Hungarian University of Agriculture and Life Sciences

THE CONTINGENT RELATIONSHIP BETWEEN CAPITAL STRUCTURE, INTENSITY OF AGENCY COSTS, AND CORPORATE PERFORMANCE: AN AGENCY THEORETIC APPROACH

Thesis of the PhD Dissertation

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1. INTRODUCTION

1.1 Research background

The concept of capital structure and its connection with the firm's financial performance and value have been a confusing topic in the literature of corporate accounting and finance. When defining a capital structure, common stock, preferred stock, and debt are typically used to describe how the company finances its operations (ABDULLAH & TURSOY, 2021). The decision on the capital structure can be considered one of the most crucial strategies that should be taken into consideration by the firm's management (ALIPOUR ET AL., 2015). One of the crucial issues that managers face during the decision on financing choice is determining the optimum capital structure. When the firms are formed or when they need funds immediately to cover investment decisions, the choice of capital structure must be made in advance (CHADHA & SHARMA, 2015). This is because choosing the right financing option is essential to the company's financial health. However, financial strain and finally bankruptcy are brought about by incorrect capital structure decisions.

The first theory developed to concern the issues of capital structure is the Modigliani and Miller, well known as (MM theory), which appeared at the end of the 1950s. According to this theory, the value of the company is unaffected by financial structure (MODIGLIANI & MILLER, 1958). This theory was reinforced based on a set of hypotheses regarding an entirely efficient market with no agency and transaction costs, no corporate taxes, no bankruptcy risks, and no information asymmetry (AHMED ET AL., 2023a; AHMED ET AL., 2023b; ALIPOUR ET AL., 2015; SDIQ & ABDULLAH, 2022), and all the reliable information is fully disclosed (CHADHA & SHARMA, 2015). However, the concept of perfect market efficiency does not exist in real life (LE & PHAN, 2017).

Five years later, Modigliani & Miller modified their prior investigations and developed a trade-off theory based on non-tax assumptions. According to this theory, even firms that show low-level debt on the balance sheet provide better performance compared with firms that use equity or other financing sources (LEGESSE & GUO, 2020). Companies frequently increase their debt (short and long-term) in order to achieve tax benefits (MODIGLIANI & MILLER, 1963). Nevertheless, the concept of pecking order, as educated by (MYERS & MAJLUF, 1984) suggests a hierarchical approach for companies to fulfill their financial requirements and enhance their performance. Operational earnings, which can be used as an indicator of internal finance, need to be utilized initially by the firms. Next, firms should use less risky loans, and when there is not enough debt to cover proactive or future investments, issuing new shares can be offered as an alternative (KIMUAM ET AL., 2025).

In addition, the theory of agency, explained by (JENSEN & MECKLING, 1976), proposes an appropriate level of external financing to reduce the agency costs arising from conflicts of interest between managers and owners. The hypothesis behind agency theory also emphasizes that the shareholder (principal) and manager (agent) act in their own best interests, which leads to a conflict between competing interests and rising corporate costs, which are frequently referred to as "agency costs" (DAWAR, 2014; HOANG ET AL., 2019). A study by ZAHID ET AL. (2024) argued that large publicly traded firms have a relatively diffused ownership structure that effectively separates residual right possession from corporate management. Ownership and control separation is a hotly contested issue in both neoclassical economics, "the theory of the firm" and the present conversation about how modern enterprises affect society. There are some reasons for the division of managerial duties and ownership in non-financial firms. Obtaining

scale economies is a possible reason that requires substantial financial investments for several companies (AHMAD ET AL., 2018). Effective managers might be more appropriate for running an enterprise because of their professional skills, competence, and personal attributes (SDIQ & ABDULLAH, 2022; ROSSA ET AL., 2025). For the advantage of major shareholders, on the other hand, the principals (owners) put pressure on the agents (managers) to refrain from expanding and attain a predetermined standard of satisfactory performance. All these factors lead to conflicts of interest between the principal and agent.

The firm's capital structure has been described previously by numerous traditional and contemporary theories. Prior empirical investigations have also provided some evidence or support for the theories for the concrete association between capital structure and financial performance in both developed economies (ABDULLAH & TURSOY, 2021; VUONG ET AL., 2017), and less-developed economies (AYAZ ET AL., 2021; VO & ELLIS, 2017; AHMED ET AI., 2023b; SDIQ & ABDULLAH, 2022). However, their findings are mixed between positive, negative, non-linear, and non-existent associations. For instance, (AHMED SHEIKH & WANG, 2013; VO & ELLIS, 2017) found that capital structure is inversely related to firm performance, while (ABDULLAH & TURSOY, 2021; LI ET AL., 2019) reported a positive association. Others, such as (AHMED ET AL., 2023b; AYAZ ET AL., 2021; SDIQ & ABDULLAH, 2022), noticed a non-linear connection, and (PHILLIPS & SIPAHIOGLU, 2004) displayed a nonexistent relationship.

The application of agency theory explains the distinction between ownership and management and emphasizes how capital structure affects a company's ability to operate. Shareholders, investors, and other stakeholders who are impacted by agency issues must obtain a fuller grasp of how agency theory is applied in corporate finance and financial management. Additionally, when an excess amount of free cash flow is available, owners face agency disputes because their upper management might not act in their best interests and might be compensated generously with incentives. Thus, financing through equity increases agency costs because the interests of shareholders may not align with the interests of managers.

