

Effat University Repository

The Impact of Capital Structure on Firms Performance in the Healthcare Industry in Saudi Arabia

Item Type	Thesis
Authors	Binmahfooz, Maria
Publisher	Effat University
Download date	2026-04-12 13:03:04
Link to Item	https://repository.effatuniversity.edu.sa/handle/20.500.14131/2252



Effat University
College of Business,
Department of Accounting & Finance department

The Impact of Capital Structure on Firms Performance in the Healthcare Industry in Saudi Arabia

By

Maria Mubarak Binmahfooz

A Thesis Submitted in Partial Fulfillment of the Requirements for the master's degree in
finance College of Business, Effat University- Master of Finance

Supervised by:

Dr. Burhan Uluyol

Thesis Submitted On 05/2025



Effat University
College of Business,
Department of Accounting & Finance department

The Impact of Capital Structure on Firms Performance in the Healthcare Industry in Saudi Arabia

By

Maria Mubarak Binmahfooz

ID: G23108623

A Thesis Submitted in Partial Fulfillment of the Requirements for the master's degree in
finance College of Business, Effat University- Master of Finance

Supervised by:

Dr. Burhan Uluyol
Associate professor

Thesis Submitted On 04/2025



جامعة عفت
كلية الأعمال
قسم المحاسبة والمالية

أثر هيكل رأس المال على أداء الشركات في قطاع الرعاية الصحية في المملكة العربية السعودية

اعداد

ماريا مبارك بن محفوظ

رسالة مقدمة لتحقيق متطلبات درجة الماجستير في المالية
كلية الأعمال، جامعة عفت - ماجستير في المالية

مشرف الرسالة:

الدكتور برهان أولويول
أستاذ مشارك

(١٤٤٦هـ - ٢٠٢٥م)

Effat University
Jeddah, Saudi Arabia
Deanship of Graduate Studies and Research


This thesis, written by Maria Bin Mahfooz. Under the direction of her thesis supervisor and approved by her thesis committee, has been presented to and accepted by the Dean of Graduate Studies and Research in the Finance department, in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in Finance


Thesis Committee

Thesis Supervisor :
Name: Dr. Burhan Uluyol




Signature:
External Member
Name: Prof Amal Belanes
Title: Professor

Signature: 
Member
Name: Dr Alaa AlQudah
Title: Associate Professor

Signature: 

Department Chair
Name: Dr. Mohamed Mahees Raheem

Signature: 

Dean of the College
Name: Prof. Sara Elzarka
Signature: 

Dean of Graduate Studies & Research
Name:-----
Signature:-----

جامعة عفت
جدة، المملكة العربية السعودية
عمادة الدراسات العليا والبحث العلمي

تمت كتابة هذه الأطروحة بواسطة ماريًا بن محفوظ تحت إشراف مشرف الأطروحة وتمت الموافقة عليها من قبل لجنة الأطروحة، وقد تم تقديمها وقبولها من قبل عميد الدراسات العليا والبحث العلمي في قسم المالية ، وذلك جزئيًا لتحقيق متطلبات الحصول على درجة ماجستير في العلوم في المالية.

لجنة الأطروحة

مشرف الأطروحة

الاسم : Dr. Burhan Uluyol

التوقيع:

عضو خارجي

الاسم : Amal Belanes

التوقيع:

رئيس القسم

الاسم : Dr Mohamed Mahees Raheem

التوقيع:

عميد الكلية

الاسم : Prof. Sara Elzarka

التوقيع:

عميد الدراسات العليا والبحث العلمي

الاسم : -----

التوقيع : -----

Declaration

This work is original and has not been previously submitted in support of any degree qualifications or course.

Student's name: Maria Bin Mahfooz

Signature :

A handwritten signature in blue ink, consisting of a large, stylized loop with a small dot at the top right and a horizontal line extending to the left.

Acknowledgment

"وَأَخِرُ دَعْوَاهُمْ أَنْ الْحَمْدُ لِلَّهِ رَبِّ الْعَالَمِينَ"

First, for most, I want to thank my creator, my lord, for giving me the strength, wisdom, and resilience to make it possible for me to complete this dissertation.

I would also like to extend my heartfelt thanks to my family for their support emotionally and financially.

A special and sincere thanks go to my supervisor, Dr. Burhan Uluyol. His mentorship, assistance, and guidance throughout the dissertation

Finally, for myself for never giving up on me and for always seeing the light in the darkness.

Abstract

The current research investigates the interdependent and interactive relationship between the financial performance and capital structure, on 28 publicly listed healthcare firms in Saudi Arabia, covering the period of 1996 to 2023, more precisely focusing on Return on Assets (ROA) and Return on Equity (ROE). A wide range elaborate analytical framework that includes descriptive statistics, panel least squares regression, and correlation test is applied to enable exploration of the effect of a wide range of financial variables, including debt ratio, debt to equity ratio, short term debt, long term debt, cash flow, firm size, growth and profitability. The results indicate that cash flow positively affects ROA and ROE, implying that organizations with high cash holdings are likely. This highlights the critical role of liquidity management for healthcare organizations in maintaining profitability and ensuring long-term financial viability. Additionally, an inverse relationship is noted both with short- and long-term debt and financial measures of ROA and ROE, suggesting that high levels of debt are associated with low profitability and operational efficiency. This study corroborates the argument that over-reliance on debt, irrespective of term, is likely to create increased financial volatility, thus impacting organizational performance. The study also finds we have a slight or statistically insignificant correlation with debt ratio, D/E ratio, size of firms, growth, and profitability with ROA and ROE, though the findings differ across different statistical tests. suggesting these variables have no considerable or extensive influence on healthcare companies' financial performance in Saudi Arabia. It should, nonetheless, be noted that these correlations are based on statistical methods, with these variables potentially having different impacts when other methods are employed.

Keywords

Capital structure- Firm performance - Return on Assets (ROA) - Return on Equity (ROE),

Table of Contents

INTRODUCTION	12
1.4 Problem statement	16
1.5 Purpose of study	17
1.6 Research Questions.....	17
1.7 Research Objectives.....	18
1.8 Significance of the study	18
2. LITERATURE REVIEW	22
2.1 Theoretical framework	22
2.2 Capital structure and firm performance relation	24
2.3 Saudi Arabia Context	29
2.4 Research gap.....	32
3. METHODOLOGY	34
3.1 Data Sample.....	34
3.2 Variables and Measurement.....	35
3.3 Data Analysis	38
3.4 Model	39
3.6 Hypothesis.....	40
4. FINDINGS	42
4.1 Descriptive Statistics.....	43
4.2 Hausman Test	47
4.3 Panel data Fixed effect model – ROE.....	48
4.4 Panel data Fixed effect model – ROA.....	50
4.5 Results of the Correlation Analysis—ROA	52
4.6 Results of the Correlation Analysis-- ROE.....	54
4.7 Discussion.....	56

5. CONCLUSION	60
5.1 Limitations and recommendations for future studies	62
6.REFERENCES	65

List of Tables

Table 4.1 Descriptive Statistics	43
Table : 4.2 Hausman Test	47
Table: 4.3 Panel data Fixed effect model – ROE	48
Table: 4.4 Panel data Fixed effect model – ROA	50
Table: 4.5 Correlation Analysis-- ROA.....	52
Table: 4.6 Correlation Analysis-- ROE	54

Chapter 1:

INTRODUCTION

1. Introduction

Capital structure represents a critical financial decision that a corporation must undertake, significantly impacting its financial health and operational efficiency. Capital structure refers to the method by which a company funds its operations. Specifically, the percentage of leverage and equity used to fund the company's day-to-day activities. Debt financing arises when a firm raises capital through borrowing or issuing bonds, which means the company relies on borrowing from external sources. Equity financing refers to the issuance of company shares to external parties, more precisely, selling shares of its ownership to external investors to raise funds. The analysis of how debt and equity capital are distributed is the core of capital structure (Yao, 2023). From an organizational aspect, equity provides a costly but long-term source of capital due to the absence of repayment requirements. However, it results in ownership dilution. On the other hand, debt finance is generally less expensive due to tax-deductible benefits but represents a short-term source of debt and requires wise use, as it could drive firms to bankruptcy (Riaz et al., 2023). Over the past years, various theories explaining the challenges associated with capital structure have been developed. on top of it, the Theory of Modigliani and Miller (1958), which argues that in an ideal capital market, where taxes are absent, the value of a firm is unaffected by its capital structure.(Ghosh & Sinha, 2024). The pecking order theory is another common theory related to the capital structure, which demonstrates that companies should first prioritize financing their business activities internally through retained earnings. After that, if they need more funds, they could seek debt and leave equity financing as a last choice. Another theory is the Market timing theory, which discusses that firms should select to use either debt financing or equity financing based on market

conditions. If the cost of equity is low, they should go with equity, and if debt is cheaper, they should turn to debt financing (Jahanzeb et al., 2014). Despite this never-ending discussion about the optimal capital structure, there is no unified way or optimal capital structure that fits all different types of industries and organizations. The best capital structure will probably vary in accordance with the distinctive characteristics of certain industries and companies. Therefore, each firm or each industry has to conduct a comprehensive analysis of its distinct situation and alternative financing plans to determine its appropriate capital.

