis. They discover a strong correlation between dividend per share and leverage ratio and a positive correlation between EPS and leverage ratio.

In their 2013 study, Toraman et al. examined how capital structure choices affected Turkish manufacturing companies' profitability. The information used is consistent with the 2005–2011 financial statements of manufacturing businesses. Financial ratios were subtracted from the financial statements of the companies included in the analysis and used in regression analysis. Results indicated a negative correlation between the ROA as a performance indicator and both short-term and long-term

liabilities as a percentage of total assets. Operating income, financial expenses, and financial performance are all positively correlated.

Chinaemerem and Anthony (2012) used a sample of thirty non-financial enterprises listed on the Nigerian stock exchange to study the effect of capital structure on the financial performance of Nigerian firms. The study employed ROA, ROE, and debt-to-equity ratios as financial leverage and performance measures, respectively. The outcome demonstrates that a company's capital structure greatly affects its financial performance. The study's conclusion demonstrates coherence with earlier empirical research and offers proof in favor of the agency cost theory.

Using annual data from 10 firms spanning 5 years, Muritala (2012) explores the ideal degree of the capital structure via which a firm might improve its financial performance. The panel least squares results show that asset turnover, size, age, and asset tangibility positively correlate with a firm's performance. However, there is a weak but significant correlation between asset tangibility and ROA as a performance metric.

Thaddeus and Chigbu (2012) use debt-to-equity, coverage ratios, and EPS in the Nigerian banking sector to examine the impact of leverage finance on company performance. Results across the banks under investigation are conflicting, and leverage financing has been identified as a key tactic for maximizing shareholder returns. The resulting conclusion is that organizations must determine their optimum level and strike a strategic balance with related financing risk and returns to shareholders to ensure that leverage financing results in the desired outcome of the business.

Salim and Yadav (2012) studied 237 Malaysian companies listed on the Bursa Malaysia stock exchange using the ROA, ROE, EPS, and Tobin's Q variables to quantify company performance. The data showed a negative link between ROA, ROE, EPS, LTD, STD, and total loans. The results suggest a favorable association between Tobin's Q and LTD, STD.

Factors That Influence Capital Structure

Factors that influence capital decisions include a variety of factors like tax benefit, bankruptcy risk and cost, and availability and use of asymmetric information, as previously addressed within the theoretical models. However, research also shows that capital structure is subject to the influence of specific determinants that management already considers when making financing decisions. These include firm size, firm characteristics, and factors related to the local academic environment and market situation (Lew, 2012; Gansuwan & Onel, 2012; San & Heng, 2011).

More specifically, San and Heng (2011) focused on the link between corporate performance and corporate size. They determined that the relationship between capital structure and firm performance was different for big companies and smaller businesses. For example, long-term debt to common equity was found to have a positive relationship with medium-sized companies but a negative relationship with small-sized companies. That means that firm size determines capital structure decisions and fiscal performance outcomes. This finding is a significant potential confounding factor for the current study.

A second factor, closely related to size, was capital and financial asset diversification. Large firms have the ability to borrow more money at a lower total cost

and have greater stability and resilience during periods of economic downturn than their smaller peers (Gansuaan & Onel, 2012). This means that smaller companies struggle more to gain external financing or debt-based capital and have to consider transaction costs, bankruptcy costs, and operational risks realized due to debt (Gansuaan & Onel, 2012). This directly influences the capital structure and related decision-making, regardless of its Impact, or potential Impact, on financial performance and related company growth.

Another factor or set of factors is connected to the company industry and the features of that industry as it relates to debt. Aftab et al. (2012) note that industry is closely related to the liquidity of assets, the ability to carry out operational requirements, and related rates of return. The current study minimizes this as a confounding factor by selecting a population from a single industry with shared liquidity and access factors.

Organizations have a variety of alternative capital structures from which to select, allowing them to issue either a significant amount of debt or very little debt. The company can arrange lease financing, forward sign contracts, issue convertible bonds, use warrants, and operate in bond swap trading. A company may issue various individual securities in innumerable combinations to identify the specific combination that will increase its overall market value (Martati & Kusrihandayani, 2018). Several hypotheses have been formulated to explain how organizations' capital structures work.

Financial management researchers have not yet identified the perfect capital structure despite the theoretical attraction of capital structure. Prescriptions were the most successful short-term solution that academics and professionals could develop (Zeitun &

Tian, 2014). The debt ratio is one metric used to depict the capital structure (Hamid &

Kamaruzzaman, 2015). However, adopting a single assessment method to measure the

capital structure is insufficient as it could produce inaccurate conclusions regarding the

organization's capital structure (Shubita & Alsawalhah, 2012). A combination of TDTA,

STDTA, and LTDTA can be used as proxies for an organization's capital

structure(Ahmad & Abdul Rahim, 2013).

It might be difficult to decide whether to raise money to begin a project,

particularly for the banking industry. The word "capital structure" refers to the long-term

funding source of a corporation (Shawal, 2020). The most important component of the

capital structure is leverage, which refers to the use of resources of money to enable the

company to incur fixed costs like rent and storage costs or pay for annuities to continue

operating the company should it not be solvent enough to buy its building or purchase

assets like cars (Acaravci,2015). Leverage is the proportionate portion of a company's

long-term capital sources based on their total impact on the firm's total capitalization.

Corporate executives decide which combinations of the capital structure will be

advantageous to their firm based on qualitative and quantitative considerations.

The most important factor in choosing a capital structure is planning

management's poor planning, which results in a negative capital mix, which could cause a

company to go bankrupt. The variables that affect a bank's decision on its capital

structure have been the subject of numerous studies.

To name a few, Alamai et al. (2020), Touil and Mamoghli (2020), and Yildiz and

Karan (2020) are examples of research investigations of this type that have been

conducted. The size of the company, financial leverage, asset tangibility, development prospects, and company age all significantly influence the capital structure of banks. Numerous empirical and theoretical research has revealed additional factors that affect the capital structure, with increased emphasis on identifying potential determinants.

According to Danis et al. (2014), firms prefer to raise capital from various sources, starting with earnings, moving on to borrowing, and finally, fresh equity. According to Velnampy and Niresh (2012), this method of capital raising has been favored by many businesses due to the comparatively high transaction costs associated with issuing additional shares of stock as opposed to debt. Shubita and Alsawalhah (2012) highlighted that the notion of pecking order would also come into play due to information asymmetry after concurring with these findings. According to their simplified pecking-order theory, Fama and French (2002) found that debt would proportionally rise as investments tend to surpass retained earnings and decline as investments tend to fall below total retained earnings. This relationship suggests that the level of leverage would be substantially smaller for companies with higher profitability when the profitability remains constant, and the retained earnings continue to exceed the investments.

Velnampy and Niresh (2012) suggested that the agency cost connected with a manager-security holder and the corporate interest expenses forecasts a beneficial association between debt ratio and profitability, based on the idea of a trade-off model and considering the costs of bankruptcy. Shawal (2020), citing the pecking-order theory, argued that when transaction costs and the information asymmetry between insiders and

outsiders are considered, it suggests that the link between debt ratio and profitability will be adverse since retained earnings are being used. Then, it turns positive when debts are issued and negative once more whenever fresh equity is raised. Profitability is, therefore, a key element of a corporation's capital structure.

According to Sharma and Paul (2015), numerous sectors or industries that depend on liquidity have provided a variety of liquid levels to meet their operational needs and successfully control the rate of return for enterprises. Ghasemi and Ab Razak (2016) suggested that one important consideration in determining the organization's capital structure in support of this claim is the feature of liquidity. Similarly, Rodrigo (2018) recognizes the results and adds that there is no agreement between the Pecking Order and Trade-Off theories regarding how leverage and liquidity are related to this capitalization structure.

Corporate Performance Measures

Another important set of definitions available in existing literature relevant to the current study are measures of corporate performance. In the current study, these include ROA, ROE, and ROI. Accounting measures of this type and how they reflect the maximization of profits on assets and the realization of shareholder benefits are central to understanding firm effectiveness or performance (Abdulmalik et al., 2014).

Performance measurement is dependent on the system used. However, ROI is considered a classical measurement, used with consistency as an indicator or measure of profitability (Tudose, 2012). ROI was the first of three measurements used in the current study. ROI is the measure of how much profit has been generated, as it directly relates to

the capital invested. Gansuwan and Onel (2012) noted that this is a valid measure

because shareholders only realize value on investment when strong earnings exceed the

cost. Thus, ROI accurately reflects the company's ability to meet shareholder

expectations and shows a balance between profitability and investment.

The second measure used in the current study was ROA, which is a direct

measure of the effectiveness of asset management. It compares profit generation to the

assets currently available. ROA is important with regard to understanding capital

structure because it provides a measure of assets and profitability as it relates to assets,

which impacts equity financing in the future (Gallo, 2016).

The third and final measure is ROE or returns on equity, a ratio designed to

measure fiscal health by comparing profitability to equity. This, like ROA, is an

important measure as it relates to shareholder satisfaction (Gitman & Zutter, 2012). ROE

is directly related to capital structure because it measures profitability, or firm

performance, as a ratio against the investment that shareholders have in the firm or the

capital they have provided.

When used together, these three measures provide a complete picture of firm

performance, as it is empirically measured and statistically based on standard accounting

practices and related data. The complete picture of firm performance ensures that the

reported numbers are consistent for all the companies studied in the sample population

because they are recorded in the publicly released financial documents for each company

and follow a standardized format that should be fully consistent from one company to

another. These are the factors that have been favored in previous studies (Tailab, 2014;

Vatavu, 2015; Chaklader & Chawala, 2016). and their use is supported by the current research.

Numerous studies researchers have employed three proxy measures to ascertain how capital structure relates to an organization's profitability. Short-term or current liabilities are other names for short-term debt. This ratio, an account listed in the current liabilities section of a company's balance sheet, indicates how short-term loans have financed the percent of total assets. Any debt incurred by a business that is due within a year goes into this account (Habib et al. 2016). These loans appear on a company's balance sheet when immediate funding is required to cover working capital requirements. Several types of short-term debt include short-term bank loans, accounts payable, and commercial paper (Ali et al., 2016). Liabilities for short-term debt must be paid off within a year. As an alternative, these cover debts with expected liquidation from current assets because they must be paid at fairly specific times and are typically incurred in the normal course of business (Hamid et al., 2015).

A high long-term debt ratio indicates that most of the company's investments are financed by debt due after over a year. If this ratio is too high, the company is at risk of going out of business if it finds itself unable to fund its debt owing to a decline in income or cash flow issues because these loans typically have significant debt amounts and take a long time to pay off (Hirdinis, 2019). Companies with excessive long-term debt will struggle to repay these obligations and prosper since a large portion of their capital is used to pay interest, making it difficult to shift funds to other uses (Ashraf et al., 2017).

Long-term debt (LTD) is an indicator of a company's capital structure that displays the proportion of assets financed by debt with a longer payoff period (Habib et al. 2016). All liabilities, excluding short-term debt and shareholders' equity, are included in long-term debt. Large senior obligations, such as mortgages and loans used to buy equipment or develop structures, often fall under this category (Revathy & Sreekala, 2016).

The second type of financing is equity financing or shareholders' equity; equity financing consists of common stock, preferred shares, or retained earnings (Revathy & Sreekala, 2016). To raise the additional funds required to expand the firm, the company issues shares to the general public; this share issue is referred to as equity financing.

Additional share financing does not increase the chance of financial hardship, and equity financing does not require the company to provide collateral. If management so chooses, stockholders are the only ones who receive dividends. Additionally, managers are not enticed by equity finance to abandon dangerous ventures. The primary advantage of equity is that, unlike debt funding, the company does not need to repay its stockholders (Zafar et al., 2016). Investigating the effects of the various financing choices is the goal of independently examining short-term, long-term, and equity financing. Because the costs and benefits of short-term and long-term debt differ significantly, a separate analysis can help better understand the relationship (Hirdinis, 2014).

The business's goal may have an impact on financial results or profitability indicators. According to Burja (2011), an organization's success or profit is mostly the result of managing a variety of economic resources and utilizing them for operating,

investment, and finance operations. The difference between the firm's revenue and expenditures represents the organization's outcome. Profit maximization is one of a business's primary objectives. Managers are always attempting to maximize profit while removing decisions that have a detrimental effect on profitability.

Capital structure, inflation rates, the size of the organization, and the level of competition are just a few examples of the many variables that can affect an organization's profitability. Ratios are used to calculate profitability, which aids in condensing voluminous financial data into manageable summaries. Kirmi (2017). (2017). Many stakeholders use the company's profitability ratios to produce profits that represent the company's performance.

One of the most crucial metrics for determining a company's capacity to make profits is the ROA, also known as the ROI. In 2017, Anarfo and Appiahene showed that the ROA ratio measures how well a company uses its assets, such as current and fixed assets, to generate earnings before paying taxes and dividends (Murniati, 2016). Because the corporation makes more money on fewer investments, the higher the ratio gained, the more effectively an organization manages its assets (Suardana et al., 2018).

The management will be able to assess the financial performance and operational performance in the use of all resources owned by the company thanks to this measure, which gives a general idea of the company's capacity to produce results on the financial resources invested by the company. It is also used to assess the profit generated per dollar of assets (Siddik et al., 2017). ROA is used to determine how much the interaction between margin and asset turnover rate has an impact (Murniati, 2016). Companies that

are profitable or have high rates of ROI utilize relatively less debt because greater returns allow them to finance most of their capital requirements using cash flow from operations. Because different industries use assets differently, ROA is most helpful when comparing businesses in the same industry. For instance, the ROA for businesses that focus on providing a service, like banks, will be much greater than the ROA for businesses that require a lot of capital, like construction or utility companies (Martinkute & Rinkeviciute, 2014).

The second performance indicator is the ROE, a measure of financial success derived by dividing net income by shareholders' equity. Because a company's assets are equal to its liabilities and shareholders' equity, this ratio indicates how much profit is generated for each dollar invested in its shares (Anarfo & Appiahene, 2017). ROE measures the profit a company has made using shareholders' money. It measures performance and reveals how well management has used investors' money (Marandu & Sibindi, 2016).

A return on shareholder equity is determined to measure owners' performance: "The greater the return on investment, the more effectively a corporation performs. The paid-up share capital, share premium, reserves, surplus, and less accumulated losses make up the shareholders' equity or net worth. Return on Shareholders' Equity (ROSE) measures an owner's performance "investment. The higher this ratio, the more effectively a corporation performs (Zeitun & Tian, 2014).

Summary and Conclusions

The existing literature demonstrates a statistically significant connection between firm performance and capital structure. However, the literature also demonstrates that this relationship varies significantly based on market conditions, firm size and type, and other factors. As a result, a single pattern for how businesses are influenced was not determined within the existing literature, in spite of the fact that the selected theoretical models were statistically supported regarding the questions about the effects of capital structure on the financial performance of Real Estate companies in Egypt. None of the literature reviewed attempted to study this relationship with real estate companies in any country. There is a big gap in the literature whereby the current study would want to explore how the factors associated with capital structures influence the performance of real estate companies listed on the Egyptian exchange market. This demonstrates the need for further research on the measure of influence, or the specific connection between capital structure and firm performance, in the Egyptian real estate market.

Chapter 3: Research Method

This quantitative study examines the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange market (2016–2020). I used three financial performance measures as dependent variables: ROA, ROE, and ROI. The independent variables were three capital structure measures: STDTA, LTDTA, and TDTA.

In this chapter, I outline the research methods used to carry out the study and meet the stated goal, which is to investigate the correlation between Egyptian real estate companies' business performance as measured by ROA, ROI, and ROE and their capital structure, address the RQs, and test the hypotheses. This chapter comprises the research design and justification, methodology, sample population, sampling techniques, recruitment, participation, data collection processes, archive data, data analysis plan and presentation, threats to validity, ethical procedures, and a summary.

Research Design and Rationale

The capital structure analysis of Egyptian real estate companies' capital structure based on specific financial performance indicators could not be appropriately conducted through experimental research design, which is more suitable for studies in health sciences. Shaughnessy et al. (2000) state that studies adopting a correlation design have low internal validity since variables are not manipulated. However, these studies have higher reliability due to high external validity and degree of compliance with research ethics.

The correlation research design investigates the correlation between variables in a relationship without researchers having to control or manipulate these variables. Notably, depending on the nature of a study, researchers may be compelled to manipulate variables to suit them in the analysis. In any relationship (whether qualitative or quantitative), researchers must evaluate the strength of the connection between the variables. As a result, correlation computation helps determine whether the relationship between variables is strong and positive or negative (Humphreys & Jacobs, 2015)

Correlation design allows researchers to incorporate correlational research into their selected methodology. Essentially, correlational research entails a method in which researchers observe two variables to establish a statistically corresponding connection between these variables.

The other rationale for choosing a correlation design is that the statistical relationship being investigated is causal, but controlling the variables and their behavior is impossible. In other words, it is impossible to manipulate the selected companies' financial data to control the relationship being analyzed. Furthermore, such manipulation is unethical and impractical since it would adversely affect the validity and reliability of the findings. Additionally, I preferred the correlation design because it has higher external validity than the experimental design.

I will use a maximum of 5 years of financial data obtained from 25 real estate Egyptian listed companies by using three financial performance measures, including ROA, ROE, and ROI as dependent variables and three capital structure measures, including STDTA, LTDTA, and TDTA as independent variables.

Methodology

The key purpose of this study is to investigate the correlation between Egyptian real estate companies' business performance as measured by ROA, ROI, and ROE and their capital structure. Theoretically, a significant association exists between capital structure and firms' financial performance. In most cases, the capital structure is understood to be a combination of debt and equity, as they are the main ways companies finance their capital.

The quantitative method was appropriate for this study because the study will involve analyzing numerical data and inferring the results from a larger population. Researchers use quantitative studies to identify results they can use to describe or note changes in the numerical characteristics of a population of interest (McCusker & Gunavdin,2015).

A firm with a higher debt incurs high interest expenses, hindering its ability to pay high dividends to its shareholders. Liquidity, tangibility, economic growth, firm size, profitability, and stock market development are crucial aspects of capital structure that can be examined. However, this study will concentrate on how companies' business performance in the Egyptian real estate market relates to their capital structure. The methodology chapter highlights the methods to be used in conducting the research. It will discuss data collection techniques, relevant computations, and the data analysis model.

Population

The target population for this study is 25 real estate-listed companies in Egypt out of 32 real estate-listed companies in the Egyptian exchange market. These companies

will be chosen by applying specific criteria, including their years in business, public or

private, size, and geographic location. Besides, all the companies will be considered if

they are dealing with real estate and publishing their financial information.

Sampling and Sampling Procedures

      To obtain the necessary sample for the investigation, specific filters were applied.

According to Collins (2006), this procedure refers to the sampling methodology, which is

the method for choosing the best elements from a defined or targeted population. Even if

a technique is only a description of anything at random, it is nevertheless constructed on

various factors, including the phenomena, the article or thing, the capacity, the outlook,

and the nature of the study (Myers, 2006; Salim, 2018). A simple random sampling

method will be used to select the companies. After applying the specified criteria, only 25

companies will be considered for analysis. This sample size is good because it represents

78 % of the total real estate listed companies in the exchange market and because it will

help allow for the collection of enough data. Besides, this sample size has passed the

representativeness test, meaning the sample results can be generalized to the whole

population.

Procedures for Recruitment, Participation, and Data Collection (Secondary Data)

      Researchers usually combine different techniques to develop their data collection

strategy for collecting a wide range of data. In this study, the main data will involve real

estate companies' financial performance in Egypt. Thus, the study is mainly based on

secondary data. The data collection will mainly involve visiting the websites of the

selected companies and downloading their annual reports with relevant data for the research.

For example, the balance sheets and income statements contain useful financial data that can compute ROI, ROE, and ROA. The study focuses on how short-term debts may influence the companies' ability to generate returns and how these returns can affect the debt structure of the selected companies. The secondary data published by these companies can also be obtained from the stock markets where they trade their stocks, especially for publicly traded companies. ROE is computed as earnings before interest and tax divided by shareholder equity. This data will be obtained from the company's income statements and balance sheets. The study will address data for the 2016–2020 period. ROI is obtained as the ratio between earnings before interest and tax and total investment, and this information will be obtained from cash flow and income statements.

Archival Data

Information that already exists in another person's files is referred to as "archival data." It is frequently preserved because of legal or research needs, for reference, or as an internal record, even though it was first created for reporting or research purposes. It is sometimes referred to as fixed data. It is typically not subject to change because it represents the outcome of finished actions. It is quicker and easier for research purposes than manually collecting all the data. The processing of historical data might have previously been done by experts in statistics or finance, which will help in the study, so this is likely the most evident and typical benefit of using historical data (Trzesniewski et al., 2011).

I chose archive data since the study because Archival data has frequently been used as the only choice when the information needed is unavailable anywhere other than the institution that owns the data. Administrative processes, earlier studies, and reviewed reports all contain archived data. This study will withdraw historical information from the Egyptian real estate firms' annual reports and financial statements. Furthermore, obtaining archival data is important because it is quicker and easier to gather than primary data. However, the data must have already been analyzed by knowledgeable statisticians and other staff members with the necessary skills in the relevant sector.

Data Analysis Plan

Reviewing, cleaning, transforming, and displaying data are typical steps in data analysis. The goal is to find and highlight the most pertinent and helpful information, offer logical inferences, and help people make well-informed decisions. A quantitative method of data analysis was used because the study used a quantitative approach and correlation design. Jones (2016) defines quantitative data analysis as an effort to synthesize phenomena through the organization and mathematical evaluation of gathered numerical data. Cooper and Schindler (2014) and Salim (2018) state that editing, which entails data preparation and gathering, typically constitutes the first step of data analysis. The researcher can discover and separate false material through editing so that it can be rectified, omitted, repeated, and validated before it becomes viable. This stage is essential because it enables the researcher to evaluate the overall quality of the material acquired and the fulfillment of the proper selection criteria. Data analysis is gathering raw data and

turning it into knowledge that consumers can use to make decisions (Hayes, 2017; Schofield, 2015).

Answering the RQs was the main objective of this study; therefore, three capital structure measures, STDTA, LTDTA, and TDTA, as well as ROA, ROE, and ROI, were included in this study as dependent variables. Researchers prefer correlation research design for different reasons (Venkatesh et al., 2013). For example, some researchers are not convinced that the statistical relationship they are investigating is causal or are less interested in causal relationships. Remember that the two fundamental goals of science are describing and predicting, and these goals can be achieved by adopting a correlation research design. In particular, considering that this study seeks to assess the relationship between the capital structure of real estate companies and their business performance measured using the selected performance indicators, the main focus is to evaluate the correlation between short-term debt as a component of the capital and these dependent variables.

I will use different statistical tools to analyze the stated relationship in this study. Based on how the variables are stated, a multicollinearity issue is expected. Primarily, multicollinearity arises when independent variables explain themselves first before they explain the dependent variable. In this study, independent and dependent variables are such that independent variables can influence each other. For example, the long-term debt in the companies' capital structure can affect their ability to access short-term debts and vice versa. In other words, suppose a company has huge short-term debts. In that case, its default risks increase, and its liquidity declines. As a result, long-term lenders may fear

lending to such a company, meaning its capacity to access long-term debts diminishes. Therefore, this company may not have adequate capital to invest, reducing its ability to generate more ROI, ROA, and ROE. A panel data regression model will be applied to the collected data to measure the correlation. The RQs and hypotheses were as follows:

RQ1. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA?

$H_0$1: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

$H_1$1: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

RQ2. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI?

$H_0$2: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

$H_1$2: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

RQ3: What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and the business performance of Egyptian real estate companies based on ROE?

$H_0$3: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

$H_1$3: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

RQ4. How does firm size impact the capital structure and performance of real estate companies listed on the Egyptian exchange market?

$H_0$4: There is no significant impact of firm size on the capital structure and performance of real estate companies listed on the Egyptian exchange market.

$H_1$4: There is a significant impact of firm size on capital structure and performance of real estate companies listed on the Egyptian exchange market.

Analytical Model

To analyze the data, I developed a regression model for each financial performance indicator (ROA, ROE, and ROI) using the independent variables STDTA, TDTA, and LTDTA. The other excluded variables were represented as "ϵ i,t." SPSS or Excel software will be used to test the significance of the model, and variance analysis will be used to analyze the goodness of fit of the fitted regression models.

ROA i, t(performance) = β_0 + β_1 LTDTA i,t + β_2Size i,t + β_3Growth i,t + β_4 TDTA i,t + β_5 STDTA i,t + ϵ i,t

ROE i, t(performance) = β0 + β1 LTDTA i,t + β2Size i,t + β3Growth i,t + β4 TDTA i,t + β5 STDTA i,t + ε i,t,

ROI i, t(performance) = β0 + β1 LTDTA i,t + β2Size i,t + β3Growth i,t + β4 TDTA i,t + β5 STDTA i,t + ε i,t,

Threats to Validity

According to Mohajan (2017), validity refers to what an instrument measures and how effectively it does so. According to Burkholder et al. (2016), the truth and legitimate findings are related to the research's validity. The study design required to address the RQ is the subject of a valid study. Fowler (2013) asserts that the reliability of the research findings constitutes validity. An adequate sample size, the type of data obtained, the sample from which the data were collected, and the data collection process should all be considered when determining validity (Burkholder et al., 2016). This study's secondary data was preferred because it was available in databases and corporate records. Internal and external validity are among the components of this section.

External Validity

This study will take a quantitative, scientific approach, including statistical tests and checks to help the researcher draw statistical conclusions from the test results. According to Barnham (2015), a quantitative methodology can improve the study findings' validity. The amount to which a researcher may apply the findings of a study to other situations, persons, places, and measures is referred to as external validity. In other words, can you apply your study's findings in a broader context? There is always a causal

link between the causes and consequences in the research design for external validity (Kessler & Vesterlund, 2015).

According to Taylor and Asmundson (2018), external validity relates to the extent to which study results can be applied. The scientific study aims to generate generalizable information about the real world. One cannot apply laboratory results to other individuals or the actual world unless they have strong external validity. The external validity of this study will be determined by the extent to which the results of this research design are applied to the 25 listed Egyptian real estate companies. The threat to the external validity of the chosen research design will be assessed using simple tests of a researcher's ability to generalize the findings on the impact of capital structure on the performance of the 25 Egyptian listed real estate companies to other non-listed real estate companies in the same market setting over the given time. As a result, the three major interactions, selection, history, and setting, present significant threats to external validity.

The threat to external validity associated with the study's selection, history, and setting is the possibility that the sample size is relatively small, such that the findings obtained may not apply to the management of other real estate companies that are not listed on the Egyptian exchange stock or located in other geographical regions within Egypt, because interactions between certain characteristics of listed real estate companies are not the same in the non-listed companies.

Internal Validity

The link between observation and theory is generally concerned with the internal validity of a research design. As defined by Datler, Jagodzinski, and Schmidt (2013),

internal validity relates to the extent to which observed changes in the dependent variables may be attributed directly to changes in the independent variable. Internal validity refers to study techniques, sample treatment, and sample experiences that can cause the researcher to draw incorrect conclusions from the data collected. According to Siedlecki (2020), the form of the study influences its internal validity. Internal validity refers to the minimum conditions to be met before the study is interpreted (Campbell & Stanley, 2015). According to Ferguson (2004), internal validity is obtaining the most truth feasible from a study with the option of applying the findings in another situation.

Internal validity would be established in the context of the current study by evaluating the extent to which notable changes in dependent variables such as ROA, ROE, and ROI are attributable directly to variations in the independent variables, which include STDTA, LTDTA, and TDTA. Internal validity, in this sense, is a point of degree (e.g., stating how low, medium, or high) rather than a single absence or presence. Based on these facts, it can be predicted that the researcher's trust in the findings is directly proportional to the internal validity of the research design (Taylor & Asmundson, 2018). As a result, I believe that strong internal validity is the foundation of a robust and reliable research design. This will be accomplished through the study sample or population of the 25 Egyptian real estate companies selected to ensure differences in capital ratios.

Construct Validity

According to Burkholder et al. (2016), construct validity is the degree to which the study's idea is conceived and operationalized. According to Hales (2016), in a quantitative study, the researcher is responsible for assuring the reliability and validity of

the results, as well as promoting trustworthy, reliable knowledge and evidence for better decision-making. According to Hehman et al. (2019), construct validity is related to the interpretation produced by the measure rather than the measure itself. The assessment of construct validity is primarily done to see whether the inferences made regarding the study findings are relevant and meet the research objectives (Oluwatayo, 2012).

The central focus of the construct for the research on the relationship between capital structure and the performance of real estate companies was to determine how variations in the independent variables (e.g., capital structure measures such as STDTA, LTDTA, and TDTA) affect the status of the dependent variables (e.g., ROA, ROE, and ROI). In this study, I will evaluate the correlational analysis assumptions to the characteristics of the study variables to determine that the study variables met the correlational analysis application requirements for the study.

Ethical Procedures

Ethical research should be an essential component of all research projects. Neufeld et al. (2019) advocated that every research be conducted ethically, without disrespecting the study's community or participants. Osborne (2017) urged all researchers to be ethical scholars and accurately disclose the findings of their studies to avoid misleading research consumers. Gelling (2016) proposed that all researchers enable an impartial reviewer to analyze the research and ensure compliance with ethical considerations.

This study did not include any human subjects. The study questions will be answered by applying correlational analysis to the statistics in the sampled firms'

published financial statements. These financial statements are already available on the listed capital exchange websites. According to Fowler (2013), it is critical to maintain the study participants' identity and confidentiality. This study will evaluate the financial health of listed and traded enterprises in capital markets. I anonymized and coded their corporate names to conceal the selected firms' identities. I additionally safeguarded all obtained data against unauthorized access.

Summary

I will conduct a quantitative correlational study to ascertain the relationship between capital structure and financial performance among the Egyptian stock market real estate firms. The study will be based on a sample of 25 firms listed. I will collect data from the firms between 2016 to 2020. The collected data will be used to analyze the correlation between variables. I will use SPSS to analyze the collected data and draw statistical models. All company names will be coded to ensure the privacy of the listed companies used in the study. I ensured that the study design would answer the RQ appropriately. In Chapter 4, I will present the study's findings from the analysis of the collected data.

Chapter 4: Results

This quantitative study examines the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange market (2016–2020). Three financial performance measures, ROA, ROE, and ROI, are used as dependent variables, and three capital structure measures, STDTA, LTDTA, and TDTA, are used as independent variables. Size and growth are also control variables. The RQs and hypotheses were as follows:

RQ1. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA?

$H_0$1: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

$H_1$1: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROA.

RQ2. What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI?

$H_0$2: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

$H_1$2: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROI.

RQ3: What is the nature of the relationship between capital structure (STDTA, LTDTA, and TDTA) and the business performance of Egyptian real estate companies based on ROE?

$H_0$3: There is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

$H_1$3: A significant relationship exists between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance based on ROE.

RQ4. How does firm size impact the capital structure and performance of real estate companies listed on the Egyptian exchange market?

$H_0$4: There is no significant impact of firm size on the capital structure and performance of real estate companies listed on the Egyptian exchange market.

$H_1$4: There is a significant impact of firm size on capital structure and performance of real estate companies listed on the Egyptian exchange market.

Data Collection

Assembling data about the topic under study requires data collection. It is crucial to ensure the information is compiled ethically and lawfully to ensure the data is complete during the collection phase (Felderer, B., 2022). The code of ethics is important in data gathering since the respondents should provide the information voluntarily, facilitating reliable results. It is important to inform the appropriate authorities about the

data collection so that they may engage the respondents and make it easier for them to provide correct information that will be useful to the study's researcher of the sampled firms. The researcher's data-gathering efforts assisted in producing information that would make it easier to answer the problems encountered and provide the most effective ones.

The process of acquiring data includes learning more about how capital structure impacts the financial performance of real estate companies listed on the Egyptian stock market (2016–2020). The researcher had to gather data based on three capital structure measures: STDTA, LTDTA, and TDTA as independent variables. The dependent variables for the study were ROA, ROE, and ROI. Growth and size are other control factors. The variables would offer data that would be utilized to evaluate how the capital structure impacted the financial performance.

Actions and step sequencing were involved in collecting information, providing a framework for research. Some procedures that must be performed require careful analysis to guarantee that the respondents are properly engaged. Before compiling data to help handle certain people working for the sampled companies and facilitate the production of high-quality results, obtaining permission from the authorities is crucial. Obtaining approval from the appropriate authorities informs a person about the potential difficulties that are likely to be experienced in the business and the steps that should be taken to ensure a better result. Attention must be taken during the procedures to eliminate biases that could impede the study outcomes. To ensure that high-quality results will obtained,

the researcher had to ensure that the data collection process was legal and approved by the source, the Egypt exchange website.

I visited the companies' websites to ensure that the financial data were the same as that published on the Egypt exchange market website. I visited the 25 sample firms, providing 125 instances for analysis and financial data from 2016 to 2020 (see Appendix). The researcher gathered comprehensive data about a company's size, profitability, growth, and capital structure by reviewing the websites. The data gathered about the company's size helped understand the company's potential market. Data on profitability provided insight into the company's development and leadership strategies to ensure that objectives were met.

<div align="center">

Study Results

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Descriptive Statistics

This section provides a comprehensive overview of descriptive statistics for financial variables derived from data encompassing 25 real estate companies listed on the Egyptian exchange market over 5 years (2016–2020). These statistics encompass essential measures of central tendency (mean), variability (standard deviation), skewness, and kurtosis (see Table 1). The financial variables under scrutiny include growth, size (represented as the natural logarithm of total assets), ROA, ROE, ROI, STDTA, LTDTA, and TDTA. These statistical insights serve as fundamental tools for understanding the distributional properties of the data, which are pivotal for subsequent analyses exploring the relationships between capital structure and financial performance within the real estate sector.

Table 1

Descriptive Statistics for Study Variables

| Variable | N | Minimum | Maximum | Mean | Std. Deviation | Skewness | | Kurtosis | |
						Statistic	Std. Error	Statistic	Std. Error
Growth	125	-1.00	15.25	.51	2.26	5.57	.22	32.00	.43
Size	125	18.17	25.49	21.74	1.68	.30	.22	-.70	.43
ROA	125	-.07	.30	.05	.06	1.51	.22	3.64	.43
ROE	125	-.16	1.60	.15	.18	4.39	.22	32.30	.43
ROI	125	-.16	.95	.10	.13	3.05	.22	16.50	.43
STD /Total Assets	125	.00	.61	.07	.10	2.84	.22	9.03	.43
LTD / Total Assets	125	.00	.41	.05	.06	3.18	.22	15.25	.43
Total Debt / Total Assets	125	.00	.65	.11	.12	2.00	.22	4.41	.43

Table 1 provides an overview of the descriptive statistics for the financial variables under examination in this study, encompassing 25 real estate companies listed on the Egyptian exchange market between 2016 and 2020. The mean growth rate among these companies is 0.51 ($SD = 2.26$), with values ranging from -1.00 to 15.25. Skewness is notably positive at 5.67, indicating a right-skewed distribution, and kurtosis stands at 32.01, suggesting heavy tails in the data. The companies' average size, represented as the natural logarithm of total assets, is approximately 21.74 ($SD = 1.67$), with values ranging from 18.17 to 25.49. Skewness is relatively small at 0.30, and kurtosis is negative at -0.70, indicating a relatively normal distribution. Regarding financial performance, the mean ROA is 0.05 ($SD = 0.06$), with values from -0.07 to 0.30. Skewness is positive at

1.51, suggesting a right-skewed distribution, and kurtosis is 3.64, indicating a moderately peaked distribution.

The average ROE is approximately 0.15 (SD = 0.18), with values ranging from -0.16 to 1.59. Skewness is highly positive at 4.39, indicating a substantial right skew, and kurtosis is 32.30, reflecting heavy tails in the data. The mean ROI is also 0.10 (SD = 0.13), with values ranging from -0.16 to 0.95. Skewness is positive at 3.05, suggesting a right-skewed distribution, and kurtosis is 16.54, indicating a peaked distribution. Concerning capital structure, the STDTA averages 0.07 (SD = 0.10), ranging from 0.00 to 0.61. Skewness is positive at 2.83, suggesting a right-skewed distribution, and kurtosis is 9.02, indicating a moderately peaked distribution. The LTDTA averages 0.05 (SD = 0.06), ranging from 0.00 to 0.41. Skewness is notably positive at 3.18, indicating a right-skewed distribution, and kurtosis is 15.25, reflecting heavy tails. The TDTA has an average of approximately 0.11 (SD = 0.12), with values spanning from 0.00 to 0.65. Skewness is positive at 2.00, suggesting a right-skewed distribution, and kurtosis is 4.41, indicating a moderately peaked distribution.

The line graph in Figure 1 illustrates the mean growth of 25 real estate companies listed on the Egyptian exchange market over 5 years from 2016 to 2020. The data reveal fluctuations in the mean growth rates during this period. In 2016, the mean growth was relatively high at 2.00, indicating a robust performance for these companies. However, there was a notable decrease in growth in the subsequent years. In 2017, the mean growth dropped significantly to 0.18, followed by a further decline in 2018 to 0.16. The trend continued in 2019, with the mean growth reaching 0.14 and finally stabilizing at 0.07 in

2020. These results suggest that the analysis of mean growth trends among 25 real estate

companies from 2016 to 2020 suggests an overall positive trajectory in the sector.

However, it is noteworthy that the growth rate exhibited a consistent deceleration over

the 5 years. This implies that while real estate companies continued to experience growth,

it was at a progressively slower pace each year.

Figure 1

Mean Growth of 25 Real Estate Companies, 2016–2020
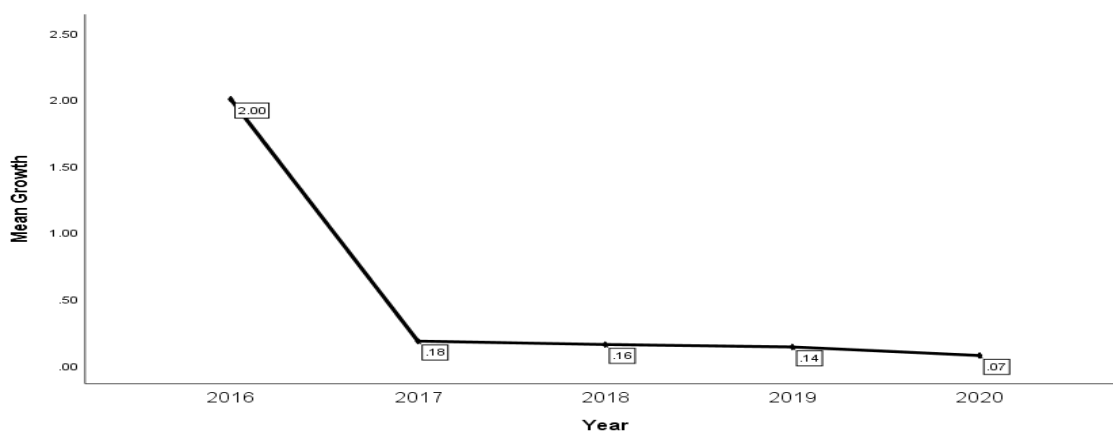
Note. The line graph illustrates the mean growth trends, with the x-axis representing the

years from 2016 to 2020 and the y-axis indicating the respective mean.

Figure 2 provides a comprehensive overview of the companies' mean financial

performance of 25 real estate companies listed on the Egyptian exchange market from

2016 to 2020, focusing on key indicators, including Return on Assets (ROA), Return on

Equity (ROE), and Return on Investment (ROI) Over the examined years, a discernible

trend emerged. In 2016, these companies exhibited a relatively robust financial

performance, with a mean ROA of 0.06, signifying a moderate ROA, a mean ROE of

0.21, indicating strong returns relative to shareholders' equity, and a mean ROI of 0.13,

reflecting reasonable returns on investments. However, a discernible trend of declining

financial performance became evident as the years progressed. ROA and ROE

experienced consistent decreases, reaching 0.04 and 0.12 in 2019 and further declining to

0.04 and 0.10 in 2020. ROI followed a similar trajectory, declining steadily to 0.07 by

2020. These trends suggest that, over these 5 years, real estate companies in the Egyptian

market faced challenges or changes that impacted their ability to generate profits and

returns on investments in relation to assets and equity.