The financial performance of an organization is a concern for both shareholders and decision-makers since it gives a complete overview of the overall financial performance. A firm's financial performance reflects its capability to meet its goals, which include profitability, growth, and cash flow. This measure of performance indicates whether a firm is thriving with good financial health or is suffering from financial instability. In cases of instability, the firm's potential for growth, reputation, and even existence can be threatened. The financial performance is usually measured by multiple ratios, including but not limited to profitability ratios such as Return on Asset (ROA), Return on Equity (ROE), liquidity ratios such as current ratio, quick ratio, leverage ratios such as Debt ratio, Debt to Equity (D/E). The relation between a company's capital structure, defined as the combination of debt and equity funding, and its performance has historically been a topic of concern in the field of corporate finance. Researchers and practitioners have attempted to determine the role of debt and equity choices in affecting key performance metrics, such as growth and profitability (Ghosh & Sinha, 2024).

The healthcare industry is of considerable economic importance due to its massive requirement for substantial financial resources that are needed to ensure operational efficiency. Financial operations in healthcare organizations have many challenges that necessitate entities operating within this sector to closely and carefully monitor and balance debt and equity financing to ensure financial stability (Omokore et al., 2024). Additionally, the healthcare industry in Saudi Arabia is one of the most heavily regulated sectors subject to Saudi Arabian jurisdiction. as a result, the process of making financial decisions goes beyond business strategy and involves compliance with regulatory bodies and government entities like the Ministry of Health (MOH), Saudi Food and Drug Authority (SFDA), etc. hospitals, pharmacy chains – Medical services providers, and Medical supply firms are the key players in the market. In the past three years, Vision 2030 has driven seismic shifts in the healthcare sector in Saudi Arabia. The shifts center on reducing the reliance on petroleum revenues, maximizing private sector contribution, and streamlining the delivery of healthcare. Privatization of government-run hospitals, escalated spending on public-private partnerships, and the inflow of foreign healthcare providers have altered the dynamics of competition. These structural changes have imposed new financing dynamics, compelling firms to reconsider conventional capital structures and turn to more innovative funding arrangements such as sukuk issuance, joint ventures, and equity partnerships. Collectively, all these factors highlight the need for empirical analysis that quantifies how capital structure influences firm resilience and performance under sector-wide change.

1.4 Problem statement

The Capital structure of a firm denotes the percentage of debt and equity financing utilized by a company to fund its operations. It is essential for assessing the financial solvency and performance. The composition of a company's capital is essential for its capacity to mitigate financial risk, attain growth, and maintain profitability. In the healthcare sector in Saudi Arabia, the relationship between capital structure and firms' performance is weakly established and quietly unclear. Although capital structure is acknowledged as a crucial factor in securing long-term financial success, there is little research directed to the effect of different capital structures on the performance of Saudi Arabian healthcare companies. The majority of previous studies have concentrated on developed economies, thereby leaving a gap in knowledge regarding capital structure dynamics in the Saudi Arabian healthcare industry

This research seeks to fill the gap in the knowledge and offer significant insights for policymakers and investors in the healthcare sector. This study will analyze the correlation between capital structure and financial performance in Saudi Arabian healthcare firms, thereby improving the understanding of how firms in this sector can optimize their financing methods for improved financial results and sustained stability. Another dimension of the problem is the limited empirical analysis of the reaction of Saudi Arabian healthcare companies to monetary shocks or the availability of credit. For instance, the COVID-19 pandemic experience revealed vulnerabilities in firm-level financing structures, particularly in firms with elevated reliance on short-term debt. The problem is also compounded by the lack of tailored credit-rating models or sector-specific lending instruments for healthcare providers. This financial exposure highlights the need to explore how capital structure influences the ability of a firm to

absorb market or operational shocks in an industry where stability is paramount to national welfare.

1.5 Purpose of study

The study aims to examine the correlation between capital structure and companies performance of healthcare companies in Saudi Arabia. In particular, the study will investigate the effect of various elements: D/E ratio, Debt ratio, long-term debt, short-term debt, firm size, growth, profitability, and cash flow on Return on Assets (ROA) and Return on Equity (ROE).this study attempts to evaluate the direct and indirect effect of the capital structure that healthcare firms utilize on their overall performance and sustainability, this analysis seeks to provide useful insights into how healthcare firms in Saudi Arabia can optimize their capital structure to balance risk and return associated with external financing and to keep promoting long term growth and profitability. Furthermore, it will offer evidence-based recommendations for healthcare firms to enhance their financial strategies to optimize financial performance and capital efficiency. These insights will assist decision makers, financial managers, and policymakers, enabling them to make an educated choice and promote the development of the healthcare industry in Saudi Arabia.

1.6 Research Questions

Q1: How does capital structure affect the financial performance of Saudi publicly listed healthcare companies?

Q2: What is the connection between the company's financial performance and its capital structure?

Q3: Are healthcare companies with higher leverage more profitable than those with lower leverage?

1.7 Research Objectives

1. To investigate capital structure influences on the firm performance of healthcare companies listed in Saudi Arabia.
2. To identify the correlation between capital structure and companies performance
3. To provide recommendations for decision-makers and investors to identify the best capital structure to boost financial performance

1.8 Significance of the study

There is significant importance in this research since it offers a comprehensive analysis of the connection between capital structure and the financial performance of healthcare companies in Saudi Arabia. The healthcare industry, due to its high capital requirements and the necessity to meet stringent regulations, presents distinctive challenges, in addition to opportunities for the financial decision-making procedure. Given the industry's reliance on heavy investments in infrastructure, equipment, and facilities, it is crucial to measure the effect of capital structure on the overall firm performance.

The current research seeks to fill a considerable gap within the existing knowledge given the fact that there are a limited studies that addressed the capital structure's impact on the financial performance of listed healthcare companies in Saudi Arabia. Whereas the majority of prior studies have concentrated on this topic within the contexts of

developed markets or industries that are not healthcare. The healthcare sector has some unique features that can affect financial operations, such as the regulatory compliance-sensitive nature and the requirements of a large amount of capital for continuity and growth operations. The findings highlighted by this paper will provide insightful information for financial managers, shareholders, and policymakers in the healthcare industry to improve operational efficiency and profitability. Secondly, the research findings will provide a basis for future academic research on strategic financial planning in regulated industries. By investigating healthcare firms in Saudi Arabia, the study fills a sectoral gap and provides geographical perspectives that can inform national economic planning. These results are particularly important to policymakers engaged in economic diversification under Vision 2030, since the financial health of healthcare companies directly contributes to public welfare and job creation. Aside from illuminating the nuanced effects of different capital structure components, the study also offers valuable tools for measuring financial sustainability in one of the country's most vital industries.

This study relates to the broader discussion of the financial resilience of emerging economies and extends beyond a conceptual appreciation of capital structure theories and sectoral particularities. As financial markets in Saudi Arabia remain underdeveloped, and diversification is at the core of the national agenda, strategic structuring of capital has a direct impact on firm-level outcomes and implications for macroeconomic stability as well. Because healthcare is both an essential social service and a rapidly growing private industry, the capital structure decisions of firms in this sector have ramifications that reach beyond the bottom line—they influence job creation, medical research and development, and the provision of healthcare services.

In the Vision 2030 context, the government of Saudi Arabia is not only making significant investments in the healthcare sector but also pushing for a financial and regulatory system that supports privatization and innovation. With an increasing number of healthcare firms adopting private or mixed ownership models, capital structure is no longer an instrument of finance but a necessity of strategy. Health care professionals are increasingly being requested to collaborate with business acumen but continue to be held to high standards of quality care. This creates a unique financial challenge—one of balancing the investor's risk tolerance with the long-term objective of public health enterprises. Therefore, it is crucial to recognize how capital structure decisions impact financial performance for profit but also for national expansion and healthcare sustainability.

Chapter 2:

Literature review

2. Literature Review

2.1 Theoretical framework

2.1.1 The theories of Modigliani and Miller

Modigliani and Miller (1958) presented one of the first and most influential theories that discuss the capital structure. The theory states that in an ideal capital market, the company's capital structure will not have any direct influence on the firm's profitability, neglecting impactful real-world factors like the role of taxes and Information asymmetry. Debt financing has an advantage over equity financing in Taxes. Companies that use debt pay fewer taxes than companies that use equity; therefore, debt financing provides a tax shield.

In the absence of asymmetric information, the theory assumes that all investors and managers have the same information, though, in the real world, the managers are often exposed to more information than the investors. The theory has limitations that make it irrelevant (Yao, 2023; Giglio, 2022; S. M. Javed et al., 2012).

In 1963, they realized their mistake and updated their theory to include the effect of Taxes and concluded that as a company increases its debt, its value rises due to the advantage of tax saving that debt financing provides (Ahmeti & Prenaj, n.d.).

2.1.2 Trade-off theory

The Kraus and Litzenberger (1973) dissertation argue the significance of finding the optimal capital structure by balancing the advantages and disadvantages of leverage, the theory suppose that companies can obtain their best capital structure by trading off

the benefits and costs of debt, the tax advantage of borrowed money, against the costs of financial distress that can occur when firms rely heavily on debt. The benefit of debt financing declines once debt increases, as well as the cost (Alhussain & Alsultan, n.d.). As stated by Çerkezi, (2013) on this theory that it is an improved version of the original Modigliani and Miller model, but accounts for taxes and bankruptcy costs that were not considered in the previous studies

The trade-off theory argues that although debt financing has some benefits, especially in the form of tax advantages, it also has drawbacks. As such, in order for firms to maximize their value, firms need to determine the optimal mix between financing sources. The optimal mix allows the company to take advantage of the tax benefit related to debt financing while at the same time avoiding the risk related to leverage.

2.1.3 Pecking order theory

The theory established by Myers and Majluf (1984) presents that firms should follow a specific order in regard to financing. Under this theory, Firms are expected to first rely on financing their operations internally by retained earnings. In the event of a further need for capital, the company should move to external financing, starting with debt financing, and as a final option, issuance of Equity. The explanation of this hierarchy is to avoid the costs and potential financial distress associated with external financing (Giglio, 2022; S. M. Javed et al., 2012).

According to Myers and Majluf, although there are benefits of debt financing, a firm's tax shield can increase the bankruptcy risk. This situation occurs when companies take on more debt, just to benefit from tax deductions, and this expands leverage and increases the risk of financial distress (Yousefzadeh et al., 2014). The asymmetric information concept aligns with the pecking order theory, which posits that managers

possess better information about the firm's activities and expected performance compared with outside investors, which influences their decision on whether to prefer internal or external financing (Ramadan, 2015)

2.1.4 Market timing theory

Baker and Wurgler in 2002 proposed the market timing theory. The theory argues that companies ought to choose their source of financing based on market conditions. This theory states that while the equity cost is low, firms should pursue equity financing, and when the cost of debt is low, firms should choose debt financing. The explanation of this is to enable firms to take advantage of favorable market conditions and reduce financing costs, hence maximizing shareholders' value. By linking their financial strategies with the market, the firms can enhance their capital structure while reducing the overall cost of capital (Huang & Ritter, n.d.). While these theories are robust, no theory completely explains the intersection of capital structure choice and the regulation of specific industries, such as healthcare regulation creates additional layers of financial constraint that may limit capital structure optionality. Thus, scholars are demanding more comprehensive theoretical frameworks by incorporating elements of market forces and firm behavior along with the unique constraints of government regulation and responsibilities to serve, which sometimes tend to coincide with those of the government, especially in health care.

2.2 Capital structure and firm performance relation

Numerous research studies have examined the role played by debt and equity financing in impacting firms' performance. The researchers Cole et al., (n.d.) have examined this

relationship in 3 U.S sectors (industrial, Healthcare, and Energy sector) for the period (2004 to 2013) for 30 firms using Return on Assets (ROA), market value per share, operating return and profit margin as the dependent variable and long-term debt to total assets as the independent variable. The study applied regression analysis as the statistical test to analyze the data and concluded that capital structure, which is assessed using long-term debt to total assets, has a negative relationship with ROA among all sectors. While capital structure has a positive effect on profit margin in the industrial sector, a negative effect on profit margin in the Energy sector, and has no impact in the Healthcare sector. Sulaiman & Musa,(2023) explored how liquidity moderates the relationship capital structure and financial performance in 10 publicly listed healthcare companies in Nigeria for covering the period of (2013 – 2022), the research employed utilized short term debt and long term debt as proxies for capital structure while ,Return on Asset representing financial performance and liquidity acted as a moderating variables, the statical analysis was run with descriptive statics, and correlation analysis, the research discovers that short-term debt positively and significantly has influence on Return on Assets (ROA) while long term debt and liquidity have insignificant negative and positive influence on Return on Assets (ROA) . in the same way, Omokore et al., (2024) explored the impact of capital structure on 8 Nigerian healthcare publicly listed on Nigerian Stock Exchange (NSE) for the period of 2012 to 2021, the study used Return on Equity (ROE) as dependent variable and short term debt and long term debt as independent variables and firm size as control variable . Moreover, the study applied correlation and regression analysis to conclude that short-term debt and long-term debt are significantly negatively correlated with ROE, whereas firm size has a positive significant impact on ROE.

S. M. Javed et al., (2012) observed the impact of financing structure on the firm performance of 63 non-financial listed companies on the Karachi Stock Exchange for the period from 2007 to 2011, the dependent variables are: Return on Assets(ROA), Return on Equity (ROE), and Return on Sales (ROS) and the independent variables Debt to assets, equity over assets and long term debt to assets, the analysis was conducted with the assistance of Fixed effect model. the results show mixed results when examining the Return on Assets (ROA) as the outcome variable, capital structure positively influence firm performance, when Return on Equity (ROE) serves as the response variable, the Debt to Assets (DTA) exhibits a positive effect, while Equity to Assets ratio (EQA) and long-term debt to assets ratio (LDA) revealed an opposite effect. The long-term debt has a positive impact. And as per the Return on Sales (ROS), the Debt-to-Asset ratio (DTA) and Equity-to-Assets ratio (EQA) recorded an adverse correlation with ROS, while LDA showed a positive impact. Furthermore, Riaz et al., (2023) investigated the impact on commercial banks of Pakistan for the years 2011 to 2020, utilizing ROA and ROE as dependent factors, with total debt and total equity serving as independent variables. The data analysis involved descriptive statistics, correlation analysis, and generalized least squares regression analysis (GLS). The study confirms the influence the capital structure has on a firm's financial performance, specifically highlighting that total debt and total equity significantly correlate with ROA and ROE.

In line with these findings, Saddiqa et al., (2024) , who have examined the relationship between 30 publicly listed textile companies over a 5-year period; the study applies descriptive analysis, correlation analysis, and panel data regression analysis using Debt to equity ratio (D/E) as the metric for capital structure, while utilizing the business size and liquidity as control variables and assessing financial performance by using Return

on Asset (ROA) and Return on Equity (ROE) as measurements. The results indicate that the financing structure, particularly higher debt levels, negatively impacts a firm's performance financially. This aligns with the previous work conducted by Quang & Xin, (2014),Le & Phan, (2017) , who have examined the correlation between capital structure on financial performance in the case of Vietnam, but with different approaches, methodologies and variables. Quang & Xin, (2014) investigated the relationship using ROA the dependent variable, with debt ratio as an independent variable alongside size of companies, growth, profitability and liquidity serving as control variables. Their study applies regression analysis to the data from 2006 to 2012 . in contrast, Le & Phan (2017) examined the same relationship. In addition to ownership structure on business performance using ROA, ROE, and Tobin's Q as dependent variables and total debt, long-term debt to total assets, and short-term debt to total assets as independent variables, beside control variables of growth, investment, liquidity, profitability, risk, cash flow and dividends. They applied panel regression analysis with Fixed effect (FE) and Random effect (RE) models on data from 2007-2012. Both studies' findings consistently highlight the presence of a substantial negative correlation between capital structure and firm performance. In line with these findings, another research carried out by Ullah et al., (2020) took place in Pakistan to examine the relationship between firm performance and capital structure using a sample size of 90 textile firms listed on the Pakistan Stock Exchange (PSX) during the period between 2008–2017, they used ROE as the dependent variable and debt to equity, total debt to total assets, assets turnover ratio, sales growth, taxation and export growth while firm size as control variable, the study employs a random effect regression model, and the finding revealed a negative significant relationship between the D/E ratio and Return on Equity (ROE), on the flip side, export growth and sales growth showed

positive strong relation with ROE, while other variables showed insignificant relation. variables. Similar findings were introduced by Ramadan, (2015) after studying the impact of debt acquisition on Jordanian-listed firms on Amman Stock Exchange (ASE) of the period 2000 – 2013, the study employed ROA as a dependent variable while long-term debt to capitalization ratio and total debt to capitalization ratio as independent variable and firm size , sales growth and asset structure as control variables. the findings indicate an inverse relationship between leverage and firm performance. The research applied unbalanced pooled Ordinary Least Square (OLS) cross-sectional time series panel data regression methodology and indicated a result that confirmed the negative relationship between debt usage in capital structure on firm performance. A similar study by Pandey & Sahu, (2017) took place in the Bombay Stock Exchange (BSE) to analyze the effect of ownership structure and capital structure and on Indian manufacturing firms financial performance, covering the time period from 2009 to 2016, the debt-to-equity ratio was utilized as the independent variable and return on assets and return on net worth serving as dependent factors. The study applies a panel data fixed effect model for regression analysis, and according to the findings, a significant negative effect exists between capital structure and firm performance.

Nimalathan, (2010) who have studied the capital structure influence on profitability in Sri Lanka manufacturing companies for the period of 2003 to 2007. the study used Debt to equity ratio, debt-to-asset ratio, capital gearing ratio, and interest coverage ratio as independent variables while gross profit ratio, net profit ratio, operating profit, return on capital employed, and return on investment as the dependent variables. They applied multiple regression analysis and correlation analysis to conclude that D/E and D/A ratios are positively and strongly associated with all profitability ratios except ROI. Furthermore ,Ghosh & Sinha, (2024) explored the correlation between capital structure

and firm performance by analyzing the BSE 100 companies, the leading 100 companies listed on the Bombay Stock Exchange (BSE). 23 financial companies and banks are excluded, leaving a sample of 77 for the analysis. The study encompasses the period from 2014 to 2023 utilizing Return in Assets (ROA) as the dependent variable while firm size, sales growth, debt to equity ratio and current ratio as independent variables. The study utilized analysis through Ordinary Least Square (OLS) Model, Fixed Effect (FE), and Random Effect (RE) Model, and the study findings indicated that the model did not demonstrate any impact of the independent variable on the dependent variable ROA. While past research has presented various conclusions regarding the relationship between capital structure and firm performance, few have analyzed how these relationships operate In transition economies, like Saudi Arabia, where policy reforms, privatization, and new investment law are the norm, the ability of firms to adjust their funding structures as a response to regulatory and economic cues is a strategic competency. These dynamic changes make static or overly broad capital structure models insufficient. More detailed models that factor in policy coordination, fiscal incentives, and investor sentiment are a pressing requirement. This offers a new research direction, especially in regulated sectors like healthcare, where the implications of poorly managed capital can be both economically and socially catastrophic.