Figure 2

Mean Financial Performance of 25 Real Estate Companies, 2016–2020
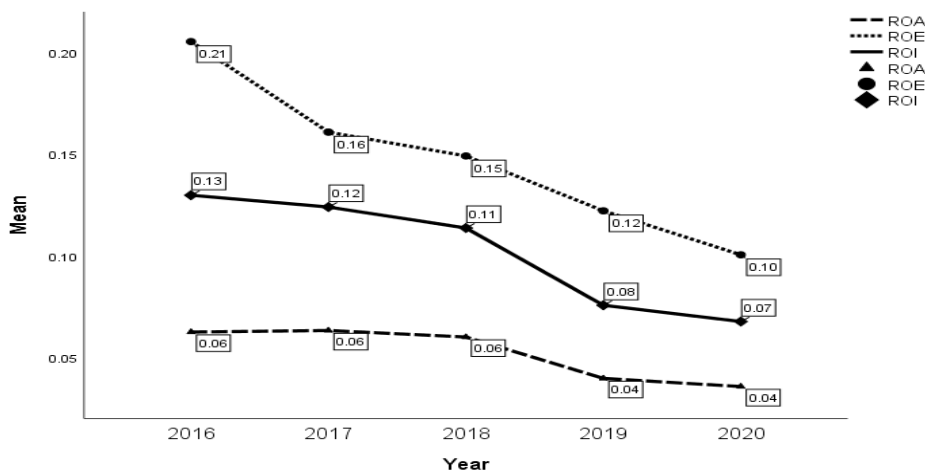
Note. The data points represent the mean values for return on assets (ROA), return on

equity (ROE), and return on investment (ROI). ROA is represented by a long-dashed line,

ROE by a dot-dashed line, and ROI by a solid line. The x-axis denotes the years, whereas

the y-axis represents the mean values of these financial indicators. The figure highlights

the declining trends in ROA, ROE, and ROI over the 5-year duration, signaling potential

shifts in the financial landscape of the real estate industry in Egypt.

The line graph presented in Figure 3 displays the mean size trends of 25 real estate companies listed on the Egyptian exchange market from 2016 to 2020. The data indicate consistent growth in the mean size of these companies over the 5 years. In 2016, the mean size was observed at 21.52, which continued to increase steadily in the subsequent years. 2017, it rose slightly to 21.62, followed by a further increase to 21.77 in 2018. This growth trend continued into 2019, with the mean size reaching 21.87 and finally stabilizing at 21.93 in 2020. These findings suggest that, on average, the size of real estate companies in the Egyptian market increased progressively over the 5 years.

Figure 3

Mean Size of 25 Real Estate Companies, 2016–2020
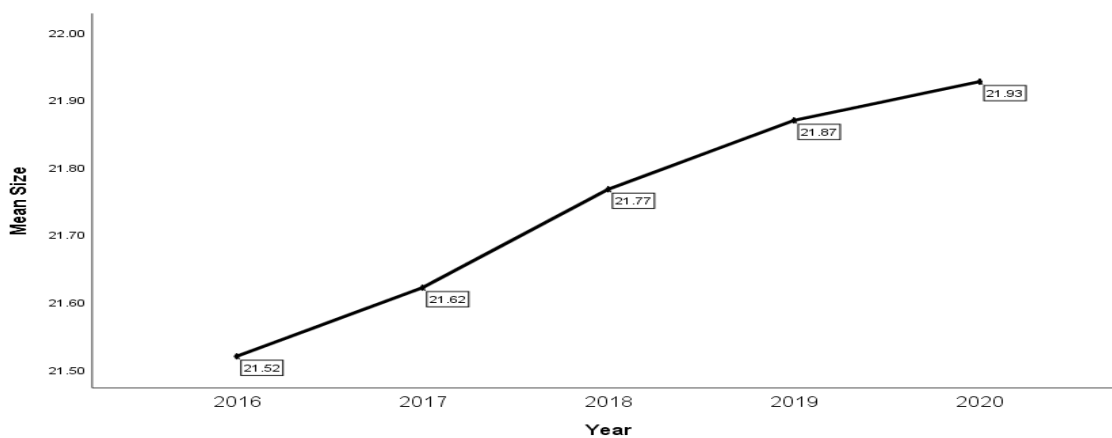
Note. Each data point on the graph corresponds to the mean size for a specific year, with the x-axis representing the years and the y-axis representing the mean size values. The figure provides valuable insights into the consistent growth observed in the size of these real estate companies during this period.

Correlation Analyses

I performed an extensive correlation analysis to delve into the intricate relationships between financial variables and three pivotal financial performance metrics: ROA, ROE, and ROI (see Table 2). Drawing upon the financial data of 25 prominent real estate companies listed on the Egyptian exchange market from 2016 to 2020, the primary aim is to gain profound insights into the factors that influence these critical performance indicators within the dynamic and evolving landscape of the Egyptian real estate industry.

Table 2 Correlation Analysis

Correlations

		Growth	size	ROA	ROE	ROI	STDTA	LTDTA	TDTA
Growth	Pearson Correlation	1	.203*	-.048	.005	-.032	.084	.012	.076
	Sig. (2-tailed)		.024	.596	.952	.722	.350	.891	.399
	N	125	125	125	125	125	125	125	125
Size	Pearson Correlation	.203*	1	-.145	.027	-.060	-.120	.193*	-.010
	Sig. (1-tailed)	.024		.107	.766	.507	.181	.031	.915
	N	125	125	125	125	125	125	125	125
ROA	Pearson Correlation	-.048	-.145	1	.527**	.761**	-.249**	-.245**	-.329**
	Sig. (2-tailed)	.596	.107		.000	.000	.006	.006	.000
	N	125	125	125	125	125	125	125	125
ROE	Pearson Correlation	.005	.027	.527**	1	.540**	-.138	-.063	-.149
	Sig. (2-tailed)	.952	.766	.000		.000	.124	.482	.097
	N	125	125	125	125	125	125	125	125
ROI	Pearson Correlation	-.032	-.060	.761**	.540**	1	-.042	-.209*	-.135
	Sig. (2-tailed)	.722	.507	.000	.000		.639	.019	.133
	N	125	125	125	125	125	125	125	125
STD/TA	Pearson Correlation	.084	-.120	-.249**	-.138	-.042	1	.076	.883**
	Sig. (2-tailed)	.350	.181	.005	.124	.639		.398	.000
	N	125	125	125	125	125	125	125	125

LTD/TA	Pearson Correlation	.012	.193*	-.245**	-.063	-.209*	.076	1	.533**
	Sig. (2-tailed)	.891	.031	.006	.482	.019	.398		.000
	N	125	125	125	125	125	125	125	125
TD/TA	Pearson Correlation	.076	-.010	-.329**	-.149	-.135	.883**	.533**	1
	Sig. (2-tailed)	.399	.915	.000	.097	.133	.000	.000	
	N	125	125	125	125	125	125	125	125

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Coefficients Analysis for Return on Assets

Accordingly, Table 2 shows the correlation between ROA and STDTA, LTDTA, TDTA, growth, and size. The correlation between ROA and STDTA is -0.249, which is negative. It means the indirect relationship between STDTA and ROA (i.e., an increase in the STDTA reduces the ROA). Also, the correlation between ROA and LTDTA is -0.245. It is also negative and indicates an inverse link. Besides, the correlation between ROA and TDTA is -0.329, which is negative. It specifies that an increase in the TDTA leads to a decrease in the ROA.

The correlation coefficient between ROA and growth is -0.48, and ROA and size is -0.145. The negative correlations identify the inverse relationship between ROA and other independent variables. However, the p-value of 0.006, which is less than the significance level of 0.05, indicates the statistically significant relationship between ROA and STD/Total Assets and LTD/Total Assets. Also, the p-value of 0.000 <0.05 specifies the considerable linkage between ROA and Total Debt/Total Assets. Besides, p-values of 0.596 and 0.107 are more than and equal to 0.05, which means there is no statistically significant relationship between ROA and growth and size.

Correlation Coefficients Analysis for Return on Equity

The correlation between ROE and STD/Total Assets is -0.138, with a p-value of 0.124 > 0.05 of the significance level. It specifies the negative relationship between ROE and STD/Total Assets. Besides, the correlation between ROE and LTD/Total Assets is -0.063, which is negative and indicates the inverse relationship: with an increase in one, there will be a decrease in the other. The p-value is also 0.482 > 0.05, specifying no statistically significant relationship between ROE and LTD/Total Assets. In addition, the correlation between ROE and Total Debt/Total Assets is -0.149, a negative value indicating an inverse linkage between ROE and Total Debt/Total Assets.

However, the p-value is 0.097 > 0.05, showing no statistically significant relationship between the two variables. The correlation coefficients between ROE and growth and size include 0.005 and 0.027. Both values are positive and specify a highly weaker (positive) relationship with ROE. On the other hand, the p-values of 0.952 and 0.766 indicate values that are more than 0.05. It means there is no statistically significant relationship between ROE and the growth and size of the businesses.

Correlation Coefficients Analysis for Return on Investment

In addition, Table 2 shows the correlation coefficients between ROI and STD/Total Assets, LTD/Total Assets, Total Debt/Total Assets, growth, and size. It can be seen that the correlation coefficient between ROI and STD/Total Assets is -0.042, with a p-value of .638 > 0.05. The result shows a negative relationship between STD/Total Assets and ROI and no statistically significant link between the two variables. The correlation coefficient between ROI and LTD/Total Assets is -0.21, with a p-value of

0.019. The negative correlation means an inverse relationship between two variables, but the p-value is less than 0.05. It specifies a statistically significant link between ROI and LTD/ Total Assets. Moreover, the correlation coefficient between ROI and Total Debt/Total Assets is -0.135 with a p-value of 0.133 > 0.05.

The results show the inverse relationship between Total Debt/ Total Assets and no statistically significant relationship between the two variables. Additionally, the correlation coefficient between ROI and growth is -0.032, with a p-value of 0.722 > 0.05. The result indicates the inverse link between growth and ROI and no statistically significant relationship between growth and ROI. Lastly, the correlation coefficient between the business size and ROI is -0.060, with a p-value of 0.507 > 0.05. The outcome specifies an inverse link and no statistically significant relationship between size and ROI.

These results suggest that capital structure, encompassing long-term, short-term, and total debt to total assets ratios, is pivotal in influencing the Egyptian real estate sector's ROA. Specifically, higher levels of LTDTA are associated with a reduced ROI. At the same time, no critical impact on ROE is observed across various capital structure components. Importantly, neither company size nor growth significantly affects any financial performance metrics, highlighting the limited influence of size and growth in this specific industry context.

Regression Analyses

I initiated the process of documenting the study statistics output. However, upon closer examination, the regression analysis model exhibits significantly elevated variance

inflation factor values. These elevated values indicate multicollinearity issues within the study model(s). Essentially, this suggests a high degree of correlation among at least two of the independent variables included in the model. It is important to address this multicollinearity concern as it can undermine the reliability of my regression results.

Fortunately, well-established techniques in the literature address this particular regression assumption(Chatterjee & Hadi, 2012). One common approach involves taking measures such as excluding one of the highly correlated independent variables or centering the independent variables, which can help mitigate the multicollinearity problem. The researcher tried to address the multicollinearity issue in the analysis, namely that the TDTA ratio encompasses both short-term and long-term debt as a proportion of total assets. It is expected to exhibit a high correlation among the independent variables, and excluding one of the variables is not possible in the study.

In another way, centering is the linear rescaling of a variable by removing the mean (average) from each value. Before using those variables as predictors in a regression model, centering variables is occasionally finished. It is typically done for one or both of the following reasons: When estimating a moderated multiple linear regression model, the goals are to (a) increase the intercept's value and interpretability and (b) lessen collinearity between two or more predictor variables that are then multiplied to produce an interaction term (product term).

I refrained from including all three debt variables in a single regression model. However, it is common practice in financial studies to employ multiple models to achieve a better fit. Therefore, I expanded the analysis by incorporating two additional regression

models based on the guidance from the correlation analysis. The first model included

only the TDTA variable, and the second model introduced STDTA and LTDTA. Models

3 and 4 remained. This approach allows the researcher to discern which independent

variables offer superior predictive power regarding a company's financial performance.

Regression Analysis for Return on Assets

This study employs multiple regression analyses in the Egyptian real estate

market to investigate the influence of capital structure, company size, and growth on

ROA. Four distinct regression models have been constructed, each probing the distinctive

and collective effects of TDTA, STDTA, LTDTA, size, and growth on ROA. The models

provide insights into the intricate relationships between financial variables and the

performance measure ROA.

Table 3

Model Summary for Return on Assets

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.329[a]	.109	.101	.056	.109	14.970	1	123	.000	.843
2	.337[a]	.114	.099	.056	.114	7.810	2	122	.001	.836
3	.346[a]	.120	.098	.056	.120	5.490	3	121	.001	
4	.369[b]	.136	.100	.057	.017	1.150	2	119	.320	.868

1- Predictors: (Constant), TDTA   2- Predictors: (Constant), LTDTA, STDTA
3- Predictors: (Constant), LTDTA, STDTA, TDTA   4- Predictors: (Constant), LTDTA, STDTA, TDTA, Growth, Size
Dependent Variabe ROA

Table 4

Coefficients for Return on Assets

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.07	.01	_	10.27	.000	_	_
	TDTA	-.16	.04	-.33	-3.87	.000	1.00	1.00
2	(Constant)	.07	.01	_	10.13	.000	_	_
	STDTA	-.14	.05	-.23	-2.71	.008	.99	1.01
	LTDTA	-.24	.09	-.23	-2.66	.009	.99	1.01
3	(Constant)	.07	.01	_	10.03	.000	_	_
	TDTA	-.87	.94	-1.77	-.92	.358	.00	503.74
	STDTA	.74	.94	1.27	.78	.437	.00	362.82
	LTDTA	.63	.94	.60	.67	.506	.01	111.43
4	(Constant)	.17	.07	_	2.51	.013	_	_
	TDTA	-.81	.94	-1.64	-.86	.393	.00	505.42
	STDTA	.66	.94	1.14	.70	.484	.00	364.46
	LTDTA	.60	.94	.57	.63	.528	.01	111.62
	Growth	1.64	.00	.00	.01	.994	.94	1.06
	Size	-.01	.00	-.13	-1.48	.141	.90	1.12

1- Predictors: (Constant), TDTA   2- Predictors: (Constant), LTDTA, STDTA
3- Predictors: (Constant), LTDTA, STDTA, TDTA 4- Predictors: (Constant), LTDTA, STDTA, TDTA, Growth, Size
 Dependent Variable: ROA

- *Model 1*   ROA i, t (performance) = $\beta 0 + \beta 1$ TDTA i,t + ϵ i,t,

    A simple regression analysis was conducted to examine the influence of TDTA

on ROA. Tables 3 and 4 show the results revealed a statistically significant relationship,

$F(1,123) = 14.97, p < .001$. TDTA had a negative effect on ROA   ($b = -0.162, SE =$

0.042, β = -0.329, t = -3.87, $p < .001$). This indicates that an increase in TDTA is associated with a decrease in ROA, suggesting that higher total debt relative to total assets negatively impacts a company's ROA. The model accounted for 10.9% of the variance in ROA ($R^2 = 0.109$). So, the regression model will be as follows.

ROA (Performance) = 070 + (-.162) TDTA

- *Model 2:* ROA i, t (performance) = $\beta0 + \beta1$ LTDTA i,t + $\beta2$ STDTA i,t + ϵ i

    In the second multiple regression model, Short-Term Debt to Total Assets (STDTA) and Long-Term Debt to Total Assets (LTDTA) were added as independent variables to assess their combined impact on ROA. Tables 3 and 4 show that The model was statistically significant, F (2,122) = 7.81, p = .001. STDTA had a negative effect on ROA (b = -0.135, SE = 0.050, β = -0.232, t = -2.71, p = .008), as did LTDTA (b = -0.238, SE = 0.089, β = -0.228, t = -2.66, p = .009). These findings suggest that short-term and long-term debt ratios are inversely related to ROA, indicating that higher debt levels are associated with lower returns on assets. The model accounted for 11.4% of the variance in ROA (R^2 = 0.114), with an adjusted R^2 of 0.099. so the regression model will be

ROA i, t(performance) = 0.72 + (-.238) LTDTA + (-.135) STDTA

- *Model 3:* ROA i, t(performance) = $\beta0 + \beta1$ LTDTA i,t + $\beta2$ TDTA i,t + $\beta3$

    STDTA i,t + ϵ i,t

    The third multiple regression model incorporated TDTA, STDTA, and LTDTA as independent variables to evaluate their joint impact on ROA. However, Tables 3 and 4 show that this model did not yield statistical significance, F (3,121) = 5.48, p = .001.

TDTA (b = -0.867, SE = 0.939, β = -1.768, t = -0.92, p = .358), STDTA (b = 0.736, SE =

0.944, β = 1.267, t = 0.78, p = .437), and LTDTA (b = 0.627, SE = 0.941, β = 0.600, t = 0.67, p = .506) did not have significant individual effects on ROA. These results suggest that, when considered together, these debt ratios do not significantly influence ROA. The model accounted for 12.0% of the variance in ROA (R^2= 0.120), with an adjusted R^2 of 0.098. so the regression model will be

ROA i, t(performance) = 0.71 + .627 LTDTA i,t + (-.867) TDTA i,t + .736 STDTA i,t

- *Model 4 :* ROA i, t(performance) = β0 + β1 LTDTA i,t + β2 Size i,t + β3 Growth i,t + β4 TDTA i,t + β5 STDTA i,t

  The fourth multiple regression model introduced additional independent variables, including growth and size, alongside TDTA, STDTA, and LTDTA to explore their collective impact on ROA. Tables 3 and 4 show that This model demonstrated statistical significance, F (5,119) = 3.76, p = .003. Among the debt ratios, TDTA (b = -0.806, SE = 0.940, β = -1.643, t = -0.86, p = .393) remained non-significant, while STDTA (b = 0.135, SE = 0.944, β = 1.143, t = 0.73, p = .484) and LTDTA (b = 0.238, SE = 0.941, β = 0.569, t = 0.63, p = .528) continued to lack significant individual effects on ROA. Furthermore, growth (b = 0.0001, SE = 0.002, β = 0.001, t = 0.01, p = .994) and size (b = -0.005, SE = 0.003, β = -0.133, t = -1.48, p = .141) did not exhibit significant influences. These results suggest that, in this model, none of the examined variables significantly predict ROA, highlighting the complex interplay among these factors within the Egyptian real estate sector. The model accounted for 13.6% of the variance in ROA (R^2= 0.136), with an adjusted R^2 of 0.100. So, the regression model will be

ROA (performance) = .174 + .595 LTDTA + (-.005) Size + 1.64 Growth + (-.806) TDTA + .664 STDTA

In this comprehensive analysis of real estate companies listed on the Egyptian exchange market spanning 2016 to 2020, the researcher meticulously examined the intricate interplay between capital structure, firm size, growth, and the pivotal financial indicator, ROA. Findings underscored the critical role of debt variables in shaping ROA outcomes. Particularly, the TDTA ratio emerged as a robust determinant of ROA, signifying an inverse relationship – higher TDTA ratios corresponded with diminished ROA performance. Moreover, Model 2 corroborated these insights by revealing that STDTA and LTDTA had negative associations with ROA. Notably, LTDTA exhibited a more substantial influence on ROA than STDTA.