2.3 Saudi Arabia Context

With regard to Saudi Arabia, Twairesh, (n.d.) analyzed the relation between capital structure and firms' financial performance on a sample of 74 companies listed on the Saudi Arabia Stock Exchange (Tadawul) from the year 2004 to 2012. Capital structure was represented by short-term debt, long-term debt, and total debt, whereas firms'

performance was measured by Return on Asset (ROA) and Return on Equity (ROE) with the application of fixed-effect regression as the statistical technique. The paper discovers that all debt levels had a remarkable effect on ROA, while only long-term debt has a noteworthy influence on ROE. Even so, since then, significant changes have taken place in the Saudi economy, including Vision 2030, changes in taxes, police, and the development of the financial market these factors could affect the correlation between capital structure and firm performance, making the findings from that period outdated to reflect the current market conditions in Saudi Arabia. Moreover, Almaghrabi, (n.d.) investigated the relationship between capital structure and firm performance in 49 companies (5 companies from 9 sectors, excluding the financial sector). Return on Asset (ROA), Return on Equity (ROE), and Earnings Before Interest and Taxes (EBIT) were utilized as firm profitability measures in this research, and Debt-to-Equity Ratio, Short-Term Debt, Long-Term Debt, and the cost of capital for capital structure measurement. The evidence from the research indicates that the amount of debt, either short-term or long-term debt, doesn't influence a firm's ROA or ROE; however, the sample data utilized for analysis is small, as it includes only five companies of each of the nine industries. The small sample size makes it difficult to generalize the findings to the entire industry. According to Boshnak, (2023) in a study conducted on 70 non-financial listed companies in Saudi Arabia over the period of 2016 to 2020, the generalized method of moments (GMM) was employed to estimate the results. The Return on Asset (ROA), Return on Equity (ROE) and Tobin's Q was used as a dependent variables and Short-term debt to total assets (STD) Long-term debt to total assets (LTD) Total debt to total assets (TD) Total debt to total equity (TDE) as independent variables. The research found that short-term debt, long-term debt, total

debt, and debt-to-equity ratio have a significant negative effect on ROA, but only long-term debt, total debt, and debt-to-equity have the same effect on ROE.

In a similar finding, the research work of Alhussain & Alsultan,(n.d.) investigates the connection between capital structure and firm performance, utilizing a sample consisting of 101 Saudi nonfinancial companies listed on Tadawul, covering the period between 2017 and 2020. In this study, Return on Asset (ROA)and Tobin's are utilized as dependent variables, while leverage is used as the independent Further, growth, firm size, tangibility, risk, investment, and industry are used as control variables by employing ordinary least squares regression. The results show that Saudi firms with high leverage are associated with lower performance. However, both studies can be criticized for covering a short time period between 2016 to 2020, which may influence the accuracy of the results, in addition to the extraordinary conditions the world faced from the end of 2019 to 2020, the COVID period. A longer time frame and accounting for economic changes after 2020 would provide more reliable findings. Consistent with previous research, Hajisaaid, (2020) investigated the link between capital structure and the profitability of 8 firms in the basic material sector in Saudi Arabia, covering the period of 2009 – 2018. The study employed Return on Equity as the dependent variable and short term debt to total asset ratio, long-term debt to total asset ratio, and total debt to total asset ratio as the independent variables using the statical tests of regression analysis, random effect model and fixed effect model to illustrates a result of the negative relationship between short term debt to total asset, and long term debt with ROE and a positive relation between total debt and ROE. Despite the valuable insights, the study uses a very small sample size to generalize the results to the overall industry

2.4 Research gap

Despite previous research contributing to the body of knowledge, there is little research that concentrates solely on Saudi Arabia. The short range creates a significant gap in understanding the influence of capital structure on the performance of publicly traded healthcare firms in Saudi Arabia. Most of the existing research has either employed short periods or small sample sizes, often focusing on broad industries, overlooking the unique conditions, challenges, and regulatory constraints of the healthcare sector. This lack of targeted studies in this sector makes decision-making regarding financing sources a heavy duty for decision-makers in the healthcare sector. As healthcare companies operate in a very regulated sector where they need a huge amount of capital investments, they must select the appropriate mix of debt and equity in order to guarantee profitability and long-term stability. This study aims to address this gap by analyzing how capital structure decisions influence the performance of healthcare firms listed in the Saudi stock market (Tadawul). Having a focus on the health sector only, the study hopes to contribute significant results that will help decision makers, financial managers, and investors in making more informed decisions for the Saudi Arabian healthcare sector.

Chapter 3:

Methodology

3. Methodology

This chapter presents a detailed explanation of the data and methodology employed in this research, which examined the effect of capital structure on publicly listed healthcare companies in Saudi Arabia. The research methodology constituted the central component of any research, as it detailed a logical plan for data collection, analysis, and interpretation. This chapter aimed to clarify the methods used in data collection, the analytical methods adopted to analyze the data, and the steps taken to draw meaningful conclusions on the relationship between capital structure and financial performance in the healthcare sector

3.1 Data Sample

Quantitative methods were applied in this research to analyze the impact of capital structure on the financial performance of Saudi Arabian publicly listed healthcare companies. Secondary data were used in this research, drawn from the Bloomberg Terminal. An unbalanced panel dataset was utilized, covering 28 publicly listed healthcare companies over the period from 1996 to 2023. The selection of these companies was based on the availability of data. Consequently, the resulting sample consisted of 251 observations, which provided a robust dataset for analyzing the relationship between capital structure and firm performance in the Saudi healthcare sector.

3.2 Variables and Measurement

Definition and Measurement of Variables				
		Sign	Definition	Measurement
Dependent variables	Return on Assets	ROA	A financial ratio that indicates how profitable the healthcare company is in relation to its total assets.	ROA = Earnings before interest and taxes divided by total assets.
	Return on Equity	ROE	A financial ratio that shows how well the Healthcare company is managing the capital that shareholders have invested in it	ROE=Net Income / Shareholders' Equity.

Independent variables	Debt to Equity ratio	D/E	Is a financial ratio that measure healthcare company's financial leverage by comparing its total debt to shareholder's equity	$D/E = \text{total debt} / \text{total shareholder's equity}$
	Debt ratio	D/A	A financial ratio that measures the proportions of healthcare company's assets that are financed by debt	$\text{Debt ratio} = \text{total debt} / \text{total assets}$
	Short term debt	STD	Refers to Healthcare company's financial obligations that are due within one year	$\text{Short term debt} = \text{short term debt} / \text{total debt}$

	Long term debt	LTD	Refers to Healthcare company's financial obligations that are due beyond one year	Long term debt = Long term debt / total debt
Control Variables	Firm size	FS	The size of healthcare companies it found to affect its financial performance	Natural logarithm of total assets.
	Growth	GRO	The percentage change in sales over the year	Growth = current year sales – previous year sales / previous year sales X 100
	Profitability	PRO	The ratio of earnings after taxes plus annual depreciation to total assets	Profitability = Earnings after tax + depreciation / total assets
	Cashflow	CF	The ratio of earnings before	Cashflow = net income +

			interest and taxes to total sales	depreciation / total assets
--	--	--	--------------------------------------	--------------------------------

3.3 Data Analysis

Statistical techniques were applied for examining the interaction of among multiple variables were applied to analyze the data, and all the analytical procedures were conducted using E-Views. Descriptive statistics were utilized to establish a full description of the dataset, including mean, median, standard deviation, and range. Panel data analysis was also conducted by employing the Hausman test in order to ascertain under which model, the random effect model or fixed effect model, this research would be best suited.

Panel Least Squares Regression was also employed as a part of the analysis. Its application was justified through the nature of the dataset, which comprises both cross-sectional (several companies) and time-series (several years) characteristics. This method allows the capture of both firm-level differences and temporal changes, and a more robust view of financial performance influence from capital structure. Using this regression model, in addition to other statistical models such as fixed effects and correlation analysis, provided consistency and reliability in the results through model comparison as well as cross-validation.

To further explore the interrelationship between large variables, correlation analysis was also carried out. The statistical analysis methods used in this study are the same as

those used in previous research, and they are, therefore, valid and effective to use when analyzing similar data sets and research questions.

3.4 Model

In order to do so, we will adopt a comparable model used by Ullah et al., (2020) to analyze the role of capital structure on the financial performance of textile companies in Pakistan, with minor adjustments to the independent variables. These variables have been selected based on their alignment with the research objective.

The model is:

$$\text{ROA} = \beta_0 + \beta_1(\text{D/A}) + \beta_2(\text{D/E}) + \beta_3(\text{STD}) + \beta_4(\text{LTD}) + \beta_5(\text{GRO}) + \beta_6(\text{Size}) + \beta_7(\text{PRO}) + \beta_8(\text{CF}) + \varepsilon$$

$$\text{ROE} = \beta_0 + \beta_1(\text{D/A}) + \beta_2(\text{D/E Ratio}) + \beta_3(\text{STD}) + \beta_4(\text{LTD}) + \beta_5(\text{GRO}) + \beta_6(\text{Size}) + \beta_7(\text{PRO}) + \beta_8(\text{CF}) + \varepsilon$$

Were

- β_0 = intercept
- β_1 to β_4 = coefficients for each independent and control variable
- D/A = Debt Ratio
- D/E Ratio = Debt ratio
- STD = Short-Term Debt
- LTD = Long-Term Debt
- GRO = Growth
- FS = Firm size

- PRO = Profitability
- CF = Cash Flow
- ε = error term

3.6 Hypothesis

The research Hypothesis for this study is as follows:

Q1: How does capital structure affect the financial performance of Saudi publicly listed healthcare companies?

Q2: What is the connection between the company's financial performance and its capital structure?

H1: The capital structure of Saudi Healthcare companies affects their financial performance

H2: Debt ratio negatively affects Return on Assets (ROA)and Return on Equity

H3: Debt-to-equity ratio negatively affects Return on Assets (ROA)and Return on Equity

H4: Long-term debt ratio negatively affects Return on Assets (ROA)and Return on Equity

H5: Short-term debt ratio negatively affects Return on Assets (ROA)and Return on Equity

Q3: Are healthcare companies with higher leverage more profitable than those with lower leverage

H6: Cash flow positively affects both Return on Assets (ROA) and Return on Equity (ROE).

H7: Firm size positively affects Return on Assets (ROA) and Return on Equity (ROE).

H8: Growth positively affects Return on Assets (ROA) and Return on Equity (ROE).

H9: Profitability positively affects Return on Assets (ROA) and Return on Equity (ROE).

These hypotheses aim to establish a clear understanding of the relationship between capital structure and financial performance, laying the groundwork for the empirical analysis in subsequent chapters.

Chapter 4:

Findings and discussion

4. Findings

This chapter presents the key findings from the data analysis and offers a discussion of these results in relation to the research questions and existing literature. The objective is to interpret the findings, explore their implications, and contextualize them within the broader framework of capital structure and firm performance in Saudi healthcare companies.

4.1 Descriptive Statistics

	D/A	D/E	STD	LTD	CF	FS	GRO	PRO	ROA	ROE
Mean	17.59237	36.11268	195.5225	311.6876	165.6922	18.09155	23.01117	22.00216	10.65092	18.59935
Median	17.3351	27.6762	61.7811	105.6858	90.13432	3.218579	11.4006	16.93395	9.1175	15.2728
Maximum	53.4933	180.3213	1542.237	4810.264	2046.034	725.867	1286.112	323.1592	132.4645	235.4457
Minimum	0.1373	0.1597	0.1682	0.1261	-439.7257	1.03706	-82.3135	-91.65973	-13.1013	-34.9995
Std. Dev.	12.46577	35.56934	288.1296	516.6765	263.6719	81.29137	92.2601	37.29541	13.80751	24.43059
Skewness	0.4948	1.603837	2.14401	4.136334	3.346697	5.750867	11.12282	5.274975	5.919563	5.824179
Kurtosis	2.579281	5.697834	7.597052	29.04549	18.8557	37.95589	145.0195	37.98568	51.19901	50.92902
Jarque-Bera	12.09311	183.7265	413.3134	7810.332	3097.807	14162.72	216115.3	13965	25762.11	25443.82
Probability	0.002366	0	0	0	0	0	0	0	0	0
Sum	4415.684	9064.282	49076.15	78233.6	41588.75	4540.978	5775.804	5522.543	2673.38	4668.436
Sum Sq. Dev.	38848.87	316294.4	20754672	66738660	17380713	1652072	2127981	347737	47661.82	149213.5
Observations	251	251	251	251	251	251	251	251	251	251

Table 4.1 Descriptive Statistics

The descriptive statistics provide valuable insights into the financial characteristics of publicly listed healthcare firms in Saudi Arabia.

Debt ratio has a mean of 17.59 and a median of 17.34, with a standard deviation of 12.47, reflecting a moderate leverage among firms. However, the widespread spread of (0.14 to 53.49) implies that some firms hardly have any debt, whereas others rely heavily on it. In comparison, earlier studies done by (Hajisaaaid, 2020; T. Javed et al., 2014; Quang & Xin, 2014; Ullah et al., 2020) have recorded a higher mean of debt ratio with a mean of 40.60%, 51%, 48.76%, 67%, respectively.

Similarly, the Debt-to-Equity ratio (D/E) has a mean of 36.11 and a median of 27.68 but with a high standard deviation of 35.57, which indicates a huge variation in capital structure among firms, with some being highly leveraged and others heavily equity funded. Previous studies (Almaghrabi, n.d.; Ghosh & Sinha, 2024; Pandey & Sahu,

2017; Saddiqa et al., 2024; Ullah et al., 2020) had reported a D/E mean to be 0.92 , 0.47 , 0.54 , 1.5, and 0.28 , respectively.

The short-term debt shows a mean of 195.52, a median of 61.78, and a standard deviation of 288.12. The wide range (0.17 to 1542.24) indicated that while some firms depend mainly on short-term borrowing, others keep their short-term debt levels low. Previous studies by (Almaghrabi, n.d.; Omokore et al., 2024; Sulaiman & Musa, 2023; Twairesh, n.d.) reported a mean of 0.33, 0.093, and 0.20, respectively.

Long-term debt has an average of 311.69 and a median of 105.96, and a standard deviation of 516.68. This highlights the diverse finance structure among firms, with some companies making extensive use of long-term debt while others use a minimal amount. In contrast to (Boshnak, 2023; Omokore et al., 2024; Sulaiman & Musa, 2023; Twairesh, n.d.) published means of 0.22, 0.11, 0.040, 0.081, respectively, as long-term debt.

In terms of Cashflow averages 165.69, but its high standard deviation (263.67) and the negative minimum value of (- 439.72) reveal that while some firms enjoy a good cashflow position, others suffer with cash flow shortages. Previous results (Le & Phan, 2017) recorded a mean of 0.091 for cash flow.

Firm size also exhibits large variability, with a mean of 18.09 and a median of 3.22, ranging from 1.03 to 725.86. This reflects the presence of both small and large firms in the sample, in relative to previous studies (Alhussain & Alsultan, n.d.; Ghosh & Sinha, 2024; Hajisaaid, 2020; Omokore et al., 2024; Pandey & Sahu, 2017; Quang & Xin, 2014; Saddiqa et al., 2024; Twairesh, n.d.; Ullah et al., 2020) reported a firm size means ranging from 7.48 to 21.28.

The Growth mean is 23.01 with a standard deviation of 92.26 and the negative minimum value (-82.31), which means that while some firms have experienced big growth, others contracted. previous studies (Alhussain & Alsultan, n.d.; Boshnak, 2023; Hajisaaid, 2020; Le & Phan, 2017; Quang & Xin, 2014; Ramadan, 2015; Ullah et al., 2020) recorded growth averages of 007,-0.016,1.36,0.24,0.16,0.03,0.01 respectively Profitability has a mean of 22 but a high standard deviation of 37.29, showing that some companies are highly profitable, while others are significantly making losses. (Le & Phan, 2017) reported a mean profitability of 0.072

The return on assets (ROA) has a mean of 10.65 and a median of 9.12, but with a standard deviation of 13.80, reflecting high volatility in the efficiency of asset utilization across firms. Indeed among previous studies Ghosh & Sinha, (2024) have provided the closest mean of ROA of 10.54, which is contrary to the considerably diversified ROA means revealed in other studies, (Alhussain & Alsultan, n.d.; Almaghrabi, n.d.; Boshnak, 2023; Cole et al., n.d.; Ghosh & Sinha, 2024; T. Javed et al., 2014; Le & Phan, 2017; Pandey & Sahu, 2017; Quang & Xin, 2014; Ramadan, 2015; Riaz et al., 2023; Saddiqa et al., 2024; Sulaiman & Musa, 2023; Twairesh, n.d.) including figures of 0.032, 0.06 , 0.049 , 12.81, 0.063 , 9.88 , 0.083 , 0.076 , 1.03, 0.07, 0.011 and 0.075 . Most apparent in this descriptive analysis is the wide dispersion between variables, which suggests that while some firms have relatively conservative capital structures, other firms have extremely aggressive financing policies. This heterogeneity supports the need to tailor financial models to firm-specific circumstances. It also suggests potential segmentation within the healthcare industry—between older, more mature institutions with diversified revenue streams and younger firms that are reliant primarily on short-term or equity financing. Knowledge of these

trends is key to building sector-wide financial plans that account for both growth and resilience.

The return on equity (ROE) has a mean of 18.60 and a standard deviation of 24.43, also showing considerable variation; there are companies with high returns, while others have negative returns on equity. Previous researchers (Almaghrabi, n.d.; Boshnak, 2023; Hajisaaid, 2020; T. Javed et al., 2014; Le & Phan, 2017; Omokore et al., 2024; Riaz et al., 2023; Saddiqa et al., 2024; Twairesh, n.d.; Ullah et al., 2020) reported ROE means ranging between 0.13 and 25.43.

4.2 Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	29.318021	8	0.0003

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
D/E	0.007367	0.09233	0.00294	0.1171
D/A	0.168485	0.008327	0.012531	0.1525
LTD	-0.010444	-0.012507	0.000006	0.3846
STD	-0.008879	-0.014075	0.000009	0.075
CF	0.039427	0.033627	0.000033	0.3149
FS	0.025677	0.023572	0.000005	0.3526
GRO	0.011087	0.012304	0	0.0439
PRO	0.016539	0.024299	0.000021	0.0924

Table : 4.2 Hausman Test

The Hausman test was conducted to determine the appropriate model selection between the fixed effect and random effect models. The results yielded a chi-square statistic of 29.318 with a P-value of 0.0003, which indicates that the null hypothesis, which suggests that random effect model is appropriate, is rejected. Therefore, the fixed effect model is the preferred approach.