One intriguing aspect of the analysis was the preference for Model 1 and Model 2 over Model 3 and Model 4, primarily driven by the adjusted R2 values. Models 1 and 2, focusing predominantly on TDTA, exhibited superior model fits, providing a more comprehensive explanation for the variations in ROA among real estate companies. These results underscore the importance of prudent debt management and cultivating a balanced capital structure within the real estate sector to elucidate the nuances and determinants of ROA.

Regression Analysis for Return on Equity

multiple regression analysis examined how capital structure, firm size, and growth affect the Egyptian real estate market's ROE. Four different regression models have been built to investigate the unique and combined effects of size, growth, LTDTA, STDTA,

and TDTA on ROE. These models explain the complex links between financial variables

and ROE performance metrics.

Table 5

Model Summary for Return on Equity

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.149a	.022	.014	.180	.022	2.796	1	123	.097	1.571
2	.148a	.022	.006	.181	.022	1.371	2	122	.258	1.572
3	.155a	.024	.000	.181	.024	.994	3	121	.398	
4	.157b	.025	-.016	.183	.001	.042	2	119	.959	1.568

    1- Predictors: (Constant), TDTA 2- Predictors: (Constant), LTDTA, STDTA
    3- Predictors: (Constant), LTDTA, STDTA, TDTA 4- Predictors: (Constant), LTDTA, STDTA, TDTA, Growth, Size
    Dependent Variabe ROE

Table 6

Coefficients for Return on Equity

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.17	.02	.00	7.90	.000	_	_
	TDTA	-.22	.13	-.15	-1.67	.097	1.00	1.00
2	(Constant)	.17	.02	.00	7.52	.000	_	_
	STDTA	-.24	.16	-.13	-1.50	.137	.99	1.01
	LTDTA	-.17	.29	-.05	-.59	.555	.99	1.01
3	(Constant)	.17	.02	.00	7.44	.000	_	_
	TDTA	-1.52	3.02	-1.02	-.51	.614	.00	503.74

	STDTA	1.29	3.03	.73	.43	.671	.00	362.82
	LTDTA	1.35	3.02	.42	.45	.656	.01	111.43
4	(Constant)	.12	.22	.00	.53	.597	_	_
	TDTA	-1.54	3.04	-1.03	-.51	.613	.00	505.42
	STDTA	1.31	3.06	.74	.43	.669	.00	364.46
	LTDTA	1.35	3.05	.43	.45	.657	.01	111.62
	Growth	.00	.01	.01	.13	.901	.94	1.06
	Size	.00	.01	.02	.23	.821	.90	1.12

1- Predictors: (Constant), TDTA   2- Predictors: (Constant), LTDTA, STDTA
3- Predictors: (Constant), LTDTA, STDTA, TDTA 4- Predictors: (Constant), LTDTA, STDTA, TDTA, Growth, Size 5- Dependent Variable: ROE

- *Model 1:* ROE i, t(performance) = $\beta 0 + \beta 1$ TDTA i,t + ϵ i,t,

A multiple regression analysis examined the relationship between ROE and

TDTA. Tables 5 and 6 show that the model was statistically nonsignificant, $F_{(1,123)}$ =

2.80, p = .097, indicating that TDTA did not significantly predict ROE (b =-.223, SE =

.133, β = -.149, t = -1.67, p =.097). The R^2 value was 0.022, and the adjusted R^2 was

0.014, suggesting minimal variance explained by this model. This implies that TDTA

alone does not appear to impact ROE substantially. So, the regression model will be ROE

(performance) = .172 + (-.223) TDTA.

- *Model 2:* ROE i, t(performance) = $\beta 0 + \beta 1$ LTDTA i,t + $\beta 2$ STDTA i,t + ϵ i,t,

The second multiple regression model included STDTA and LTDTA as predictors

of ROE. Tables 5 and 6 show that This model also yielded nonsignificant results, F

$(2,122)$ = 1.37, p = .258. Neither STDTA (b =-.238, SE = .159, β = -.134, t = -1.50, p

=.137) nor LTDTA (b =-.169, SE = .286, β = -.053, t = -0.59, p =.555) significantly

predicted ROE. The R^2 value was 0.022, with an adjusted R^2 of 0.006. Consequently,

combining STDTA and LTDTA does not provide substantial explanatory power for

ROE. So, the regression model will be

ROE (performance) = .171 + (-.169) LTDTA + (-.238) STDTA

- *Model 3*: ROE i, t(performance) = β0 + β1 LTDTA i,t + β2 TDTA i,t + β3

    STDTA i,t + ϵ i,t,

In the third model, TDTA, STDTA, and LTDTA were simultaneously entered as

predictors of ROE. Once again, Tables 5 and 6 show that the model was not statistically

significant, $F\ (3,121) = 0.99$, $p = .398$. TDTA (b =-1.523, $SE = 3.01$, β = -1.018, t = -

0.50, p =.614), STDTA (b =1.290, $SE = 3.03$, $\beta = 0.729$, $t = 0.43$, p =.671), and LTDTA

(b =1.350, $SE = 3.02$, β = .424, $t = 0.48$, p =.656) did not significantly influence ROE.

The R^2 value for this model was 0.024, and the adjusted R^2 was 0.0001. These findings

suggest that the combination of TDTA, STDTA, and LTDTA does not improve the

predictive accuracy of ROE. So, the regression model will be

ROE i, t(performance) =.170 + 1.35 LTDTA + (-1.52) TDTA + 1.29 STDTA

- *Model* 4: ROE i, t(performance) = β0 + β1 LTDTA i,t + β2Size i,t + β3Growth i,t

    + β4 TDTA i,t + β5 STDTA i,t + ϵ i,t,

The final multiple regression model included TDTA, STDTA, LTDTA, growth,

and size as predictors of ROE. Tables 5 and 6 show that This model also produced

nonsignificant results, $F\ (5,119) = 0.60$, $p = .697$. TDTA (b =-1.543, $SE = 3.04$, β = -

1.031, t = -.51, p =.613), STDTA (b =1.313, $SE = 3.06$, $\beta = 0.742$, $t = 0.43$, p =.669),

LTDTA (b =1.355, $SE = 3.05$, β = .425, $t = 0.42$, p =.657), growth (b =.001, $SE = .007$, β

$= .012$, $t = 0.02$, $p = .901$), and size ($b = .002$, $SE = .010$, $\beta = .022$, $t = 0.23$, $p = .821$) did

not significantly predict ROE. The R^2 value was 0.025, with an adjusted R^2 of 0.016.

Therefore, including growth, size, and additional debt variables did not enhance the

model's explanatory capacity for ROE. So, the regression model will be

ROE (performance) = .119 + 1.35 LTDTA + .002 Size + .001 Growth + (-1.54) TDTA +

1.31 STDTA

Overall, these regression models suggest that, within the Egyptian real estate

industry, capital structure, company size, and growth variables, including TDTA,

STDTA, LTDTA, growth, and size, do not exert significant individual or collective

influence on ROE. Across all models, the R^2 values for ROE remained notably low,

implying that these variables collectively account for only a limited portion of the

variance in ROE. This underscores the intricate and multifaceted nature of ROE within

this sector and suggests that other unexplored or external factors may play a more

dominant role in determining ROE.

Regression Analysis for Return on Investment

This study extensively explores the intricate relationships that govern ROI and a

spectrum of pertinent financial variables through multiple regression analysis within the

context of the Egyptian real estate sector. The central objective is to scrutinize the extent

to which vital factors, including TDTA, STDTA, and LTDTA, alongside the dimensions

of growth and size, exert individual and collective influences on ROI.

Table 7

Model Summary for Return on Investment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.135a	.018	.010	.126	.018	2.293	1	123	.133	.992
2	.211a	.045	.029	.125	.045	2.842	2	122	.062	.945
3	.213a	.045	.022	.125	.045	1.919	3	121	.130	
4	.216b	.046	.006	.126	.001	.067	2	119	.935	.952

1- Predictors: (Constant), TDTA   2- Predictors: (Constant), LTDTA, STDTA
3- Predictors: (Constant), LTDTA, STDTA, TDTA   4- Predictors: (Constant), LTDTA, STDTA, TDTA, Growth, Size
Dependent Variabe ROI

Table 8

Coefficients for Return on Investment

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.12	.02	-	7.73	.000	-	-
	TDTA	-.14	.09	-.14	-1.51	.133	1.00	1.00
2	(Constant)	.13	.02		7.99	.000	-	-
	STDTA	-.03	.11	-.03	-.30	.765	.99	1.00
	LTDTA	-.46	.20	-.21	-2.34	.021	.99	1.00
3	(Constant)	.13	.02	-	7.92	.000	-	-
	TDTA	-.71	2.08	-.68	-.34	.735	.00	503.74
	STDTA	.68	2.09	.55	.32	.747	.00	362.82
	LTDTA	.24	2.08	.11	.12	.907	.01	111.43
4	(Constant)	.15	.16	-	1.00	.322	-	-
	TDTA	-.71	2.10	-.68	-.34	.738	.00	505.41
	STDTA	.67	2.11	.55	.32	.750	.00	364.45

LTDTA	.25	2.10	.11	.12	.905	.01	111.62
Growth	.00	.01	-.03	-.27	.790	.94	1.06
Size	.00	.01	-.02	-.19	.853	.90	1.12

1- Predictors: (Constant), TDTA   2- Predictors: (Constant), LTDTA, STDTA
3- Predictors: (Constant), LTDTA, STDTA, TDTA 4- Predictors: (Constant), LTDTA,
STDTA, TDTA, Growth, Size 5- Dependent Variable: ROI

- *Model 1* ROI i, t(performance) $= \beta0 + \beta1$ TDTA i,t $+ \epsilon$ i,t,

A multiple regression analysis was performed to examine the influence of TDTA

on ROI. Tables 7 and 8 show that The results showed that this model (Equation 1) was

not statistically significant, F (1,123) = 2.29, p = .133, indicating that TDTA did not

significantly predict ROI (B = -0.141, SE = 0.093, β = -0.135, t = -1.51, p = .133). This

model had an R2 value of 0.018, suggesting a limited amount of variance in ROI

explained by TDTA. So, the regression model will be

 ROI (performance) = .118 + (-.141) TDTA

- *Model 3:* ROI i, t(performance) $= \beta0 + \beta1$ LTDTA i,t $+ \beta2$ TDTA i,t $+ \beta3$ STDTA

  i,t $+ \epsilon$ i,t,

Tables 7 and 8 show that the second multiple regression model introduced

STDTA and LTDTA as predictors of ROI. This model yielded marginally significant

results, F (2,122) = 2.84, p = .050. While STDTA (b = -0.033, SE = 0.110, β = -0.027, t =

-0.30, p = .767) did not significantly predict ROI, LTDTA (b = -0.460, SE = 0.197, β = -

0.207, t = -2.33, p = .021) showed a significant negative relationship with ROI. The R^2

value for this model was 0.045, indicating a modest amount of variance explained by the

debt components. So, the regression model will be

ROI (performance) = .125 + (-.460) LTDTA + (-.033) STDTA

- *Model 2:* ROI i, t(performance) = β0 + β1 LTDTA i,t + β2 STDTA i,t + ϵ i,t,

Tables 7 and 8 show that TDTA, STDTA, and LTDTA were simultaneously

entered as predictors of ROI in the third regression model. However, this model was not

statistically significant, F (3,121) = 1.92, p = .130. None of these debt variables TDTA (b

= -0.706, SE = 2.08, $β$ = -0.677, t = -0.34, p = .735), STDTA (b = 0.675, SE = 2.09, $β$ =

0.547, t = 0.32, p = .747), or LTDTA (b = 0.243, SE = 2.08, $β$ = 0.110, t = 0.12, p = .907)

significantly influenced ROI. The R^2 value for this model was 0.045, with limited

variance explained. So, the regression model will be

ROI (performance) = .125 + .243 LTDTA + (-.706) TDTA + .675 STDTA

- *Model 4:* ROI i, t(performance) = β0 + β1 LTDTA i,t + β2Size i,t + β3Growth i,t
  + β4 TDTA i,t + β5 STDTA i,t + ϵ i,t,

Tables 7 and 8 show that the final multiple regression model incorporated TDTA,

STDTA, LTDTA, growth, and company size as predictors of ROI. This model also

produced nonsignificant results, F (5,119) = 1.16, p = .333. None of the variables TDTA

(b = -0.705, SE = 2.10, $β$ = -0.676, t = -0.34, p = .738), STDTA (b = 0.674, SE = 2.11, $β$ =

0.546, t = 0.32, p = .750), LTDTA (b = 0.251, SE = 2.10, $β$ = 0.113, t = 0.12, p = .905),

growth (b = -0.001, SE = 0.005, $β$ = -0.025, t = -0.27, p = .790), or Size (b = -0.001, SE =

0.007, $β$ = -0.018, t = -0.18, p = .853) significantly predicted ROI. The R^2 value for this

model was 0.046, indicating minimal variance explained. So, the regression model will

ROI (performance) = .154 + .251 LTDTA + (-.001) Size + (-.001) Growth + .705 TDTA + .674 STDTA

In summary, the findings from this multiple regression analysis imply that within the context of Egyptian real estate firms, capital structure components, company size, and growth factors do not substantially influence ROI. Nevertheless, it is noteworthy that Model 2 reveals a discernible effect of LTDTA on ROI, emphasizing the significance of considering debt maturity structure when evaluating its impact on ROI within this sector.

Return on Assets Distribution

Figure 4 is a histogram of ROA. The histogram is skewed to the right, meaning there are more observations with lower values of ROA than with higher values. The mean of the distribution is 0.052, and the standard deviation is 0.059. The histogram shows a few observations with shallow values of ROA, which may be outliers. These outliers could be due to several factors, such as errors in the data or unusual circumstances. The histogram analysis provides valuable insights into the distribution of ROA, revealing a departure from the normal distribution. This departure from normality could potentially impact the accuracy of the regression analysis because it does not align with the assumptions of normality typically required for such investigations.

Notably, the histogram illustrates that the most prevalent value of ROA is centered around 0.00, signifying that a substantial portion of the observations yields this particular return figure. The distribution appears narrow, with most observations falling from -0.10 to 0.10. However, there is a noteworthy observation concerning a long tail extending to the right of the distribution. This extended tail indicates the presence of a

few outliers with exceptionally high ROA values, which could potentially skew the overall distribution and warrant further examination in the analysis.

Figure 4

Histogram of Return on Assets
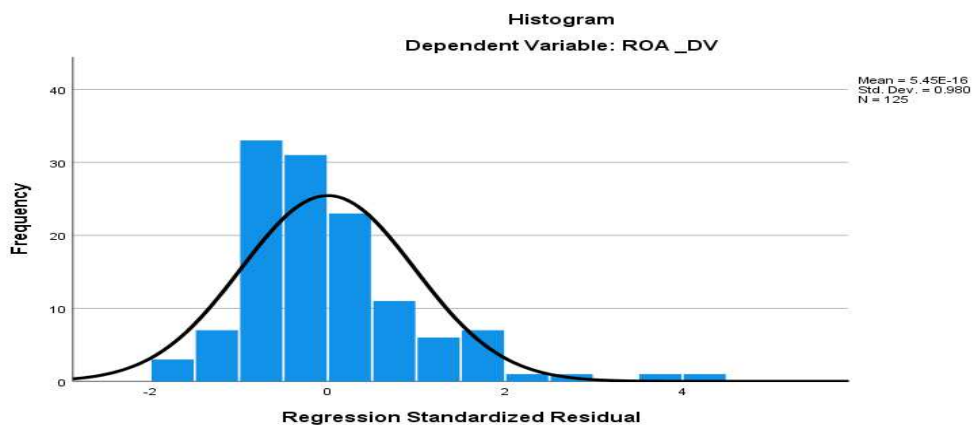
The normal P-P plot is a graphical way of assessing whether the residuals are normally distributed. The normal P-P plot (see Figure 5) shows that the residuals are not normally distributed. The points in the plot do not follow a straight line, which indicates that the residuals are not evenly distributed across the range of predicted values. This could be due to many factors, such as data outliers or nonlinear relationships between the independent and dependent variables. The non-normal distribution of the residuals could affect the accuracy of the regression analysis. If the residuals are not normally distributed, the t-tests and F-tests used in the regression analysis may not be accurate.

Figure 5

Normal P-P Plot of Return on Assets

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: ROA _DV
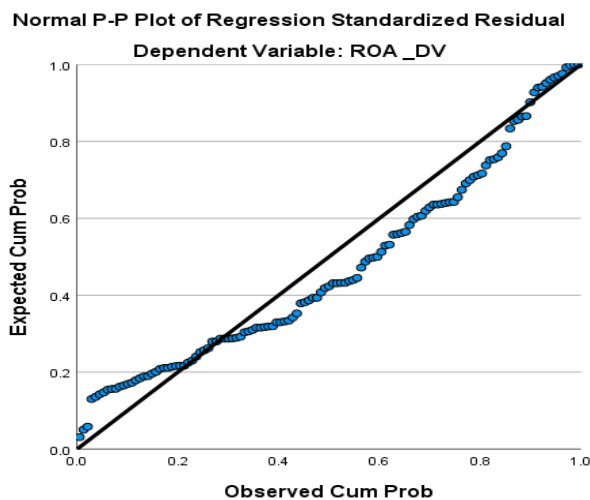
The scatterplot is used to assess the assumption of homoskedasticity, which means that the variance of the residuals is constant across the range of predicted values. The scatterplot (see Figure 6) shows that the residuals are not homoskedastic. The points in the plot are not evenly distributed, and there is a fan-shaped pattern. This indicates that the variance of the residuals is not constant across the range of predicted values. This could be due to several factors, such as nonlinearity in the relationship between the independent and dependent variables or outliers in the data.

Figure 6

Scatterplot of Return on Assets


Scatterplot
Dependent Variable: ROA _DV
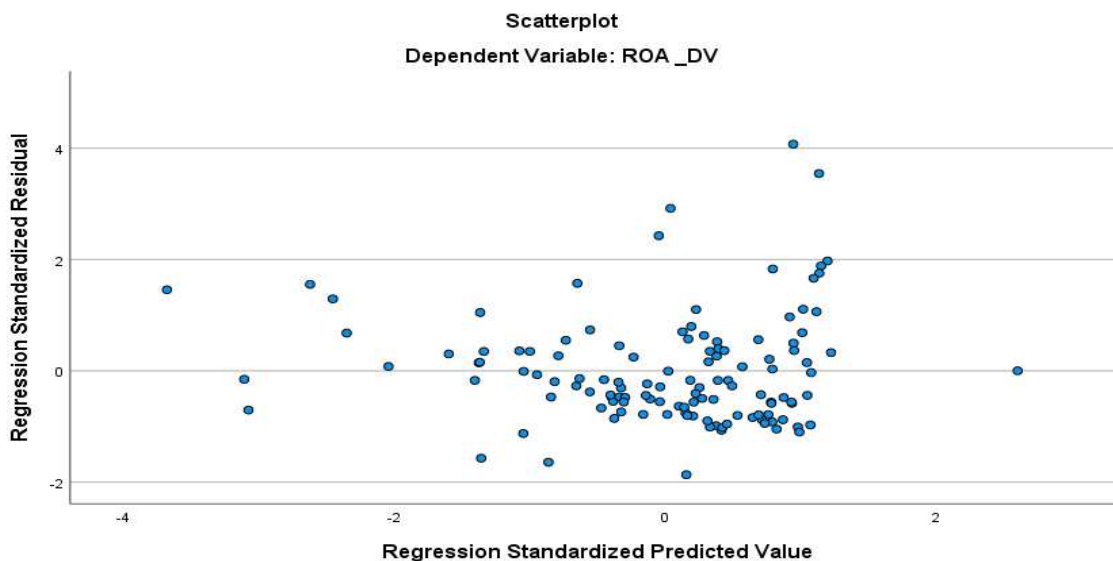
Nonhomoskedasticity among the residuals raises concerns regarding the precision

of regression analysis. When residuals exhibit non-homoskedasticity, the standard errors

of the coefficients may not provide accurate estimates. A notable observation in the study

is that a few data points are conspicuously distant from the data. These points may

represent outliers, warranting further investigation to understand their impact on the

overall model. Moreover, a discernible fan-shaped pattern in the residual plot is evident,

indicating that the residuals' variance remains inconsistent across the entire range of

predicted values. This non-constant variance, or heteroskedasticity, can undermine the

reliability of the study regression results and necessitates consideration in the analysis.