4.3 Panel data Fixed effect model – ROE

To begin with, Return on Equity (ROE) was employed as the dependent variable, and the results corresponding to ROE as the dependent variable are presented in the table

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.74435	3.023622	4.214928	0
D/E	0.007367	0.119851	0.061471	0.951
D/A	0.168485	0.305487	0.55153	0.5818
LTD	-0.010444	0.005415	-1.928736	0.0551
STD	-0.008879	0.006962	-1.275404	0.2035
CF	0.039427	0.011322	3.482427	0.0006
GRO	0.025677	0.015361	1.671584	0.0961
FS	0.011087	0.0117	0.947578	0.3444
PRO	0.016539	0.032281	0.51234	0.6089

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.630227	Mean dependent var	18.59935
Adjusted R-squared	0.570031	S.D. dependent var	24.43059
S.E. of regression	16.01963	Akaike info criterion	8.517545
Sum squared resid	55175.17	Schwarz criterion	9.023188
Log likelihood	-1032.952	Hannan-Quinn criter.	8.721028
F-statistic	10.46964	Durbin-Watson stat	0.651372
Prob(F-statistic)	0		

Table: 4.3 Panel data Fixed effect model – ROE

The findings of the Panel least squares regression provide valuable insights into the determinants of return on equity (ROE). The model is found to have strong explanatory power, as evidenced by an R-squared of 63%, which implies that 63% of fluctuations in ROE are explained by changes in the Independent variables collectively. The overall model is found to be statistically significant, as evidenced by the F statistic of 10.47 and p-value of 0.000, confirming that the predictors collectively affect firm

performance. Among the variables being examined, Cash flow appears as the strongest determinant, with a high positive impact on ROE, with p values of (0.0006), The result is different from (Le & Phan, 2017) where they found an extremely small positive relation between cash flow and ROE (P=0.427)

Conversely, there is a significant negative relationship between long-term debt and ROE (P=0.0551), implying that overdependence on long-term debt may lead to financial distress and hence the performance of a firm inversely. This result go in line with the previous study by Omokore et al.,(2024) but differs from that of Boshnak, (2023), who provided a negative yet insignificant association between long-term debt and ROE

Although firm size shows a positive association with ROE, it is marginally significant (P=0.0961). This result aligns with the findings reported by of Twairesh,(n.d.) who identified an insignificant connection between firm size and ROE. However, this viewpoint differs from the results drawn by Omokore et al., (2024); Saddiqa et al.,(2024) those who reported a strong positive relationship between firm size and ROE other variables, such as debt to equity ratio, were found not to have a significant impact on ROE, which goes in line with the previous study by T. Javed et al., (2014) while contrasting Boshnak, (2023); Saddiqa et al., (2024) who had findings showing a significant negative impact of Debt to equity ratio over ROE.

Moreover, Debt ratio, short-term debt, growth, and profitability failed to record any significant effect on ROE. These findings are in line with previous studies (Hajisaaid, 2020; Twairesh, n.d.) that recorded similar results.

4.4 Panel data Fixed effect model – ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.858258	1.629685	5.435565	0
D/E	0.023885	0.064598	0.369742	0.7119
D/A	0.043706	0.164653	0.265447	0.7909
LTD	-0.007785	0.002919	-2.667459	0.0082
STD	-0.006846	0.003752	-1.824333	0.0695
CF	0.022608	0.006102	3.704934	0.0003
GRO	0.013654	0.006306	2.165131	0.0315
FS	0.005217	0.008279	0.630086	0.5293
PRO	-0.010378	0.017399	-0.596486	0.5515

Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.663701	Mean dependent var		10.65092
Adjusted R-squared	0.608955	S.D. dependent var		13.80751
S.E. of regression	8.634332	Akaike info criterion		7.281407
Sum squared resid	16028.61	Schwarz criterion		7.78705
Log likelihood	-877.8166	Hannan-Quinn criter.		7.484891
F-statistic	12.12321	Durbin-Watson stat		0.671359
Prob(F-statistic)	0			

Table: 4.4 Panel data Fixed effect model – ROA

The regression analysis was run with a fixed effects model to examine the determinants of Return on Assets (ROA). The model fits well overall as evidenced by the R-squared value of 66.37% and an adjusted R-squared value of 60.90%, signifying that the independent variables included in the model explain a high portion of ROA variation. The model is statistically significant as well, as evidenced by an F-statistic of 12.12 and a P-value of 0.000.

Among the studied variables, cash flow has a highly significant positive relationship with ROA ($P= 0.0003$), indicating that companies with more favorable cash positions

tend to perform better in terms of asset utilization. This result is opposite to the findings by Le & Phan, (2017) who identified an insignificant positive impact of cash flow (0.074)

Growth is also significantly and positively related to ROA ($P=0.0315$), indicating that expansionary healthcare firms have increased return on assets. This finding supports the evidence provided by Boshnak,(2023); Le & Phan, (2017)

Conversely, long-term debt shows a statistically significant negative relationship with ROA ($P= 0.0082$), which indicates that high reliance on long-term debt can reduce the efficiency of operation. Additionally, Short-term debt also shows a slightly significant negative relationship with ROA($P= 0.0695$). Suggesting that short-term debt can negatively affect asset performance. The findings support the earlier research conducted by Boshnak, (2023); Omokore et al., (2024); Quang & Xin, (2014); Twairesh, (n.d.)

Other variables, such as the debt ratio, did not show a significant effect on ROA, opposite to the evidence provided by Boshnak, (2023) who found a significant negative relationship between total debt and ROA.

Besides, firm size had no significant impact on ROA. Which contradicts the findings of Omokore et al., (2024); Twairesh, (n.d.) who found a significant positive relationship. Finally, profitability and Debt-to-equity ratio did not impact on ROA to a large extent.

4.5 Results of the Correlation Analysis—ROA

Correlation	ROA	D/A	D/E	STD	LTD	FS	GRO	CF	PRO
t-Statistic									
Probability									
ROA	1								
D/A	-0.199079 -3.205571 0.0015	1							
D/E	-0.19246 -3.094829 0.0022	0.913997 35.54811	1						
STD	-0.246114 -4.006867 0.0001	0.529781 9.856685	0.591566 11.57789	1					
LTD	-0.111577 -1.771722 0.0777	0.404057 6.97024	0.363138 6.15006	0.230801 3.74304	1				
FS	-0.083041 -1.314906 0.1898	0.11721 1.862386 0.0637	0.007345 0.115912 0.9078	-0.091652 -1.452356 0.1477	-0.058895 -0.930967 0.3528	1			
GRO	0.071521 1.131483 0.2589	0.015737 0.248361 0.8041	-0.020912 -0.330063 0.7416	-0.094014 -1.490111 0.1375	-0.060712 -0.959795 0.3381	0.270973 4.442079 0	1		
CF	0.098774 1.566294 0.1185	0.05846 0.924056 0.3564	0.012921 0.203912 0.8386	0.090841 1.439392 0.1513	0.719543 16.34994 0	-0.095084 -1.507222 0.133	-0.064783 -1.024404 0.3066	1	
PRO	-0.017239 -0.272074 0.7858	-0.016588 -0.261794 0.7937	-0.148341 -2.366976 0.0187	-0.188373 -3.026666 0.0027	-0.082694 -1.309373 0.1916	0.287583 4.738135 0	0.238299 3.871831 0.0001	-0.047925 -0.757111 0.4497	1

Table: 4.5 Correlation Analysis-- ROA

The covariance analysis identifies a number of significant correlations between ROA, identified as the dependent variable, and the independent variables. a negative correlation exists between the Debt ratio, the Debt-to-equity ratio, and short-term debt in relation to ROA.

The Debt ratio shows a weak negative correlation of -0.199. This indicates that as the Debt ratio rises, ROA decreases by 0.199. This result is contrary to that of Twairesh, (n.d.) who reported a weak positive relationship between the debt ratio and ROA.

The D/E ratio shows a weak negative correlation of -0.192 with ROA, indicating that the higher the D/E ratio, the more harmful it is to firm profitability. The result differs from that of Saddiqa et al., (2024) where the researchers identified a moderate negative connection between D/E and ROA

short-term debt is weakly negatively correlated with a correlation of -0.246, meaning that that companies with high short-term debt tend to perform poorly on higher returns on assets. the correlation is statistically significant. The results are contradictory to those of Sulaiman & Musa, 2023; Twairesh, n.d.) who reported a weak a positive the correlation between short-term debt and ROA.

Long-term debt appears to have a weak negative correlation with ROA, with a coefficient of -0.11, but it is not statistically significant. This result is consistent with Twairesh, (n.d.) while go against the findings of Sulaiman & Musa, (2023)who discovered a positive weak correlation with ROA.

The firm size shows a very weak negative correlation with ROA, having a coefficient of -0.083. This result is consistent with (Ramadan, 2015) but opposite to Twairesh,(n.d.) who identified a weak positive relationship between firm size and ROA

Growth has a weak positive correlation with ROA , as shown by the coefficients of 0.071. This finding is against the work of Le & Phan, (2017) , whose research had records a moderate positive relationship between growth and ROA, and that of Ramadan, (2015) who found a strong positive relationship.

Cash flow demonstrates a somewhat positive correlation, indicated by a coefficient of 0.098. This result is inconsistent with (Le & Phan, 2017) where their study identified a strong positive correlation between cash flow and ROA .

Profitability bears the weakest correlation of -0.017, suggesting almost no correlation with ROA.