Return on Equity Distribution

In the context of the investigation into the influence of capital structure on ROE within the Egyptian real estate sector, a close examination of the data distribution through a histogram (see Figure 7) reveals insightful patterns. The histogram exhibits a noticeable rightward skew, indicating that most observations tend to possess lower values of ROE, while fewer observations exhibit higher ROE values. Within this distribution, the mean value stands at 0.147, with a corresponding standard deviation of 0.181.

Figure 7

Histogram of Return on Equity
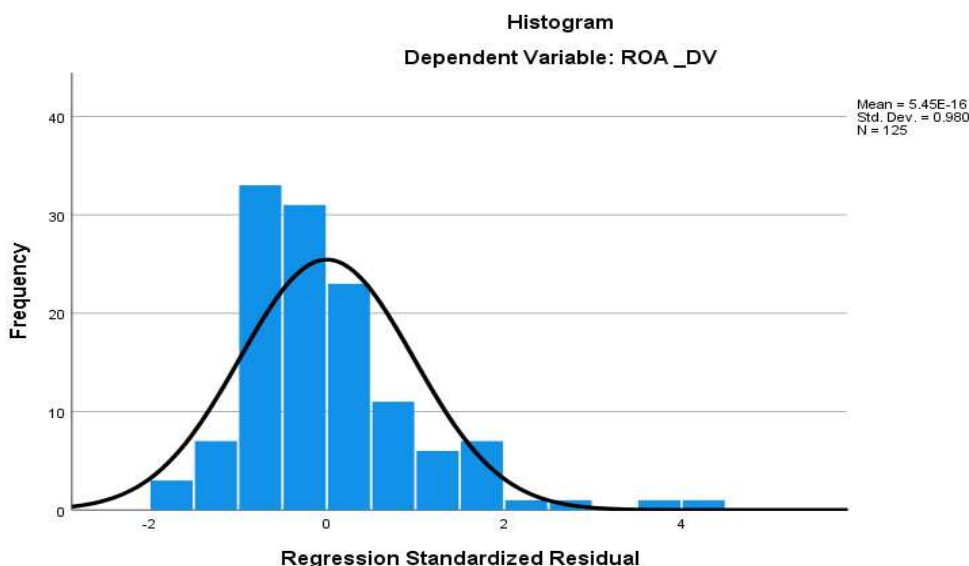
Particularly noteworthy in the histogram is a handful of observations showcasing exceptionally low ROE values, potentially indicative of outliers. These outliers could arise from various factors, including data errors or exceptional circumstances within the real estate industry. Understanding the histogram's implications is crucial. The observed

departure from a normal distribution in the ROE data distribution may have repercussions for the accuracy of the study coefficient estimates in the subsequent multiple regression analysis. This underscores the importance of acknowledging and addressing the presence of outliers and non-normality in the data set to ensure the reliability of the study findings regarding the intricate relationship between capital structure and ROE in the Egyptian real estate landscape.

In exploring the impact of capital structure on ROE within the Egyptian real estate sector, I turned to the normal probability plot of the residuals derived from multiple regression analysis (see Figure 8). This visual tool serves as a means of evaluating the normality of these residuals. A noteworthy observation emerges after carefully examining the normal probability plot: the residuals do not conform to a normal distribution pattern. Instead, the points within the plot deviate from a straight line, indicating an uneven distribution of residuals across the spectrum of predicted values.

Figure 8

Normal P-P Plot of Return on Equity
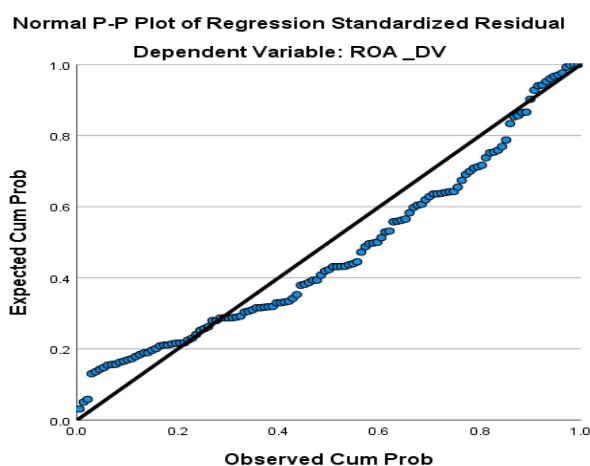
Several contributing factors may underlie this non-normal distribution. These factors could encompass the presence of outliers within the data set or potential nonlinearities characterizing the relationship between the independent and dependent variables. The significance of this non-normal distribution should not be underestimated. It can potentially impact the accuracy of the coefficient estimates derived from the multiple regression analysis. Furthermore, it can introduce complexities in interpreting key statistical indicators such as the F-statistic and t-statistics, thus necessitating careful consideration and potential data adjustments to understand how capital structure influences ROE within the Egyptian real estate context.

Within the study analysis investigating the influence of capital structure on ROE within the Egyptian real estate sector, the researcher turns to a critical diagnostic tool known as a scatterplot for assessing the assumption of homoskedasticity (see Figure 9). Homoskedasticity assumes that the variance of the residuals remains constant across the entire spectrum of predicted values. However, upon scrutinizing the plot, it becomes evident that the residuals do not conform to the homoskedasticity assumption. Rather than forming an even distribution, the plot displays a noticeable fan-shaped pattern. This divergence from homoskedasticity suggests that the variance of the residuals does not maintain uniformity across the range of predicted values. Several contributing factors might account for this non-homoskedasticity, including the potential presence of nonlinear relationships between independent and dependent variables or the influence of outliers within the study data set.

Figure 9

Scatterplot of Return on Equity
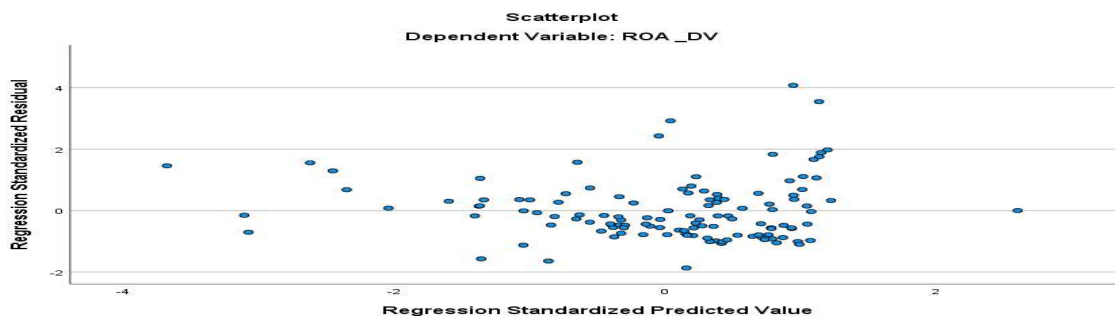
The significance of this non-homoskedasticity extends to its potential impact on the accuracy of coefficient estimates within the study multiple regression analysis. Furthermore, it can introduce complexities in interpreting critical statistical metrics like F and t-statistics. Additionally, the positive trend observed in the plot indicates that the variance of residuals tends to increase as predicted values rise, further underscoring the challenge to the homoskedasticity assumption. The departure from the phenomenon where the variance of predicted and observed values is constant in the plot raises concerns within this multiple regression analysis investigating the intricate relationship between capital structure and ROE in the Egyptian real estate domain.

Return on Investment Distribution

Figure 10 is a histogram of ROI. The histogram shows that the distribution of the dependent variable is positively skewed. This means there are more observations with lower values of the dependent variable than those with higher values of the dependent variable. The mean of the dependent variable is 0.102, and the standard deviation is

0.126. The skewness of the distribution of the dependent variable suggests that the regression model may not be perfectly accurate. The model will likely underestimate the ROA for companies with low dependent variable values and overestimate the ROA for companies with high dependent variable values.

When Examining the impact of capital structure on ROI within Egyptian real estate firms, it is essential to consider various aspects highlighted by the chart analysis. First, the dependent variable exhibits a range from -0.220 to 0.829, showcasing the diversity in ROI across these firms. This broad distribution is further emphasized by a standard deviation of 0.126, indicating significant variability in ROI values.

Figure 10

Histogram of Return on Investment
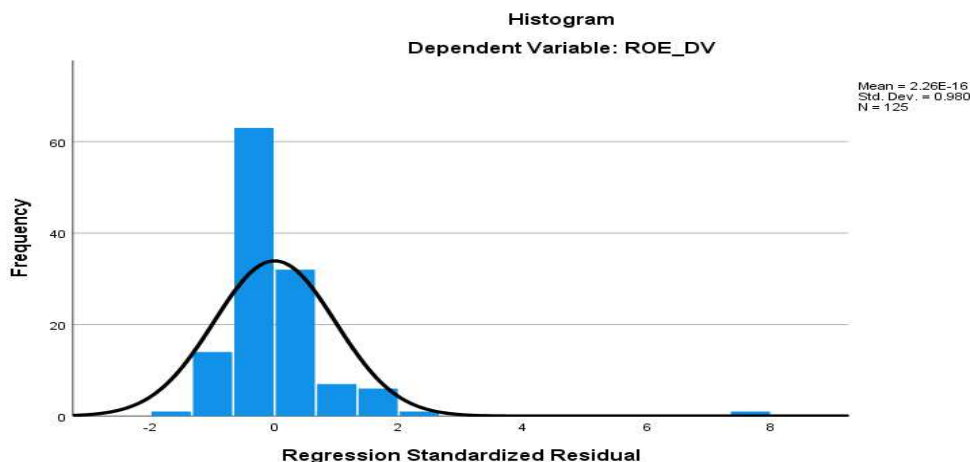
However, this diversity also brings forth the presence of outliers, which are observations significantly deviating from the norm. These outliers, while intriguing, can potentially skew the accuracy of the regression model when assessing the influence of capital structure on ROI. As a result, a prudent strategy might involve identifying and, if

feasible, removing these outliers from the data set to obtain a more reliable understanding of the relationship between capital structure and ROI in Egyptian real estate firms. Figure 11 is a normal p-p plot of ROI.

In the context of real estate firms in Egypt, it is apparent that the data points in the plot do not conform perfectly to the theoretical normal distribution line. This deviation from normality indicates that the residuals, or the differences between observed and predicted values, do not follow a normal distribution pattern. Notably, there is a discernible rightward skewness, signifying that more residuals are situated below the line than above it.

Figure 11

*Normal P-P Plot of Return on Investment*
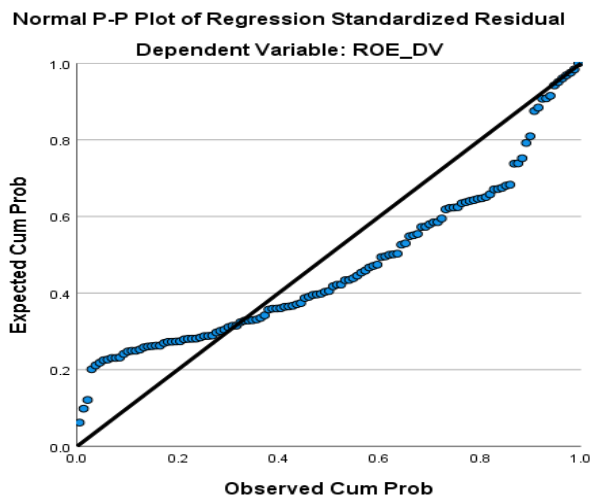
This skewness has significant implications for the accuracy of the regression model used. It suggests that the model tends to underestimate the ROI for firms with lower values of the dependent variable while overestimating it for firms with higher

values of the dependent variable. Potential strategies to enhance the regression model's precision and reliability include considering transformations for the dependent variable to achieve a distribution that aligns more closely with the normal curve. Identifying and addressing outliers within the data set may also be beneficial, as these can influence the model's accuracy.

Figure 12 is a scatterplot of ROI. In the context of real estate firms in Egypt and their capital structure's impact on ROI, it is crucial to consider the behavior of standardized residuals and leverage values. Standardized residuals are derived from the regression model adjusted by their standard deviation. Meanwhile, leverage values indicate the level of influence each observation wields within the regression model. In an ideal scenario, a flawless regression model would exhibit data points in the scatterplot dispersed randomly around the $y = 0$ line. However, the observed points in the plot do not conform to this randomness, indicating a discernible relationship between standardized residuals and leverage values.

Figure 12

Scatterplot of Return on Investment
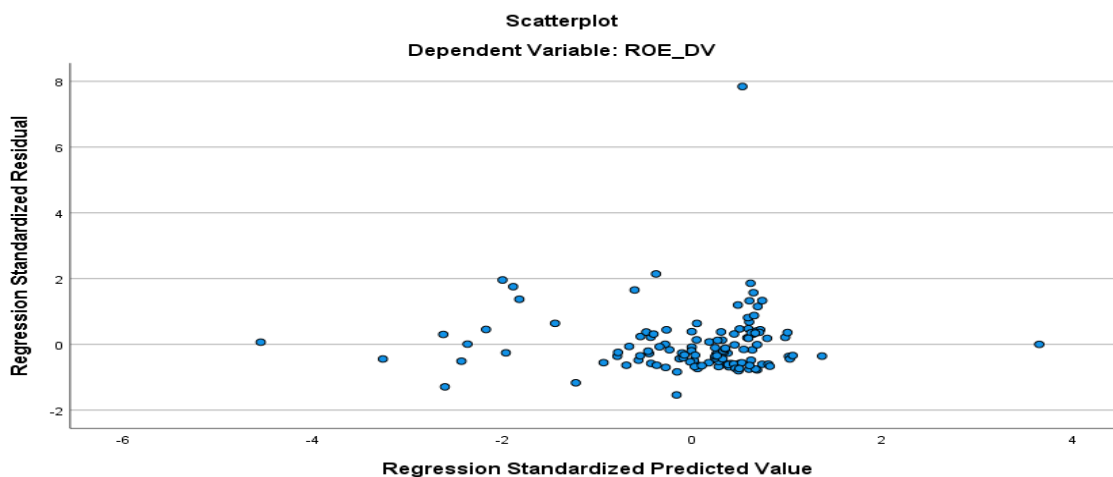
This observed pattern hints at heteroscedasticity, a phenomenon where the variance of residuals is not uniform across the range of data. Several factors, such as nonlinear associations between dependent and independent variables, outliers, or multicollinearity, can contribute to this heteroscedasticity. It is important to note that this heterogeneity can significantly impact the accuracy of the regression model's predictions. Generally, the model performs more accurately for observations with smaller residuals, while its accuracy diminishes for more significant residuals. Therefore, understanding and addressing the sources of heteroscedasticity is essential when assessing how capital structure influences ROI in the context of Egyptian real estate firms.

Summary

A statistical analysis of the data was conducted in the results and analysis chapter to validate the hypothesis at the beginning of the study. The financial data of Egyptian

real estate businesses served as the basis for the analysis. The information gathered from

the real estate companies' financial statements was initially assessed using descriptive

analysis. The financial data were described in general terms by the study. Among the 125

companies included in the sample, the analysis reveals several key findings. Firstly, the

mean growth rate suggests that, on average, these companies are experiencing positive

growth. However, the relatively high standard deviation implies a considerable variation

in growth rates among these firms. Additionally, with a mean size rate, these companies

are generally quite substantial in scale.

Nonetheless, the standard deviation indicates some diversity in their sizes.

Moving on to profitability, the mean ROA signifies an average return of 5%, while the

standard deviation implies some dispersion in ROAs. Similarly, the mean ROE reflects

an average return of 15%, though the standard deviation rate suggests variability in these

returns. Last, the mean ROI indicates an average return of 10%, while the standard

deviation points to ROI variations. These descriptive statistics paint a picture of a diverse

group of companies within the sample, exhibiting a wide range of sizes, growth rates, and

profitability measures among the 125 companies analyzed.

The regression analysis was conducted to evaluate the impact of dependent

variables. In this comprehensive analysis of real estate companies listed on the Egyptian

exchange market spanning 2016 to 2020, the researcher meticulously examined the

intricate interplay between capital structure, firm size, growth, and pivotal financial

indicators. Findings underscored the critical role of debt variables in shaping ROA

outcomes. Particularly, the TDTA ratio emerged as a robust determinant of ROA,

signifying an inverse relationship—higher TDTA ratios corresponded with diminished ROA performance. Moreover, Model 2 corroborated these insights by revealing that STDTA and LTDTA carried negative associations with ROA. Notably, LTDTA exhibited a more substantial influence on ROA than STDTA. One intriguing aspect of this analysis was the preference for Model 1 and Model 2 over Model 3 and Model 4, primarily driven by the adjusted R2 values. Models 1 and 2, focusing predominantly on TDTA, exhibited superior model fits, providing a more comprehensive explanation for the variations in ROA among real estate companies. All variables do not exert significant individual or collective influence on ROE. Across all models, the R2 values for ROE remained notably low, implying that these variables collectively account for only a limited portion of the variance in ROE. This underscores the intricate and multifaceted nature of ROE within this sector and suggests that other unexplored or external factors may play a more dominant role in determining ROE. Company size and growth factors do not substantially influence ROI. Nevertheless, it is noteworthy that Model 2 reveals a discernible effect of LTDTA on ROI, emphasizing the significance of considering debt maturity structure when evaluating its impact on ROI within this sector.

Chapter 5: Discussion, Conclusions, and Recommendations

Interpretation of Findings

The purpose of this study is to address the issue of how to improve the financial performance of real estate companies listed on the Egyptian exchange. Real estate firms are attempting to maintain a capital structure that allows them to perform with appropriate capital to sustain their continuity and finance their activities. This quantitative study examined the impact of capital structure on the financial performance of real estate companies listed in the Egyptian stock market (2016–2020). using three financial performance measures, including return on assets (ROA), return on equity (ROE), and return on investment (ROI) as dependent variables and three capital structure measures, including short-term debt to total assets, long-term debt to total assets, and total debt to total assets as independent variables. The target population for this study is 25 real estate-listed companies in Egypt out of 32 real estate-listed companies in the Egyptian exchange. The regression analysis results consistently indicate that prudent debt management is a crucial factor that can significantly influence the financial performance of real estate companies in Egypt, particularly regarding return on assets (ROA). The negative relationship between debt levels and ROA suggests that managing and potentially reducing debt levels could improve these firms' profitability and asset utilization efficiency. This finding shows the importance of carefully considering capital structure decisions and their potential impact on operational performance in the Egyptian real estate market.

The study examined the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange market from 2016 to 2020. Therefore, three measures of financial performance (ROA, ROE, and ROI) were used as dependent variables. Three measures of capital structure (STDTA, LTDTA, and TDTA) were used as independent variables.

Descriptive Analysis

The findings suggest significant variation in growth rates, financial performance, and capital structure among the real estate companies listed on the Egyptian exchange market from 2016 to 2020. Some companies have performed exceptionally well, while others have not. The results also show evidence of right-skewed distributions and heavy tails in several financial metrics, indicating that a few companies drive the distribution's shape.

The significant variation in growth rates among the real estate companies suggests that these firms have experienced diverse trajectories from 2016 to 2020. Some companies have achieved substantial growth (up to 15.25), while others have achieved negative growth (1.00). This variation could result from various factors such as market conditions, business strategies, and management effectiveness. The variations in financial performance measures (ROA, ROE, ROI) could result from differences in business models, financial leverage, and asset management strategies among the companies. The variations in capital structure measures (STDTA, LTDTA, and TDTA) may reflect different risk tolerance levels, financing strategies, and access to capital among real estate firms (Nyongesa, 2017).

Right-skewed distributions in measures such as growth rates, ROE, ROI, and debt ratios imply that a few companies achieved outstanding performance, pulling the overall distribution to the right. The results suggest that a few companies significantly influenced the market's performance. The market appears to have been characterized by a mix of high-performing companies and those facing challenges. The heavy tails in some distributions indicate that extreme events or outliers could have played an important role in shaping the real estate market's landscape.