4.6 Results of the Correlation Analysis-- ROE

Correlation t-Statistic Probability	ROE	D/A	D/E	STD	LTD	FS	GRO	CF	PRO
ROE	1								
	----- -----								
D/A	-0.09685 -1.53542 0.126	1							
	----- ----- -----								
D/E	-0.07102 -1.1235 0.2623	0.913997 35.54811	1						
	----- ----- -----	----- -----	-----						
STD	-0.20597 -3.32131 0.001	0.529781 9.856685	0.591566 11.57789	1					
	----- ----- -----	----- -----	----- -----	-----					
LTD	-0.07401 -1.17101 0.2427	0.404057 6.97024	0.363138 6.15006	0.230801 3.74304	1				
	----- ----- -----	----- -----	----- -----	----- -----	-----				
FS	-0.02554 -0.40317 0.6872	0.11721 1.862386 0.0637	0.007345 0.115912 0.9078	-0.091652 -1.452356 0.1477	-0.058895 -0.930967 0.3528	1			
	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	-----			
GRO	0.056152 0.887459 0.3757	0.015737 0.248361 0.8041	-0.020912 -0.330063 0.7416	-0.094014 -1.490111 0.1375	-0.060712 -0.959795 0.3381	0.270973 4.442079	1		
	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- -----	-----		
CF	0.119959 1.906687 0.0577	0.05846 0.924056 0.3564	0.012921 0.203912 0.8386	0.090841 1.439392 0.1513	0.719543 16.34994 0	-0.095084 -1.507222 0.133	-0.06478 -1.0244	1	
	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- -----	-----	
PRO	0.025672 0.405233 0.6857	-0.016588 -0.261794 0.7937	-0.148341 -2.366976 0.0187	-0.188373 -3.026666 0.0027	-0.082694 -1.309373 0.1916	0.287583 4.738135 0	0.238299 3.871831 0.0001	-0.047925 -0.757111 0.4497	1
	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	-----

Table: 4.6 Correlation Analysis-- ROE

The covariance analysis shows a number of significant correlations between ROE as the dependent variable and the independent variables.

The Debt ratio reveals a weak negative association with ROE, where the coefficient is 0.096, and implies that a higher debt compared to equity is correlated with lower ROE. However, the relationship is not significant. The above finding confirms that of Hajisaaid, (2020); T. Javed et al., (2014) while it differs with Twairresh, (n.d.) , where it was reported to have a weak positive association with debt ratio and ROE

the D/E ratio exhibits a weak negative relationship with ROE, as represented by a coefficient of -0.071, suggesting a slight decrease in ROE alongside an increase in D/E ratio. However, this relationship is not statistically significant. This finding conforms to the conclusions made by Boshnak, (2023); Hajisaaid, (2020) but contradicts the findings made by Saddiqa et al., (2024); Ullah et al.,(2020) who found a moderate negative correlation.

Short-term debt is statistically significantly weakly negatively correlated with ROE, having a coefficient of -0.20 and a P value of 0.001, meaning that the increase in short-term debt is associated with the decrease in ROE. This finding is consistent with Boshnak, (2023). However, against the findings of Omokore et al.,(2024) who recorded a strong positive significant correlation with ROE and Twairesh, (n.d.) where a weak positive correlation was demonstrated.

Long-term debt bear a weak negative relation with ROE. However, the relation does not reach statistical significance (P- value = 0.24). The result confirms the research works of Boshnak, (2023); Omokore et al., (2024).

The relationship between firm size and ROE is weak negative relation, indicating that the size of the firm has little effect on ROE with no statistical significance. This finding is consistent with the findings of Boshnak, (2023); Omokore et al., (2024); Ullah et al., (2020) while contradicts the findings of (Hajisaaid, 2020; Saddiqa et al., 2024; Twairesh, n.d.) who found a moderate positive relationship between firm size and ROE. Growth has a very weak positive relationship with ROE , but is not statically significant. The result is in line with the evidence reported by Boshnak, (2023); Hajisaaid, (2020); Le & Phan,(2017); Ullah et al., (2020).

Cash flow has a statistically weak positive relationship with ROE, indicating that higher cash flow tends to result in high ROE. This aligns with previous findings of Le

& Phan, (2017) Lastly, profitability shows a very weak positive relation with ROE, but one that is not statistically significant. The implication of these correlation results is the complexity of financial decision-making in the healthcare sector. Despite the weak or nonsignificant correlation of each variable to ROE, their interaction could still shape performance outcomes. For instance, medium-debt and high-cash-flow firms can outperform highly leveraged and underleveraged firms. Future studies can address these compound effects through multi-dimensional statistical techniques like structural equation modeling, giving a more subtle view of how capital structure decisions function. It must be highlighted that the low correlations of some variables with ROA do not always equal irrelevance. They may instead be indicative of the presence of nonlinear relationships or the impact of unseen variables such as regulatory compliance expenses, insurance billing periods, or government subsidy percentage of revenue. Within a health care context, where funding horizons and payment streams may drastically diverge from other industries, traditional financial metrics may fail to fully convey performance dynamics. New models can be improved through the inclusion of qualitative financial measurements such as patient volume sensitivity or average receivables turnaround that are industry-specific and potentially modify the impact of capital structure as part of an overall financial system.

4.7 Discussion

Results justify the provided hypothesis H2: Debt ratio has a negative influence on Return on Assets (ROA) and Return on Equity (ROE) in Fixed effect model Analysis and Correlation Analysis for ROA and ROE, but discredit the hypothesis under the Fixed Effect Model, where a positive influence was shown. This inconsistency

highlights the complexity of the debt ratio's impact on firm performance, particularly in the healthcare sector where financing decisions must balance operational needs with financial sustainability.

Moreover, the D/E ratio findings contradict each other for hypothesis H3: Debt-to-equity ratio negatively affects Return on Assets (ROA) and Return on Equity (ROE). The regression analysis indicated a positive effect on ROA and ROE, while the correlation analysis indicated a negative correlation, favoring the hypothesis. This contradiction in findings points to a complex relationship between the capital structure components and financial performance, with varied effects depending on the analysis method used.

The results confirm both hypotheses H4 and H5, quoting the adverse effect of short-term debt and long-term debt on ROA and ROE, and confirming H4: Long-term debt ratio is negatively affecting Return on Assets (ROA) and Return on Equity (ROE), and H5: Short-term debt ratio has a negative effect on Return on Assets (ROA) and Return on Equity (ROE). This is especially important in the Saudi healthcare industry, where companies are burdened by high capital investment and compliance costs. Policymakers and finance managers need, therefore to take these results into account while developing debt management plans to ensure sustainability.

Further, the results confirm the validity of H6: Cash flow positively affects Return on Assets (ROA) and Return on Equity (ROE). Cash flow positively affects ROA and ROE in every test, identifying the necessity for healthcare firms in a highly regulated industry to maintain liquidity. Proper cash flow management enables firms' ability to finance operating expenses and invest in growth, aligning with Saudi Arabia's Vision 2030 agenda of increasing private sector contribution.

Firm size results recorded mixed outcomes, being positively related to ROA and ROE under the Fixed Effect Model, but had a negative relationship under Correlation Analysis, and thus the hypothesis was accepted only partially, suggesting that larger healthcare firms may be able to benefit from economies of scale but also have to deal with greater complexity and regulatory burdens.

Growth was widely positively associated with both ROA and ROE in all analyses employed, and this leads us to accept H8: Growth is positively related to Return on Assets (ROA) and Return on Equity (ROE) again confirming that large healthcare firms in Saudi Arabia operate well financially. This finding is a strong argument for investment in growth as a key strategic priority in the sector.

Profitability was blended in its impact, decreasing ROA while increasing ROE, and hence partially verifying hypothesis H9. This implies that various measures of performance capture various aspects of financial health and risk, and policymakers and managers need to be aware of these when assessing firm performance.

Collectively, these findings have critical practical and policy implications for the Saudi healthcare sector. Determining how individual components of capital structure drive financial performance can guide firms to optimize financing policies for enhanced risk and return maximization. Policymakers and regulators can similarly use these insights to develop supportive financial policies and guidelines that promote sector stability and growth, complementing the larger vision of Vision 2030's economic diversification and health improvement.

Chapter 5:

Conclusion

5. Conclusion

The research aims to explore the relationship between Capital structure and firms' financial performance of Saudi publicly listed healthcare companies. With a keen focus on Debt ratio, Debt-to-equity ratio, short-term debt, long-term debt, firm size, growth, profitability, and cash flow on ROA and ROE. The study aims to uncover how these factors affect the financial performance of Healthcare companies in Saudi Arabia. By developing a comprehensive analysis framework including descriptive statistics, a Regression model, a multiple regression model, and a correlation analysis to examine the effect of the independent variables on the dependent variables ROA and ROE. The analysis found that cash flow is the most significant variable that affects Return on Asset (ROA) and Return on Equity (ROE), with a high positive correlation. The implication of these results is that healthcare companies with high cash flow will tend to have improved asset utilization and equity performance. Moreover, both short and long-term debt recorded a statistically significant negative relationship with Return on Asset (ROA) and Return on Equity (ROE), but only long-term debt affects Return on Equity (ROE) in the Fixed Effect regression model.

The results show that all debt levels will negatively impact the profitability of healthcare companies. Debt ratio shows an insignificant negative and positive impact on both ROA, ROE. Debt-to-equity ratio (D/E) is strongly positively related to ROE, suggesting that higher leverage will lead to better equity returns. firm size was weakly negatively correlated too both ROA and ROE, and the results were not that significant. Growth was found to have a significant positive correlation only with Return on Asset

(ROA). Lastly, profitability had a weak positive and negative correlation with Return on Asset (ROA) and Return on Equity (ROE), but the correlation was not significant.