In 2016, real estate companies exhibited a relatively high mean growth rate. This suggests the sector had a robust and prosperous start to the 5 years. Favorable economic conditions, increased demand for real estate, or successful business strategies could have influenced this growth rate. However, the following years showed a decline in mean growth rates. In 2017, the mean growth dropped significantly, indicating a substantial slowdown in the expansion of the real estate sector. The situation could indicate changing market dynamics, increased competition, or economic challenges affecting the real estate industry. The trend continued in 2018. This decline has raised concerns within the industry, suggesting that the companies faced challenges sustaining their earlier growth rates. In 2019, the mean growth rate continued the decreasing trend. This pattern might have prompted real estate companies to reevaluate their strategies and adapt to the changing market conditions (Ngoc et al., 2021).

The year 2020 showed the mean growth rate stabilization that might indicate that companies found a certain equilibrium level or adapted to the challenges posed by the market, possibly due to adjustments in their business models, cost structures, or

strategies. The consistent decrease in growth rates over the 5 years implies that while the sector grew, the growth pace progressively slowed each year. This decrease might indicate that the real estate market was maturing or that companies were reaching saturation in certain markets (Ngoc et al., 2021).

The consistent growth in the mean size of the real estate companies over the 5 years indicates positive performance and expansion within the sector. It suggests that these companies successfully increased their total assets on average, which can signify overall financial health and business success. This growth in size may be attributed to various factors, including increased demand for real estate properties, effective management strategies, successful investments, or acquisitions and mergers within the sector. The stabilization of the mean size in 2020 suggests that companies may have reached a point where further rapid expansion was less feasible or desirable and were focusing on optimizing their existing asset base. The findings indicate a positive and continuous growth trend in the mean size of real estate companies listed on the Egyptian exchange market from 2016 to 2020. This growth is a promising sign for the sector and may indicate a healthy and expanding real estate market in Egypt during this period. These companies could generate a reasonable return on their total assets on average (Egypt's Residential Market: Promising Prospects for 2023, 2023)

Mean ROE signifies strong returns relative to shareholders' equity and implies that these companies were highly efficient in utilizing equity to generate profits, on average. Mean ROI reflects reasonable returns on investments and indicates that these companies provided satisfactory returns to investors. However, a trend of declining

financial performance became evident in the future years. Based on ROA, these companies faced challenges or changes that impacted their ability to generate profits relative to their total assets. The declining ROA may indicate reduced operational efficiency or profitability. ROE also experienced a consistent decline, indicating that the companies' ability to generate returns for shareholders concerning their equity investment declined over the years (Mareta et al., 2022). It may indicate reduced profitability or increased shareholder equity without corresponding profit growth. ROI also followed a similar trajectory. This suggests that the companies provided lower investment returns than in previous years. This could indicate that the efficiency of capital utilization and the profitability of investments have decreased (Musibah & Alfattani, 2014).

Correlation Analyses

The results of the correlation analysis provide valuable insights into the relationships between ROA, ROE, ROI, and various financial variables among the 25 real estate companies. The analysis reveals a significant positive correlation between ROA and both ROE and ROI. The results suggest that when these real estate companies are more efficient in generating returns for their shareholders (ROE) or delivering better returns on investments (ROI), their overall profitability, as measured by ROA, tends to improve. It indicates that profitability is closely related to these performance measures. The analysis also shows significant negative correlations between ROA and various debt ratios, such as STDTA, LTDTA, and TDTA. The results align with previous research (Eriotis et al., 2002; Gleason et al., 2000; Goddard et al., 2005; Nunes et al., 2009). These negative correlations imply that higher debt components (short-term, long-term, and total

debt) are associated with lower ROA. Therefore, companies with more debt than their assets tend to have lower profitability.

The findings suggest that excessive debt can pressure a company's profitability, as interest payments and debt servicing costs may affect earnings. The analysis indicates that there is no significant correlation between ROA and both growth and size. The finding implies that, within the sample of real estate companies examined, variations in growth rates or the size of the companies do not appear to impact their overall profitability (ROA) significantly.

The correlation analysis results for ROE provide important insights into the relationships between ROE and various financial variables among the 25 real estate companies. The analysis reveals a significant positive correlation between ROE and ROI. The findings suggest that when real estate companies deliver better returns on their investments (ROI), their ability to generate returns for shareholders (ROE) also tends to improve. It shows the close relationship between investment efficiency and shareholders' returns. The analysis indicates that there is no significant correlation between ROE and the debt ratios: STDTA, LTDTA, and TDTA. The findings suggest that there is no significant relationship between ROE and debt. It implies that the company's reliance on debt financing does not significantly impact ROE. This means that whether or not a real estate company uses more or less debt financing does not necessarily dictate how well it can generate returns for its shareholders. The results show that a company's ability to generate profits and returns for shareholders is influenced more by other factors, such as its operational efficiency, investment strategies, and profitability, than its debt levels.

The analysis further indicates that neither growth nor size exhibits significant correlations with ROE. This suggests that variations in growth rates or the size of the companies within this sample of real estate companies do not significantly influence their ROE. The findings suggest that for these real estate companies, whether they are growing rapidly or slowly, or large or small in terms of their total assets, does not necessarily determine how well they can generate returns for their shareholders. Other factors like operational efficiency, profitability, and investment strategies are more crucial in determining ROE.

The negative correlation between ROI and LTDTA indicates that higher levels of long-term debt are associated with lower ROI. Therefore, when a real estate company relies more on long-term debt to finance its assets, it tends to have a lower return on its investments. This could be due to the interest expenses associated with long-term debt that can reduce the overall ROI. Companies with a significant amount of long-term debt may need to allocate a larger portion of their profits to service that debt, which can reduce the returns available to shareholders and investors. The lack of significant correlations between ROI and STDTA or TDTA suggests that, within this sample of real estate companies, the short-term and total debt levels do not significantly impact ROI. The results imply that whether a company relies more on short-term or total debt to finance its assets does not necessarily determine how well it can generate investment returns.

Regression Analyses

The influence of the capital structure on the company's profitability is reflected in the volume and costs of borrowed capital. Increasing the share of long-term and short-term debt in the company's financial structure causes higher debt financing costs that reduce business profitability. However, debt financing provides companies with greater potential for development, enables business expansion, and increases business profitability. In previous studies of the influence of financial structure and capital structure on business profitability, TDTA, LTDTA, and STDTA ratios were often used as financial structure indicators.

The company's financial structure consists of its capital, long-term debt, and short-term debt, which finance its long-term and short-term assets. In research (Weill, 2008; Margaritis and Psillaki, 2010; Kebewar, 2012), the following indicators are used as financial structure variables: the ratio of total liabilities to assets, the ratio of STDTA, the ratio of LTDTA, the ratio of debt and equity and the relationship between long-term debt and equity. The results of previous research on the influence of financial and capital structure on business profitability are inconsistent concerning the direction and strength of the relationship between indebtedness and profitability indicators. The reason is that researchers (Weill, 2008; Margaritis and Psillaki, 2010; Kebewar, 2012) use different indicators of indebtedness and profitability. Researchers (Gleason et al., 2000; Eriotis et al., 2002; Nunes et al., 2009) have found a negative impact of debt financing on business profitability. The degree of corporate indebtedness has a negative impact on business

profitability, as higher corporate indebtedness generates higher costs of financial disruptions and agency costs associated with debt financing.

The regression analysis shows a statistically significant relationship between TDTA and ROA (Model 1). This means the total debt level relative to total assets impacts a real estate company's ROA. The negative coefficient indicates that as the share of TDTA increases, there is a negative effect on ROA. Therefore, when a real estate company takes on more debt relative to its total assets, it tends to experience a decrease in its ROA. The regression analysis also showed that STDTA and LTDTA negatively affect ROA (Model 2). This means that as these real estate companies increase their reliance on short-term and long-term debt to finance their assets, their ROA tends to decrease. Higher debt levels are associated with lower returns on assets. Therefore, real estate companies in the Egyptian market that rely more on both short-term and long-term debt for financing their assets tend to experience lower returns on their assets, as indicated by ROA. Therefore, the hypothesis that there is no significant relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business performance (ROA) is rejected.

The results align with previous research (Eriotis et al., 2002; Gleason et al., 2000; Goddard et al., 2005; Nunes et al., 2009). Nunes et al. (2009) conducted a study on a sample of companies in Portugal. The research results suggest a negative impact of debt financing on business profitability. Gleason et al. (2000) researched companies in European Union countries. The results showed a statistically significant negative relationship between the Degree of indebtedness and business profitability. Goddard et al.

(2005) researched a sample of companies in Belgium, France, Italy, and the United

Kingdom. The results of their research showed that the relationship between the ratio of

long-term debt and capital and the profitability of the examined companies is negative.

Eriotis et al. (2002) found a negative relationship between the debt-to-equity ratio and the

company's profitability. Therefore, it can be argued that the costs of debt financing are

higher than the profits from investments or that companies that apply the theory of the

hierarchy of financial choices and prefer financing from retained earnings are more

profitable than companies that use debt financing.

However, the obtained results contradict the results of previous research (Berger

& Bonaccorsi, 2006; Margaritis & Psillaki, 2010), which showed a positive impact of

corporate indebtedness on business profitability. Margaritis and Psillaki (2010)

researched the impact of debt financing and ownership structure on financial performance

in a sample of French companies. The results of their research showed that increasing the

Degree of indebtedness has a positive impact on the company's profitability. Berger and

Bonaccorsi (2006) conducted a study on a sample of financial companies in the United

States of America. Their research showed that a larger share of debt and a smaller share

of capital in the capital structure led to increased business profitability.

Regression analysis results (Model 3) suggest that when considering these factors

together, debt ratios (TDTA, STDTA, LTDTA) do not significantly predict ROA for the

examined real estate companies. These results highlight the complicated nature of factors

affecting profitability within the Egyptian real estate sector, with many influences beyond

those considered in the model. The results align with the research of Kebewar (2012),

who researched the impact of indebtedness on the profitability of companies and proved that the debt ratio has no impact on the profitability of French companies.

The regression analysis results about the impact of TDTA on ROE show a negative relationship between TDTA and ROE. Still, the relationship is not statistically significant (Model 1). Therefore, the negative coefficient indicates that, on average, higher levels of TDTA are related to lower ROE. Still, this relationship is not strong enough to be considered statistically significant. The findings suggest that TDTA alone does not appear to have a statistically significant impact on ROE for the real estate companies in the Egyptian exchange market. Other factors not considered in this model likely significantly influence a company's ROE within the Egyptian real estate sector.

Furthermore, regression analysis showed that higher levels of STDTA and LTDTA are related to lower ROE. Still, these relations are not statistically significant (Model 2). Regression analysis results (Model 3) also show that debt ratios do not substantially impact ROE individually or when considered together. Furthermore, the combination of these factors, including debt ratios (TDTA, STDTA, LTDTA), growth, and company size, does not have a statistically significant impact on a real estate company's ROE (Model 4). The results align with the research of Kebewar (2012), who also found a nonsignificant relationship between variables.

The study also aims to understand the factors influencing ROI in the Egyptian real estate sector. Based on the data and analysis, TDTA did not significantly predict variations in ROI within the Egyptian real estate sector. Furthermore, regression analysis

showed that there is a suggestion of a negative association between higher levels of

TDTA and lower ROI. Still, this relationship is not statistically significant (Model 1).

The second multiple regression model suggests that the combination of STDTA

and LTDTA has some degree of influence on ROI, but this influence is nonsignificant.

STDTA did not have a statistically significant effect on ROI. In contrast, LTDTA had a

statistically significant negative relationship with ROI. This indicates that higher LTDTA

was associated with lower ROI. The results align with previous research (Eriotis et al.,

2002; Gleason et al., 2000; Goddard et al., 2005; Nunes et al., 2009).

The regression analysis results showed that the TDTA, STDTA, and LTDTA in

the context of the Egyptian real estate sector do not significantly predict ROI (Model 3).

Therefore, the hypothesis that there is no significant relationship between capital

structure (STDTA, LTDTA, and TDTA) and Egyptian real estate companies' business

performance (ROI) is partially rejected. The findings suggest that, within the context of

Egyptian real estate firms, neither capital structure components (TDTA, STDTA,

LTDTA), growth, nor company size significantly influence ROI (Model 4).

Based on the results of the regression analysis, the researcher concludes that

LTDTA has a statistically significant negative effect on ROA and ROI. At the same time,

there is no significant effect on ROE. Therefore, the hypothesis that there is no significant

relationship between capital structure (STDTA, LTDTA, and TDTA) and Egyptian real

estate companies' business performance (ROE) is accepted. TDTA and STDTA only

have a statistically significant effect on ROA. The regression analysis showed that firm

size and growth do not significantly impact ROA, ROE, and ROI. Therefore, the

hypothesis that there is no significant impact of firm size on capital structure and performance in real estate companies listed on the Egyptian exchange market is accepted.

The research results on the influence of capital structure on company profitability are different concerning the direction and strength of the relationship between the Degree of indebtedness and company profitability. The influence of the Degree of indebtedness on the profitability of the company is different in different countries and institutional environments because the characteristics of the institutional environment, especially the characteristics of the financial system, the tax system, and the legal system, also have an impact on the relationship between indebtedness and the profitability of the company.]

Limitations of the Study

According to Leedy and Ormrod (2015), a limitation is anything outside the researcher's control that might compromise the study's findings. According to Simon (2011), limitations are uncontrollable events that could affect the study's methods and outcomes. Tabachnick and Fidell (2013) define limitations as unavoidable imperfections and provide the basis for the study's conclusions. There are further possible limitations to the study. Because this study focuses on the relationship between capital structure and companies' performance that are exclusively listed on the Egyptian exchange market, its findings will only apply to listed companies, ignoring the impact on other non-listed companies.

The other limitation is that the company's performance can be viewed narrowly, and the accounting-related performance measures may not sufficiently measure its customer loyalty, traction, and other elements. Additionally, the study excludes several

variables that could skew the results or impact performance, such as interest rates and economic factors, including unemployment and inflation, taxes, and government regulations about corporate operations. Another limitation is that only the real estate sector will be included in the data collection, leaving out all other sectors traded on the Egyptian exchange market. The fourth constraint pertains to the impact of the firms' geographical location and the continuing worldwide economic recession on capital structure determinations. Furthermore, Egyptian firms' corporate performance will not be considered.]

Recommendations

I sought to understand the relationship between capital structure and financial performance by examining empirical data, financial models, and literature reviews. The research has provided insights into the complex relationship between these variables. Therefore, in this section, the researcher presents a set of recommendations that can guide corporate decision-makers, financial analysts, and policy advisors in decision-making regarding capital structure and financial performance. The recommendations are grounded in theoretical and real-world observations, making them practical and relevant for various stakeholders in the corporate landscape. These recommendations should provide a roadmap for further research on the complex relationship between capital structure and financial performance, helping to understand this aspect of corporate finance better.

The study included 25 real estate companies listed on the Egyptian exchange market over 5 years (2016–2020). Conducting more industry-specific studies to

understand how the impact of capital structure varies across different sectors is recommended. Industries may have unique characteristics that influence the relationship between capital structure and financial performance. Therefore, comparing different industries and the results of the impact of capital structure on financial performance may be useful in understanding this relationship better and gaining results applicable to all sectors and industries. Furthermore, the analysis was done only for 5 years (2016-2020). Extending the analysis over a longer time to assess the long-term effects of capital structure on financial performance is recommended. This could also involve examining trends over multiple economic cycles that could reveal the real relationship between capital structure and financial performance.

Comparing the impact of capital structure on financial performance across countries or regions with different economic and regulatory environments is recommended. Weill (2008) investigated institutional factors and their influence on the relationship between debt financing and financial performance and proved that institutional factors can explain differences in the relationship between indebtedness and financial performance in European countries. Therefore, including these factors in the analysis could give us a better understanding of the relationship between capital structure and financial performance.

Inclusion of variables related to financial crises and extending the data analysis from 2007 to 2021 provides an opportunity to gain valuable insights into the dynamics of this relationship in a context that has been shaped by the economic crisis and the challenges posed by events such as the 2008 global financial crisis and the COVID-19

pandemic. The 2008 global financial crisis is an example of the real estate sector facing huge challenges due to rising property values and a credit crunch. By analyzing how different capital structures influenced the survival and recovery of real estate firms during this period, we can determine which configurations were more resilient and adaptive.

The COVID-19 pandemic introduced a unique set of challenges for the real estate sector, including disruptions in rental income, remote work trends, and shifts in tenant demand. By including data from this period in the analysis, we can explore how companies with varying capital structures fared during this crisis. Furthermore, we can examine whether companies with lower leverage ratios exhibit greater stability or with more diverse capital sources find it easier to adapt to the changing landscape. Including these variables in research will not only enrich understanding of the impact of capital structure on financial performance but also provide insights that can be applied by real estate firms, investors, policymakers, and other stakeholders in facing the challenges and opportunities presented by the volatile and evolving economic landscape. By examining the real estate sector's responses to crises, we can contribute to developing more robust financial strategies and risk management practices in this industry]

Implications

The study's findings reveal the diversity in financial performance and capital structure among the studied real estate companies and the presence of influential outliers that have impacted the market's overall trends and dynamics. These insights can be valuable for investors, policymakers, and industry analysts looking to understand the Egyptian real estate market. The implications of the findings offer insights into the

dynamics of the Egyptian real estate market from 2016 to 2020. These implications

encompass growth rates, financial performance, capital structure, and market landscape.

The significant variation in growth rates among the studied real estate companies shows

the heterogeneous nature of the sector. Companies have experienced diverse trajectories,

some achieving substantial growth while others have faced challenges. This suggests that

market conditions, strategic decisions, and effective management play important roles in

determining the growth of real estate companies. The diversity in financial performance

and capital structure among the studied real estate companies shows the need to

understand the Egyptian real estate market. Investors can benefit from recognizing

substantial variations in how companies operate and finance their operations.

The observed variations in financial performance measures (ROA, ROE, ROI)

highlight that real estate companies have adopted different business models and financial

strategies. Some have generated strong returns on assets and equity, while others have

struggled. Understanding the factors driving these differences is crucial for investors and

firms seeking to improve their financial performance. The variations in capital structure

measures (STDTA, LTDTA, TDTA) indicate that real estate companies in Egypt have

adopted distinct approaches to managing their financial obligations. These differences

may be attributed to varying financing preferences and access to capital. Exploring the

rationale behind these capital structure choices can inform better financial decision-

making. The study's analysis of growth trends provides insights into the evolution of the

real estate sector in Egypt. Policymakers can use this information to assess the impact of

economic conditions, regulatory changes, and competition on the industry's growth

trajectory.

The findings suggest that the Egyptian real estate market during the study period

was characterized by a mix of high-performing companies and those facing challenges.

Heavy tails in some distributions indicate that extreme events or outliers played an

important role in shaping the market's landscape. Researchers, investors, and

policymakers should consider the potential influence of such outliers when analyzing

market dynamics. The declining mean growth rates over the study period suggest that the

real estate companies faced challenges sustaining their earlier growth rates. Industry

players should consider adapting their strategies to address changing market dynamics,

increased competition, or economic challenges.

The findings provide a comprehensive view of the Egyptian real estate market's

performance and financial dynamics. Investors, policymakers, and industry participants

can benefit from these insights to make informed decisions, adapt to changing market

conditions, and identify opportunities for growth and investment within the sector. The

insights from analyzing real estate firms' experiences during financial crises can guide

policymakers and regulatory bodies. It can inform the design of measures that promote

prudent capital structure management within the real estate sector, potentially enhancing

its overall resilience to future crises.

Investors and stakeholders in the real estate industry stand to benefit from a

comprehensive analysis of the relationship between capital structure and financial

performance during crises. Such insights can inform investment decisions, risk

management strategies, and return expectations, ultimately contributing to a more informed and resilient market. One way this might lead to beneficial social change is by giving people jobs in the real estate sector. During the last 10 years, the real estate industry in Egypt has employed the greatest percentage of the labor force, roughly 18%. This pertains to the addition of the remaining operational sectors, such as telephone networks, gas, electricity, water supply, and sewage, directly connected to the real estate industry. The percentage is more than 25%. An individual firm may endure and grow to the extent that it can perform well. Businesses that struggle by losing money or producing profits that their investors feel are insufficient risk going out of business, resulting in job losses. The study's findings might help avoid employment losses and business failures for newly established real estate firms.

Furthermore, the implications for constructive social transformation encompass the possibility of enhancing communities. Financially successful businesses can draw in capital, accept various investment types, and generate goods and services that benefit local communities. Each of these enhances the standard of living for people who live and work in the neighborhood. Finally, the implications for positive social change may enable real estate industry executives to have a deeper comprehension of the variables associated with the financial performance of troubled businesses. It is possible to give real estate industry executives the instruments they need to boost profitability by forecasting organizational structure and optimizing capital structure. Implications for social transformation include the opportunity for executives in the real estate industry and

officials from other real estate firms to strengthen bonds with suppliers, employees, shareholders, and other stakeholders (Wang & Liu, 2018).

Conclusions

The study aimed to examine the impact of capital structure on the financial performance of real estate companies listed on the Egyptian exchange market from 2016 to 2020. Therefore, three measures of financial performance (ROA, ROE, and ROI) were used as dependent variables. Three measures of capital structure (STDTA, LTDTA, and TDTA) were used as independent variables. Therefore, descriptive analysis, correlation, and regression analysis were conducted.

The comprehensive analysis of the financial performance trends among the 25 real estate companies listed on the Egyptian exchange market over the 5 years from 2016 to 2020 has a concerning trajectory. The observed data showed declining performance across several financial indicators, including ROA, ROE, and ROI). This narrative of diminishing profitability and efficiency shows an emerging need for a deeper understanding of the underlying factors in the Egyptian real estate sector. In the initial year of my study, 2016, these real estate companies exhibited relatively robust financial performance, reflecting a degree of stability and profitability. However, subsequent years showed a consistent and concerning decrease in these critical measures. This phenomenon prompts a range of questions and suggests that the real estate sector in Egypt confronted challenges and underwent transformative shifts that fundamentally altered its financial landscape.

The sustained downturn in financial performance across ROA, ROE, and ROI signifies complex challenges and dynamics affecting these companies. Although this analysis does not exhaustively explore the root causes, it is a compelling call for further investigation and strategic introspection. Shifts in the Egyptian real estate market, such as fluctuations in property values, changing demand patterns, or variations in investment sentiment, may have influenced financial performance, so it should be further explored. The real estate sector is inherently tied to broader economic conditions, and understanding these interactions is critical. Alterations in regulatory frameworks or broader economic conditions can profoundly impact the operational landscape of real estate companies. Changes in tax policies, property laws, or financing options can significantly influence profitability. Increased sector competition may have impacted market share and pricing power, affecting financial measures.

Companies within the real estate sector may have initiated strategic shifts in response to evolving market dynamics. These changes could involve diversifying their portfolios, exploring new geographic markets, or altering development strategies. The declining financial performance indicators serve as a clear call to action for real estate companies operating in Egypt. Adaptation and strategic reevaluation are necessary to thrive in an evolving market. Strategies to improve profitability, operational efficiency, and investment returns are imperative. To gain a comprehensive understanding of the factors contributing to this decline, it is essential to undertake further, more targeted analyses. This would include delving into the specific circumstances and strategies of individual companies within the sector. Such an approach can illuminate the precise

drivers of the decline and reveal potential pathways for improvement. Moreover, collaboration between industry stakeholders, policymakers, and regulatory bodies may be important in crafting a conducive environment for sustainable growth and enhanced financial performance within the Egyptian real estate sector.

Although the study shows the challenges faced by real estate companies in Egypt during the 5 years, it also shows the resilience and adaptability inherent in the industry. By proactively addressing the root causes of declining financial performance, real estate firms can position themselves to navigate the evolving landscape and emerge stronger and more resilient to future challenges. Examining capital structure measures reveals that the real estate companies demonstrated prudence and adaptability in their financial management. By maintaining a balanced mix of short-term and long-term debt, these companies seemed well-prepared to meet their financial obligations while strategically allocating resources for long-term growth and investment. This approach reflects an understanding of the importance of liquidity and sustainability in navigating the complexities of the real estate market, where market conditions can fluctuate rapidly. The strong positive correlations observed between ROE, ROI, and ROA show the fundamental principle that improving shareholder returns and enhancing investment efficiency can contribute significantly to higher overall profitability. Real estate companies that optimize their capital structure to maximize these performance indicators will likely enjoy more robust financial results.

My findings highlight a negative correlation between debt ratios and ROA. This negative relationship implies that companies with higher debt levels may experience low

profitability. It shows the importance of maintaining a prudent level of leverage to avoid the adverse effects of excessive debt on a firm's financial performance. Striking the right balance between debt and equity is critical to sustaining profitability in the real estate sector. Furthermore, my analysis reveals that neither growth nor company size significantly influences ROA in the real estate companies we studied. This suggests that company size and growth rates do not inherently guarantee higher profitability. Instead, it shows the importance of prudent financial management and capital structure decisions as primary drivers of financial success.

Considering these findings, it is evident that real estate companies in Egypt can benefit from a strategic approach to capital structure management, focusing on optimizing ROE, ROI, and ROA while carefully managing their debt levels. This holistic financial strategy will likely enhance profitability and sustained success in a dynamic and competitive industry. My research provides valuable insights into the intricate relationship between capital structure and financial performance within the real estate sector in Egypt. These findings offer a foundation upon which industry practitioners, investors, and policymakers can make informed decisions, fostering a more resilient and prosperous real estate landscape in the years to come.

This research into the relationship between various financial factors and ROE within the real estate sector offers insights into the practical implications of these findings. Furthermore, enhancing investment efficiency is a key driver of achieving higher returns for shareholders in this specific sample of real estate companies. However, several important observations have been made regarding other factors influencing ROE,

such as debt levels, growth rates, and company size. This research shows the importance

of improving investment efficiency as a primary factor for augmenting ROE. Real estate

companies that can allocate resources more effectively, optimizing their capital

investments and operational processes, are better positioned to deliver superior returns to

their shareholders. This finding underscores the significance of prudent capital allocation

and resource management in the real estate sector.

This analysis reveals that in this specific sample of real estate companies, debt

levels, growth rates, and company size do not influence ROE significantly. These

findings suggest that the real estate industry dynamics may differ from those of other

sectors, where these factors often play a more prominent role in determining financial

performance. Real estate companies that generate profits through efficient operations will

likely realize higher ROE. This implies that a relentless focus on cost management,

revenue generation, and overall operational excellence should be central to real estate

firms' strategic agenda to optimize their financial performance. This research also shows

the significance of investment strategies in influencing ROE. Real estate companies that

adopt well-conceived investment strategies aligned with market conditions and investor

expectations are better positioned to generate favorable returns. This emphasizes the

importance of proactive, data-driven decision-making in real estate.

The finding about the negative relationship between ROA and TDTA suggests

that a high level of debt, compared to the total assets a company holds, can pressure its

profitability. When a company has a significant debt to repay, it may allocate a

substantial portion of its earnings to servicing that debt, leaving less profit available for

shareholders and investors. Therefore, the regression analysis of the Egyptian real estate

market demonstrates that a higher level of total debt relative to total assets is associated

with a decrease in a real estate company's ROA. This suggests that companies with

substantial debt burdens may face challenges in maintaining profitability, as a significant

portion of their earnings may be allocated to debt servicing. It highlights the importance

of carefully managing debt levels to optimize financial performance in this market

context.

Analysis of the relationship between capital structure and financial performance

within the Egyptian real estate sector has yielded several noteworthy findings that have

implications for strategic decision-making by real estate companies in this context. The

regression analysis results consistently indicate that prudent debt management is a crucial

factor that can significantly influence the financial performance of real estate companies

in Egypt, particularly regarding ROA. The negative relationship between debt levels and

ROA suggests that managing and potentially reducing debt levels could improve these

firms' profitability and asset utilization efficiency. This finding shows the importance of

carefully considering capital structure decisions and their potential impact on operational

performance in the Egyptian real estate market. However, it is important to note that the

impact of capital structure variables, including TDTA, STDTA, and LTDTA, on ROE

appears to be less pronounced. This analysis suggests that these factors, along with

company size and growth, do not exert significant individual or collective influence on

ROE within the Egyptian real estate sector. These findings highlight ROE's complicated

nature within this context, suggesting that other unexplored or external factors may play a more dominant role in determining ROE for real estate companies in Egypt.

Furthermore, analysis indicates that TDTA alone does not significantly predict ROI for real estate firms in the Egyptian context. The limited explanatory power of TDTA about ROI suggests that additional, unaccounted-for factors likely play a more substantial role in shaping the ROI dynamics within the real estate sector in Egypt. This finding shows the complexity of the factors influencing investment returns in this specific economic landscape. It highlights the need for further research to uncover the underlying determinants of ROI in the Egyptian real estate industry.

The study provides insights into the intricate interplay between capital structure and financial performance in the Egyptian real estate sector. While prudent debt management emerges as a critical consideration for improving ROA, the multifaceted nature of ROE and the complexity of ROI dynamics within this context call for continued exploration and a broader perspective in understanding the drivers of financial performance in this vital sector. These findings offer a foundation for future research and strategic decision-making by real estate companies operating in Egypt, aiming to navigate the challenges and opportunities of this dynamic market effectively.

References

Abdul Hamid, M., Abdullah, A., & Kamaruzzaman, N. A. (2015). Capital structure and profitability in family and non-family firms: Malaysian evidence. *Procedia Economics and Finance*, *31*, 44–55. https://doi.org/10.1016/S2212-5671(15)01130-2

Abeywardhana, D. K. Y. (2017). Capital structure theory: An overview. *Accounting and Finance Research*, *6*(1), 133–138. https://doi.org/10.5430/afr.v6n1p133

Abdullah, H., & Tursoy, T. (2021). Capital structure and firm performance: Evidence of Germany under IFRS adoption. *Review of Managerial Science*, *15*(2), 379–398. https://doi.org/10.1007/s11846-019-00344-5

Adesina, J. B., Nwidobie, B. M., & Adesina, O. O. (2015). Capital structure and financial performance in Nigeria. *International Journal of Business and Social Research*, *5*(2), 21–31. https://doi.org/10.14303/jribm.2018.018

Ahmed, F., & Siddiqui, D. A. (2019). *Impact of debt financing on performance: Evidence from textile sector of Pakistan*. Social Science Research Network. https://doi.org/10.2139/ssrn.3384213

Ai, H., Frank, M. Z., & Sanati, A. (2021). The trade-off theory of corporate capital structure. In *Oxford research encyclopedia of economics and finance*. https://doi.org/10.1093/acrefore/9780190625979.013.602

Ajibola, A., Wisdom, O., & Qudus, O. L. (2018). Capital structure and financial performance of listed manufacturing firms in Nigeria. *Journal of International Business and Management Research*, *5*(1), 81–89.

https://doi.org/10.14303/jribm.2018.018

Akingunola, R. O., Olawale, L. S., & Olaniyan, J. D. (2018). Capital structure decision and firm performance: Evidence from non-financial firms in Nigeria. *Acta Universitatis Danubius. Œconomica*, *13*(6), 351–364. https://journals.univ-danubius.ro/index.php/oeconomica/article/view/4136/4354

Albart, N., Sinaga, B. M., Santosa, P. W., & Andati, T. (2020). The controlling of ownership on the relationship between financial performance and capital structure in Indonesia. *International Journal of Finance & Banking Studies*, *9*(3), 15–27. https://doi.org/10.20525/ijfbs.v9i3.780

Almajali, M., & Shamsuddin, Z. (2019). The effect of capital structure on performance of insurance companies: Evidence from Jordan. *International Journal of Accounting*, *4*(20), 64–73. https://doi.org/10.1016/j.landurbplan.2022.104527

Alomari, M. W., & Azzam, I. (2017). Effect of the micro and macro factors on the performance of the listed Jordanian insurance companies. *International Journal of Business and Social Science*, *8*(2), 66–73. https://doi.org/10.30845/ijbss

Anarfo, E.B., & Appiahene, E. (2017). The impact of capital structure on banks' profitability in Africa. *Journal of Accounting and Finance*, *17*(2), 55–66. https://www.articlegateway.com/index.php/JAF/article/view/966

Ardalan, K. (2017). Capital structure theory: Reconsidered. *Research in International Business and Finance*, *39*(Part B), 696–710. https://doi.org/10.1016/j.ribaf.2015.11.010

Ashraf, M., Ameen, A., & Shahzadi, K. (2017). The impact of capital structure on firm's

profitability: A case of cement industry of Pakistan. *International Journal of Business and Social Science*, *8*(4). https://doi.org/10.5897/AJBM11.2103

Azhagaiah, R., & Gavoury, C. (2011). The impact of capital structure on profitability with special reference to the IT industry in India vs. domestic products. *Managing Global Transitions, 9*(4), 371–392. https://econpapers.repec.org/article/mgtyoumgt/v_3a9_3ay_3a2011_3ai_3a4_3ap_3a371-392.htm

Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *PNAS*, *117*(30), 17656–17666. https://doi.org/10.1073/pnas.2006991117

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance*, *57*(1), 1–32. https://doi.org/10.1111/1540-6261.00414

Banda, Y. W., & Riyad Rooly M.S.A2, M. (2014). Static trade-off theory and practice on corporate debt financing in sri lanka: evidence from management and firm characteristics. The International Journal of Social Sciences and Humanities Invention, http://ir.lib.seu.ac.lk/handle/123456789/356

Barnham, C. (2015). Quantitative and qualitative research: Perceptual foundations. *International Journal of Market Research*, *57*(6), 837–854. https://doi.org/10.2501/IJMR-2015-070

Berger, A.N., Bonnacorsi di Patti, E., (2006), Capital Structure and Firm Performance: A New Approach to Testing Pecking Order Theory and an Application to Banking Industry, *Journal of Banking and Finance,* 30(4), 1065-1102.

DOI:10.1016/j.jbankfin.2005.05.015

Billur Batuman, Yilmaz Yildiz, Mehmet Baha Karan (2020). The impact of the global
    financial crisis on corporate cash holdings: Evidence from Eastern European
    countries, Borsa Istanbul Review.https://doi.org/10.1016/j.bir.2021.10.002

Birru, M. W. (2016). The impact of capital structure on the financial performance of
    commercial banks in Ethiopia. *Global Journal of Management and Business
    Research. DOI:10.2991/amber.k.210507.040*

Björkholm, J., & Johansson, V. (2015). Debt versus Equity: In a low interest rate
    environment Dissertation). Retrieved from OAI: oai: DiVA.org: lnu-45392

Brealey, R. A., Myers, S. C., Allen, F., & Mohanty, P. (2018). *Principles of Corporate
    Finance, 12/e* (Vol. 12). McGraw-Hill Education.

Brigham, E.F. and Ehrhardt, M.C. (2011). *Financial Management: Theory and Practice,*
    (13th ed). Mason: South-Western Cengage Learning

Brusov, P., Filatova, T., Orehova, N., Brusov, P., & Brusova, N. (2011). From
    Modigliani–Miller to general theory of capital cost and capital structure of the
    company. *Research Journal of economics, business, and ICT*, *2*.
    https://doi.org/10.1080/09603107.2010.537635

Burkholder, G. J. (2016). Introduction to research. In G. Burkholder, K. A. Cox, & L.
    M.Crawford (Eds.), The scholar-practitioner's guide to research design. Laureate
    Publishing.

Chadha, S., & Sharma, A. (2015). Capital Structure and Firm Performance: Empirical
    Evidence from India. *Vision: The Journal Of Business Perspective*, *19*(4), 295-

302. https://doi.org/10.1177/0972262915610852

Chaklader, B., & Chawla, D. (2016). A study of determinants of capital structure through

panel data analysis of firms listed in NSE CNX 500. *Vision, 20*(4), 267–277.

https://doi.org/10.1177/0972262916668700

Chang, S. J., & Singh, H. (2000). Corporate and industry effects on business unit

competitive position. *Strategic Management Journal*, *21*, 739-752.

https://doi.org/10.1002/1097-0266(200007)21:7<739::aid-smj117>3.3.co;2-h

Chinaemerem, Osuji & Anthony, Odita. (2012). Impact of Capital Structure on the

Financial Performance of Nigerian Firms. Oman Chapter of Arabian Journal of

Business and Management Review. 1. 43-61. DOI:10.12816/0002231.

Chittenden, F., Hall, G., & Hutchinson, P. (1996). Small firm growth, access to capital

markets and financial structure: Review of issues and an empirical

investigation. *Small business economics*, *8*(1), 59-67.

https://doi.org/10.1007/BF00391976

Chittenden, F., Hall, G., & Hutchinson, P. (1996). Small firm growth, access to capital

markets and financial structure: Review of issues and an empirical

investigation. Small business economics, 8(1), 59-67. http://www.springer. ...

29/journal/11187/PS2

Choi, B., Kumar, M., & Zambuto, F. (2016). Capital Structure and Innovation Trajectory:

The Role of Debt in Balancing Exploration and Exploitation. *Organization

Science*, *27*(5), 1183-1201. DOI:10.1287/orsc.2016.1089

Chung, Y., Na, H., & Smith, R. (2013). How important is capital structure policy to firm

survival? *Journal Of Corporate Finance*, *22*, 83-103.

https://doi:10.1016/j.jcorpfin.2013.04.002

Chatterjee, S., Hadi, A.S. and Price, B. (2012) Regression Analysis by Examples. Fifth

Edition, Wiley Series in Probability and Statistics.

https://doi.org/10.1111/insr.12020_22

Cornesse, C., Felderer, B., Fikel, M., Krieger, U., & Blom, A. G. (2022). Recruiting a

Probability-Based Online Panel via Postal Mail: Experimental Evidence. Social

Science Computer Review, 1284. https://doi.org/10.1177/08944393211006059

Collins, S.O. (2006). Relationship between capital structure and firms value in Nigeria.

International journal of business and social science. Vol.2, pp 236-8.

Dalci, Ilhan. 2018. Impact of financial leverage on the profitability of listed

manufacturing firms in China.Pacific Accounting Review 30: 410–32.

https://doi.org/10.1108/PAR-01-2018-0008

Das, C. P., & Swain, R. K. (2018). Influence of capital structure on financial

performance. *Parikalpana: KIIT Journal of Management*, *14*(1), 161-171. DOI:

10.34218/IJM.11.12.2020.064

De Wet, J. (2006). Determining the optimal capital structure: a practical, contemporary

approach. *Meditari Accountancy Research*, *14*(2), 1-16.

https://DOI:10.1108/10222529200600009

Downes, D., & Heinkel, R. (1982). Signaling and the Valuation of Unseasoned New

Issues. *The Journal Of Finance*, *37*(1), 1-10.https://DOI: 10.1111/j.1540-6261.

1982.tb01091.x

Ebaid, I. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. The Journal of Risk Finance, 10(5), 477-487.

Eldomiaty, T.I. (2007), "Determinants of corporate capital structure: evidence from an emerging economy," International Journal of Commerce and Management, Vol. 17 No. 1/2, pp. 25-43. https://doi.org/10.1108/10569210710774730

Egypt's residential market: promising prospects for 2023. (2023, February 6). Cityscape Intelligence | Real Estate Investment Trends & Insights. https://www.cityscape-intelligence.com/egypt-residential/egypts-residential-market-promising-prospects-2023

Elsas, R., & Florysiak, D. (2015). Dynamic Capital Structure Adjustment and the Impact of Fractional Dependent Variables. *Journal Of Financial And Quantitative Analysis*, *50*(5), 1105-1133. https://doi.org/10.1017/s0022109015000496

Eriotis, N.P., Franguoli, Z., Neokosmides, Z. V., (2002), Profit Margin and Capital Structure: An Empirical Relationship, The Journal of Applied Business Research (JABR), 18 (2). DOI:10.19030/jabr.v18i2.2118

Campbell, D. T., & Stanley, J. C. (2015). *Experimental and quasi-experimental designs for research*. North Miami Beach, FL: Ravenio Books

Chaklader, B., & Chawla, D. (2016). A study of determinants of capital structure through panel data analysis of firms listed in NSE CNX 500. *Vision*, *20*(4), 267-277. DOI: 10.1177/0972262916668700

Chadha, S., & Sharma, A. K. (2016). An empirical study on capital structure in the Indian manufacturing sector. Global Business Review, 17(2), 411-424.

https://doi.org/10.1177/0972150915619817

Chen, L. J., & Chen, S. Y. (2011). How the pecking-order theory explains capital

structure. *Journal of International Management Studies*.