The findings obtained from the research have important implications for financial managers, investors, and policymakers who work in the healthcare sector. Firstly, cash flow of healthcare companies' effectively forecasts ROE and ROA. This necessitates a company to be adequately liquid so as to remain financially healthy and profitable. Second, the research reveals that both short-term and long-term debt can adversely influence the performance of a company, which implies that companies must use caution when they finance their operations with debt. The information also reflects the reality that there cannot be one formula to describe the optimal capital structure, especially in a combination of market economies like Saudi Arabia's. Strategic financial planning must accordingly adopt a situational perspective—the firm's level of maturity, service type, target customers, and even site. For example, businesses in Riyadh or Jeddah would be better connected to finance channels based on higher investor concentration and institutional coverage than businesses in the peripheral zones. Thus, any normative model of capital optimization must be dynamic in nature and capable of adapting to these intricate business environments. Third, the study illustrates how profitability, growth, and size of the company can have a relatively insignificant direct impact on the financial performance of the healthcare sector. To expand the base of comprehension in subsequent studies, it would be best to incorporate qualitative dimensions into the study framework. Managerial attitude toward financial risk, investor sentiment toward leverage, and cultural factors driving financing choices are essential but neglected considerations. Questioning CFOs, financial controllers, and institutional investors could offer some more insights into why businesses use particular capital structures. Furthermore, looking at the signaling effect of finance choices in the

healthcare context, where trust among stakeholders is the key, can lead to richer knowledge on financial planning at the strategic level. These findings will create a more joined-up understanding of the finance dynamics that shape the performance of health firms within regulated and socially relevant sectors like healthcare.

From a strategic management perspective, the findings mean that healthcare firms should not be making capital structure decisions statically but rather as part of an emerging financial strategy. As regulatory environments shift and investment environments change, firms should continue to revisit their leverage ratios, equity levels, and short versus long-term funding sources. This constant process ensures the capital structure remains consistent with both external marketplace circumstances and internal performance goals. In addition, finance education for health care executives and the inclusion of capital structure metrics in key performance indicators (KPIs) can work towards institutionalizing sound financial decision-making processes.

5.1 Limitations and recommendations for future studies

While the current study provides convincing findings, there is a need to appreciate the limitations that are attached to it. Firstly, the research focused exclusively on Saudi Arabia's publicly traded healthcare companies, which might deprive it of the power to represent the entire healthcare sector precisely. Moreover, there might be additional variables, such as regulatory issues and market conditions, which can influence the financial performance that were not accounted in this study; future studies can address these limitations to establish a broader basis of knowledge. Another limitation is the absence of qualitative insights from firm managers or financial controllers who are able to reveal strategic thinking behind capital structure choices beyond quantitative measures. Additionally, regulatory reforms initiated by the Saudi Central Bank and the Ministry of Investment since 2020 may have introduced structural shifts in firm

behavior not fully captured in historical data. Follow-up research can follow a mixed-methods approach, combining econometric modeling with interviews or surveys in order to derive a more granular, nuanced conclusion. A comparison with healthcare firms to utility or telecom companies—sectors that are similarly highly regulated—can also yield cross-industry lessons that refine the findings and inform sectoral financial policy reforms. Moreover, future research must adopt a more interdisciplinary approach by integrating what is known from healthcare economics, operational management, and behavioral finance. This can include analyzing how managerial risk tolerance and ownership structure influence capital decisions in healthcare companies. For instance, founder-led firms may pursue more conservative leverage strategies due to personal risk aversion, whereas listed firms with dispersed ownership may pursue more leverage in a bid to pursue aggressive growth targets. Such behavioral variations have accounting ramifications frequently lacking in purely quantitative frameworks.

One research avenue would be to examine the impact of ESG compliance on the cost of capital and firm performance. As investor attention to ethical governance and sustainability becomes increasingly important, companies with high ESG credentials can enjoy lower borrowing costs or increased equity ownership. In the healthcare setting—where quality of service and social trust are key—this alignment between social responsibility and capital structure is particularly crucial. Empirical research in this area could determine whether ESG scores or sustainability disclosures act as mediators for the relationship between capital structure and financial performance. Finally, future research should also consider the effect of digitalization and health tech adoption on capital allocation. With more Saudi healthcare providers making investments in telemedicine, AI diagnosis, and electronic health records, the nature of

capital expenditure is shifting from infrastructure-heavy projects to digital platforms. This can influence equity preference as opposed to debt, as tech-driven companies would prefer funding adaptability and avoid fixed-interest liabilities. Awareness of how the shifting investment priorities affect the capital structure can guide firms and policymakers on how to adapt to the digital future of healthcare finance.

6. References

Ahmeti, F., & Prenaj, B. (n.d.). A critical review of Modigliani and Miller's theorem of capital structure.

Alhussain, R., & Alsultan, Dr. A. (n.d.). Capital structure and firm performance: Evidence from Saudi non-financial firms under IFRS 16.

Almaghrabi, L. (n.d.). Effect of capital structure on firm profitability: Evidence from Saudi Arabia.

Boshnak, H. (2023). The impact of capital structure on firm performance: Evidence from Saudi-listed firms. *International Journal of Disclosure and Governance*, 20(1), 15–26. <https://doi.org/10.1057/s41310-022-00154-4>

Çerkezi, M. S. A. (2013). A literature review of the trade-off theory of capital structure. *ILIRIA International Review*, 3(1), 125. <https://doi.org/10.21113/iir.v3i1.103>

Cole, C., Yan, Y., & Hemley, D. (n.d.). Does capital structure impact firm performance: An empirical study of three U.S. sectors.

Ghosh, S., & Sinha, A. (2024, December). Unveiling the relationship between capital structure and firm performance. *Parikalpana - KIIT Journal of Management*.

Giglio, F. (2022). The capital structure through the Modigliani and Miller model. *International Business Research*, 15(11), 11. <https://doi.org/10.5539/ibr.v15n11p11>

Hajisaaid, A. M. S. A. (2020). The effect of capital structure on profitability of basic materials Saudi Arabia firms. *Journal of Mathematical Finance*, 10(04), 631–647. <https://doi.org/10.4236/jmf.2020.104037>

Huang, R., & Ritter, J. R. (n.d.). Testing the market timing theory of capital structure.

Jahanzeb, A., Bajuri, N. H., Karami, M., & Ahmadimousaab, A. (2014). Trade-off theory, pecking order theory and market timing theory: A comprehensive review of capital structure theories. *I*(1).

Javed, S. M., A. J., & S.-R. (2012). A critical review of capital structure theories. *Information Management and Business Review*, 4(11), 553–557. <https://doi.org/10.22610/imbr.v4i11.1012>

Javed, T., Younas, W., & Imran, M. (2014). Impact of capital structure on firm performance: Evidence from Pakistani firms. *International Journal of Academic Research in Economics and Management Sciences*, 3(5), 28–52. <https://doi.org/10.6007/IJAREMS/v3-i5/1141>

- Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance*, 42, 710–726. <https://doi.org/10.1016/j.ribaf.2017.07.012>
- Nimalathasan, B. N. B. (2010). Capital structure and its impact on profitability: A study of listed manufacturing companies in Sri Lanka.
- Omokore, D. E., Njogo, B. O., Omankhanlen, A. E., Islaka, M., & Akinjare, V. A. (2024). Impact of capital structure on financial performance of firms in the Nigerian healthcare sector. *Journal of Comprehensive Business Administration Research*, 1(2), 105–112. <https://doi.org/10.47852/bonviewJCBAR42022188>
- Pandey, K., & Sahu, T. (2017). An empirical analysis on capital structure, ownership structure and firm performance: Evidence from India. *Indian Journal of Commerce & Management Studies*, 8(2), 63–72. <https://doi.org/10.18843/ijcms/v8i2/09>
- Quang, D. X., & Xin, W. Z. (2014). The impact of ownership structure and capital structure on financial performance of Vietnamese firms. *International Business Research*, 7(2), p64. <https://doi.org/10.5539/ibr.v7n2p64>
- Ramadan, I. Z. (2015). Leverage and the Jordanian firms' value: Empirical evidence. *International Journal of Economics and Finance*, 7(4), p75. <https://doi.org/10.5539/ijef.v7n4p75>
- Riaz, T., Rasool, I., University of the Punjab Jhelum Campus, Abbas, N., & University of the Punjab Jhelum Campus. (2023). Impact of capital structure on the firm performance: Moderating role of firm size. *Pakistan Journal of Social Research*, 5(2), 156–166. <https://doi.org/10.52567/pjsr.v5i02.1178>
- Saddiqa, A., Saleem, R., & Khan, I. M. (2024). The impact of capital structure, firm size, and liquidity on financial performance in the textile industry. *Contemporary Issues in Social Sciences and Management Practices*, 3(3), 122–132. <https://doi.org/10.61503/cissmp.v3i3.208>
- Sulaiman, A., & Musa, K. (2023). Moderating effect of liquidity on the relationship between capital structure and financial performance of listed healthcare firms in Nigeria.
- Twairesh, A. E. M. (n.d.). The impact of capital structure on firm's performance evidence from Saudi Arabia.
- Ullah, A., Pinglu, C., Ullah, S., Zaman, M., & Hashmi, S. H. (2020). The nexus between capital structure, firm-specific factors, macroeconomic factors and financial performance in the textile sector of Pakistan. *Heliyon*, 6(8), e04741. <https://doi.org/10.1016/j.heliyon.2020.e04741>
- Yao, A. (2023). Impact of capital structure on firm performance.

Yousefzadeh, N., Shamsadini, H., Aazami, Z., & Abousaiedi, M. (2014). Determinants of capital structure of Iranian companies listed in Tehran stock exchange: A structural equation modeling approach. *Management Studies*, 2.