Graham, John Robert, Taxes and Corporate Finance: A Review (May 29, 2003).

Available at http://dx.doi.org/10.2139/ssrn.358580

Gallo, A. (2016). A refresher on return on assets and return on equity. *Harvard Business

Review*.

Gansuwan, P., & Önel, C. Y. (2012). The Influence of Capital Structure on Firm

Performance: a quantitative study of Swedish listed firms. *Umeå Sweeden*.

http://urn.kb.se/resolve?urn=urn%3Anbn%3Ase%3Aumu%3Adiva-56790

Gitman, L. J., & Zutter, C. J. (2012). *Principles of Managerial Finance* (ed.). Edinburgh,

England: Pearson.

Girod, S. J., & Whittington, R. (2017). Reconfiguration, restructuring, and firm

performance: Dynamic capabilities and environmental dynamism. *Strategic

Management Journal*. https://doi.org/10.1002/smj.2543

Gleason, K. C., Mathur, L. K., Mathur, I., (2000), The Interrelationship between Culture,

Capital Structure and Performance: Evidence from European Retailers, Journal of

Business Research, 50 (2), 185-191 DOI:10.1016/S0148-2963(99)00031-4

Goddard, J., Tavakoli, M., Wilson, J., (2005), Determinants of profitability in European

manufacturing and services, Applied Financial Economics, 15(18), 1269-1282.

https://doi.org/10.1080/09603100500387139

Habib, H., Khan, F., & Wazir, M. (2016). Impact of debt on profitability of firms:

Evidence from non-financial sector of Pakistan. *City University Research Journal*, *6*(01). SSRN: https://ssrn.com/abstract=2714461

Hales CA, Robinson ESJ, Houghton CJ, Gotlib I, Mathews A and Spannagel R (2016) Diffusion modelling reveals the decision-making processes underlying negative judgement bias in Rats. https://doi.org/10.1371/journal.pone.0152592

Halstead, T. J., & Lare, D. (2018). An exploration of career transition self-efficacy in emerging adult college graduates. Journal of College Student Development, 59(2),177-191. https://doi.org/10.1353/csd.2018.0016

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press

Hehman, E., Calanchini, J., Flake, J. K., & Leitner, J. B. (2019). Establishing construct validity evidence for regional measures of explicit and implicit racial bias. Journal of Experimental Psychology: General, https://doi.org/10.1037/xge0000623

Humphreys, M., & Jacobs, A. (2015). Mixing Methods: A Bayesian Approach. American Political Science Review, 109(4), 653-673. doi:10.1017/S0003055415000453

Hussain, M., Shahid, H., & Akmal, M. (2016). Effect of Profitability and Financial Leverage on Capita Structure in Pakistan Textile Firms. Arabian   Journal of Business and Management Review, 4, 1-4. doi: 10.4172/2223-5833.1000222

Ibhagui, O. W., & Olokoyo, F. O. (2018). Leverage and firm performance: new evidence on the role of firm size. *The North American Journal of Economics and Finance*, *45*, 57-82. https://doi.org/10.1016/j.najef.2018.02.002

Iqbal, M., & Javed, F. (2017). The Moderating Role of Corporate Governance on the

Relationship between Capital Structure and Financial Performance. *International Journal Of Research In Business And Social Science (2147-4478)*, *6*(1), 89-105. https://doi.org/10.20525/ijrbs.v6i1.624

Jaisinghani, D., & Kanjilal, K. (2017). Non-linear dynamics of size, capital structure, and profitability: Empirical evidence from the Indian manufacturing sector. *Asia-Pacific Management Review, 22*, 159-165. https://doi.org/10.1016/j.apmrv.2016.12.003

Jahanzeb, A., Kahn, S., Bajuri, N.H., Karami, M., & Rehman, S. (2013). Trade-off theory, pecking order theory and market timing theory: a comprehensive review of capital structure theories. International Journal of Management and Commerce Innovations, 1(1), 11-18. https://doi.org/10.1177/09722629211057208

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs, and ownership structure. *Journal Of Financial Economics*, *3*(4), 305-360. https://doi: 10.1016/0304-405x(76)90026-x

Kang, N., & Sadka, R. (2015). Implied Cost of Capital in the Cross-Section of Stocks. *SSRN Electronic Journal*

Kessler, J.B., & Vesterlund, L. (2015). The external validity of laboratory experiments: Qualitative rather than quantitative effects. Handbook of Experimental Economic Methodology, http://dx.doi.org/10.1093/acprof:oso/9780195328325.003.0020

Kirmi, P. N. (2017). Relationship between capital structure and profitability, evidence from listed energy and petroleum companies listed in Nairobi Securities Exchange. *Journal of Investment and Management*,

https://doi.org/10.11648/j.jim.20170605.11

Kebewar, M., (2012), The Effect of Debt on Corporate Profitability: Evidence from French Service Sector, Working Papers, Halshs-00766758,.https://arxiv.org/abs/1301.0072

Köksal, B., & Orman, C. (2014). Determinants of capital structure: evidence from a major developing economy. *Small Business Economics*, *44*(2), 255-282. https://doi: 10.1007/s11187-014-9597-x

Köksal, Bülent, and Cüneyt Orman. 2015. Determinants of capital structure: Evidence from a major developing economy. Small Business Economics 44: 255–82. https://doi.org/10.1007/s11187-014-9597-x

Kothari, C. (2017). *Research methodology methods and techniques.* New Age International (P) Ltd., Publishers.

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The journal of finance*, *28*(4), 911-922.

Krstevska, A., Nenovski, T., & Pogacnik Kostovska, K. (2017). Testing the Modigliani and Miller Theory in Practice: Evidence from the Macedonian Banking System. *Eastern European Economics*, *55*(3), 277-289. https://doi: 10.1080/00128775.2017.1294021

Kumar, S., Colombage, S. and Rao, P. (2017), "Research on capital structure determinants: a review and future directions", International Journal of Managerial Finance, Vol. 13 No. 2, pp. 106-132. https://doi.org/10.1108/IJMF-09-2014-0135

Le, T., & Phan, T. (2017). Capital structure and firm performance: Empirical evidence

from a small transition country. *Research In International Business and Finance*, *42*, 710-726. DOI:10.1016/j.ribaf.2017.07.012

Leedy, D., & Ormrod, J. (2015). Practical research: Planning and design (11th ed.). New York, NY: Pearson Education. https://doi.org/10.2307/1318509

Li, K., Niskanen, J., & Niskanen, M. (2019). Capital structure and firm performance in European SMEs: Does credit risk make a difference. *Managerial Finance*. https://doi.org/10.1108/MF-01-2017-0018

Lawrence, D., Davies, T., Bagshaw, R., Hewlett, P., Taylor, P., & Watt, A. (2018). External validity and anchoring heuristics: Application of DUNDRUM-1 to secure service gatekeeping in South Wales. *BJP sych Bulletin,* doi:10.1192/bjb.2017.6

Mahmoudi et al. (2013). The relationship between capital structure and firm performance. *Interdisciplinary Journal of Contemporary Research in Business, 5* (8), 421-433. https//doi: 10.11648/j.jfa.20130103.11

Martati, Indah & Suminto, & Kusrihandayani, Dyah. (2018). The Effect of Capital Structure on Profitability of Manufacturing Company. Advanced Science Letters. DOI:10.1166/asl.2018.12277

Martinkute-Kauliene, R., & Rinkevičiūtė,. (2014). Impact of market concentration on the profitability of Lithuanian banking sector. Business: Theory and Practice. https://doi.org/10.3846/btp.2014.25

Mareta, F., Ulhaq, A., Resfitasari, E., Febriani, I., & Elisah, S. (2022, February). Effect of Debt to Equity Ratio, Current Ratio, Total Assets Turnover, Earning Per Share,

Price Earnings Ratio, Sales Growth, and Net Profit Margin on Return on Equity.

In International Conference on Economics, Management and Accounting

(ICEMAC 2021) (pp. 417-426). Atlantis Press. 10.2991/aebmr.k.220204.047

Margaritis, D., Psillaki, M., (2010), Capital Structure, equity ownership and firm

performance, Journal of Banking and Finance, 34(3), 621-632.

https://doi.org/10.1016/j.jbankfin.2009.08.023

McCusker, K., & Gunavdin, S. (2015). Research using qualitative, quantitative, or mixed

methods and choice based on the research. *Perfusion, 30*(7), 537-542.

https://doi:10.1177/0267659114559116

McManus, P.A. (2011). Introduction to Regression Models for Panel Data Analysis.

Indiana University.https://ssrc.indiana.edu/doc/wimdocs/2011-10-

07_mcmanus_panel_slides.pdf

M., Hirdinis. (2019). Capital Structure and Firm Size on Firm Value Moderated by

Profitability. International Journal of Economics and Business Administration.

DOI:10.35808/ijeba/204

Miglo, A. (2016). *Capital structure in the modern world*. Springer. https//DOI

10.1007/978-3-319-30713-8

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance, and the

theory of investment. *The American economic review*, *48*(3), 261-297.

DOI: 10.4236/me.2011.22022

Mohajan, H. (2017). Two criteria for good measurements in research: Validity and

Reliability. Munich Personal RePEc Archive. Retrieved from

https://mpra.ub.unimuenchen.de/83458/

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, *13*(2), 187-221.https://doi.org/10.1016/0304-405X(84)90023-0

Mubeen R, Han D, Abbas J,Raza S and Bodian W (2022). Examining the Relationship Between Product Market Competition and Chinese Firms Performance: The Mediating Impact of Capital Structure and Moderating Influence of Firm Size. Front. Psychol. 12:709678. doi: 10.3389/fpsyg.2021.70967

Musibah, A. S., & Alfattani, W. S. B. W. Y. (2014). The mediating effect of financial performance on the relationship between Shariah supervisory board effectiveness, intellectual capital, and corporate social responsibility of Islamic banks in Gulf Cooperation Council countries. Asian Social Science, DOI:10.5539/ass.v10n17p139

Nkwake, Apollo M., & Morrow, Nathan., Volume overview: Working with assumptions. Existing and emerging approaches for improved program design, monitoring and evaluation. Evaluation and Program Planning http://dx.doi.org/10.1016/j.evalprogplan.2016.05.016

Nguyen, T., & Nguyen, H. (2020). Capital structure and firm performance of non-financial listed companies: Cross-sector empirical evidence from Vietnam. *Accounting*, *6*(2),137-150. DOI:10.5267/j.ac.2019.11.002

Ngoc, N. M., Tien, N. H., Chau, P. B., & Le Khuyen, T. (2021). The Impact of Capital Structure on Business Performance Of Real Estate Enterprises Listed At Ho Chi

Minh City Stock Exchange. PalArch's Journal of Archaeology of Egypt/Egyptology, 18(08), 92-119.

Nunes, P.J., Serrasqueiro, Z.M., Sequeira, T.N., (2009), Profitability in Portuguese service industries: a panel data approach, The Service Industries Journal, 29(5), 693-707.

Nyongesa, M. N. (2017). Effect of financial management practices on the financial performance of insurance companies in Kenya (Doctoral dissertation, COHRED-JKUAT). http://hdl.handle.net/123456789/3509

Osborne, J. W. (2017). Best practices: A moral imperative. Canadian Journal of Behavioural Science, 49(3), 153-158. https://doi.org/10.1037/cbs0000078

Oforegbunam Thaddeus, Ebiringa & Ph. D, Ezeji. (2012). Analysis of Effect of Financing Leverage on Bank Performance: Evidence from Nigeria. Journal of Public Administration and Governance. DOI:10.5296/jpag.v2i4.3036

Oyedokun, G. E. (2018). Capital structure and firm financial performance. International Accounting and Taxation Research Group, Faculty of Management Sciences, University of Benin, Benin City, Nigeria.
DOI: https://doi.org/10.33423/jaf.v18i10.235

Panda, B., & Leepsa, N. (2017). Agency theory: Review of Theory and Evidence on Problems and Perspectives. *Indian Journal of Corporate Governance*, *10*(1), 74-95. https://doi: 10.1177/0974686217701467

PORTUGAL. *Journal Of Business Economics and Management*, *16*(2), 445-466.
https://doi: 10.3846/16111699.2012.744344

Pouraghajan, A., Malekian, E., Emamgholipour, M., Lotfollahpour, V., & Bagheri, M. M. (2012). The relationship between capital structure and firm performance evaluation measures: Evidence from the Tehran Stock Exchange. *International Journal of Business and Commerce*, *1*(9), 166-181.

Ramadan, Zeyad & Ramadan, Imad. (2015). Capital Structure and Firm's Performance of Jordanian Manufacturing Sector. International Journal of Economics and Finance. 7. DOI:10.5539/ijef.v7n6p279

Ramli, N., Latan, H., & Solovida, G. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review of Economics and Finance*, *71*, 148-160. DOI:10.1016/j.qref.2018.07.001

Ramli, N., Latan, H., & Solovida, G. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review Of Economics And Finance*, *71*, 148-160. https://doi.org/10.1016/j.qref.2018.07.001

Rashid, A. (2014). Revisiting Agency Theory: Evidence of Board Independence and Agency Cost from Bangladesh. *Journal Of Business Ethics*, *130*(1), 181-198. https://doi: 10.1007/s10551-014-2211-y

Revathy, S. & Venkatakrishnan, Santhi & Sreekala, S. (2016). The Impact of Capital Structure on Profitability of Manufacturing Companies: using Multiple Regression Model. Asian Journal of Research in Social Sciences and Humanities. DOI:10.5958/2249-7315.2016.00060.5

Risfandy, T. (2018). Equity Financing and Islamic Banks' Profitability: Evidence from the Biggest Muslim Country. *Jurnal Keuangan dan Perbankan*, *22*(3). https://doi.org/10.26905/jkdp.v22i3.2150

Ross, S. (1977). The Determination of Financial Structure: The Incentive-Signalling Approach. The Bell Journal of Economics, 8(1), 23. https://doi: 10.2307/3003485

Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences*,*65*, 156-166.https://doi.org/10.1177/2278682118823312

Salim, A.S. (2018). Capital structure and financial performance of Islamic bank in Kenya. Journal of Research Project. http://ir-library.ku.ac.ke/handle/123456789/18699

Sakr, A., & Bedeir, A. (2019). Firm-level determinants of capital structure: Evidence from Egypt. International Journal of Financial Research, 0(1), 68-87. https://doi.org/10.5430/ijfr.v10n1p68

San, O. T. and Heng, T. B. (2011), Capital Structure and Corporate Performance of Malaysian Construction Sector. *International Journal of Humanities and Social Science, 1(*2), 28-36. DOI: 10.4236/ijg.2015.63018

Saona, Paolo & San Martín Mosqueira, Pablo. (2018). Determinants of firm value in Latin America: an analysis of firm attributes and institutional factors. Review of Managerial Science. 12. 1-48. 10.1007/s11846-016-0213-0.

Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research methods for business students*. (7th ed). Pearson education.

Serrasqueiro, Z., & Caetano, A. (2015). Trade-Off theory versus pecking order theory: Capital structure decisions in a peripheral region of Portugal. Journal of Business Economics & Management, 16, 445-466. doi:10.3846/16111699.2012.744344

Sharma, P., & Paul, S. (2015). Does Liquidity Determine Capital Structure? Evidence from India. *Global Business Review*, https://doi.org/10.1177/0972150914553510

Shubita, M. F., & Alsawalhah, J. M. (2012). The relationship between capital structure and profitability. *International Journal of Business and Social Science*, *3*(16). https://doi.org/10.1016/S2212-5671(15)01130-2

Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, . doi: 10.1097/NUR.000000000000049.

Siddik, M.N.A. (2017). Impact of capital structure on the performance of banks in developing economy: Evidence from Bangladesh. International Journal of Finance Studies (4th Ed.), 15(4), 2-18. doi: 10.3390/ijfs5020013

Singh, N. P., & Bagga, M. (2019). The effect of capital structure on profitability: An empirical panel data study. *Jindal Journal of Business Research*, *8*(1), 65-77. *Forthcoming*. https://doi.org/10.7176/RJFA/10-20-07

Sitti Murniati, 2016. "Effect of Capital Structure, Company Size and Profitability on the Stock Price of Food and Beverage Companies Listed on the Indonesia Stock Exchange," Information Management and Business Review, AMH International. DOI: 10.22610/imbr.v8i1.1192

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6, pp. 497-516). Boston, MA: pearson.

Tailab, M. M. K. (2014). The effect of capital structure on profitability of energy

American firms. *International Journal of Business and Management Invention,*

3(12), 54–61. DOI: 10.4236/iim.2019.113005

Takele, Y., & Beshir, D. (2017). Firm-Specific Determinants of Insurance Companies'

Capital Structure in Ethiopia. In Studies on Economic Development and Growth

in Selected African Countries. Springer, Singapore.

https://doi.org/10.21275/ART20164109

Toraman, C., Kilic, Y., and Reis, S. (2013). The Effects of Capital Structure Decisions on

Firm Performance: Evidence from Turkey. *Proceeding of the International*

Conference on Economic and Social Studies

Trzesniewski, K. H., Donnellan, M. B., & Lucas, R. E. (Eds.). (2011). *Secondary data*

analysis: An introduction for psychologists. American Psychological

Association. https://doi.org/10.1037/12350-000

Touil, Marwa & Mamoghli, Chokri. (2020). Institutional environment and determinants

of adjustment speed to the target capital structure in the MENA region. Borsa

Istanbul Review. DOI:10.1016/j.bir.2019.12.003

Tudose, M. B. (2012). Capital structure and firm performance. *Economy*

Transdisciplinarity Cognition, *15*(2), 76. DOI:10.12816/0017352

Umer, U. (2013). Determinants of Capital Structure: Empirical Evidence from Large

Taxpayer Share Companies in Ethiopia. *International Journal Of Economics And*

Finance, *6*(1). https://doi: 10.5539/ijef.v6n1p53

Vătavu, S. (2015). The impact of capital structure on financial performance in Romanian

listed companies. *Procedia Economics and Finance, 32*, 1314–1322

https://doi.org/10.1016/S2212-5671(15)01508-7

Velnampy, T., & Niresh, J. A. (2012). The relationship between capital structure and

Profitability. Global Journal of Management and Business Research,12(13).

Venkatesh, Viswanath & Brown, S.A. & Sullivan, Y.W.. (2016). Guidelines for

Conducting Mixed-methods Research: An Extension and Illustration. Journal of

the Association for Information Systems. DOI:10.17705/1jais.00433

Weill, L., (2008), Leverage and Corporate Performance: Does Institutional Environment

Matter? Small Business Economics, 30(3), DOI:10.2139/ssrn.300640

Wei, C., Wang, W., Yang, W., & Liu, J. (2018). Deep retinex decomposition for low-

light enhancement. arXiv preprint arXiv:1808.04560.

https://doi.org/10.48550/arXiv.1808.04560

Whittington, G. (1980) Some Basic Properties of Accounting Ratios. Journal of Business

Finance and Accounting, 7, 219-232. https://doi.org/10.1111/j.1468-

5957.1980.tb00738

Zeitun, R., & Tian, G. G. (2014). Capital structure and corporate performance: evidence

from Jordan. *Australasian Accounting Business & Finance Journal,*

http://dx.doi.org/10.2139/ssrn.2496174