The above issues can only be controlled by good planning (JENSEN & MECKLING, 1976), and financing through debt can be considered an effective plan to reduce agency issues and related costs (DAWAR, 2014; KONTUŠ, 2021; LEGESSE & GUO, 2020; SIMAMORA, 2021; TRAN ET AL., 2025). This is because regular repayment of debt is one way for managers to be disciplined. Debt can also limit the agent's ability to decrease their interest through indifference or unnecessary spending. Hence, capital structure has a significant impact on balancing agency costs, debt, asset utilization, and enhancing firm outcomes. The fundamental concepts of agency theory can significantly reduce agency expenses and eventually enhance a company's financial performance by addressing the issues brought on by managers' and owners' diverging objectives (DAWAR, 2014; RASHID KHAN ET AL., 2020).

Building on the concept of establishing a balance between debt and agency expenses, the choice of capital structure becomes a continuous procedure and motivates the companies to finance their opportunities (AHMED ET AL., 2023b; CHADHA & SHARMA, 2015). Additionally, in order to maintain public trust, financial planning must minimize risk exposure by sustaining the ratio of debt to equity, as the decision to raise long-term debt exemplifies how management passes risk from the corporation to creditors or debtholders, which increases agency problems, and this becomes a stockholder's concern (CAMPBELL ET AL., 2016). Nevertheless, D'MELLO & GRUSKIN (2021) noted that agency costs are higher for firms that have smaller or non-debt tax shelters with less liquidity, and the issuance of stock during the debt reduction phase increases

the risk of instant bankruptcy. From the perspective of agency theory, companies need to decide on a proper balance between debt and equity financing to minimize the related agency costs and improve firm performance. In other words, leverage is determined by comparing the benefits of a non-debt tax shield over the bankruptcy costs. Although the theory has been widely applied in the literature on empirical studies, the topic has been examined rarely.

This topic has drawn attention due to its significance and relationship with the financial management goal of optimizing profitability, and the market value of stocks to increase the wealth of shareholders, which are the objectives of the majority of firms. Choosing a financing strategy is a crucial management activity that is likely to influence the value and performance of the company (SDIQ & ABDULLAH, 2022). When the firm's capital structure includes an extensive amount of equity, it causes a lower level of earnings per share (EPS) because of the existing large number of outstanding common stocks. Similarly, high capital expenses decrease the current value of any projects in which a corporation aims to invest. For the intent of business growth, financial leverage has a crucial effect on a firm's financial performance and growth, specifically by assessing the benefits of tax shield related to the debt over the cost of bankruptcy (SDIQ & ABDULLAH, 2022). However, suppose the debt is not utilized efficiently; in that case, reliance on a heavy debt burden can increase the risk of bankruptcy due to the high cost of capital, and the costs of financial distress exceed the benefits of increased leverage (LEGESSE ET AL., 2021). Therefore, a balanced capital structure can be seen as an efficient plan to decrease the inefficiency of the marginal plan, thereby reducing the related agency cost (LEGESSE & GUO, 2020; AKIN, ET AL., 2025).

Despite the previous hypotheses and studies, corporate finance researchers have not yet proposed a single answer to the association between capital structure and profitability. Further, the notion of determining the capital structure and its effect on performance through agency cost reduction maintained the significant position of validity of agency theory in the modern management of finance. From the previous literature, HOANG ET AL. (2019); LEGESSE ET AL. (2021); LEGESSE & GUO (2020) found that the ideal level of debt can be used as a good strategy to reduce agency costs, and SDIQ & ABDULLAH (2022) argued that firms incur agency expenses associated with equity due to the misalignment of incentives between shareholders, who aim for the highest profits, and management, who have different objectives. Through diligent planning, these expenses may be diminished. Effective use of debt financing may be one strategy, as it puts a strain on management to perform effectively since they must shoulder the added weight of repaying the debt; however, it might not mitigate the conflicts entirely. Their judgments may be more in line with optimizing the value of shareholders due to having
stress to minimize the agency cost. However, there is still no clear answer to the question of whether the correlation between capital structure and firm performance is impacted by the level of agency cost.

1.2 Problem statement

The agency theory crucially explains the conflict of interest due to the separation of ownership and management. This distance increases the costs of monitoring managerial action. According to this theory, an optimum level of debt can be seen as a solution to reduce these costs and eventually enhance firm performance. Since Middle Eastern countries have a great proportion of market capitalization, the authentic effect of capital structure choice on firm performance and value is considered a significant issue among scholars, researchers, managers, and investors that remains unresolved. In developing countries, including Middle Eastern countries, investors and

stockholders do not appear to pay particular attention to how financial structure diminishes agency problems, thereby affecting firm performance. This highlights fundamental problems that a firm's financial managers must deal with. Moreover, investors suffer higher agency costs and asymmetric information in developing countries than in developed countries. Therefore, it is essential to test whether agency theory, as predicted to have a favorable effect on firm performance, is still valid and pragmatic to alleviate agency costs among non-financial firms listed on the Middle Eastern stock markets. Based on the above explanations, this study raised the following questions:

1. Is there any meaningful relationship exist between financial structure and performance of the firms among non-financial companies listed on the stock exchanges of Middle Eastern countries between 2010-2022?
2. Is there any significant relationship that exists between agency cost and financial performance among non-financial firms listed on the stock exchanges of Middle Eastern countries between 2010-2022?
3. Does the efficiency of managerial decision-making significantly influence the performance of non-financial firms listed on stock exchanges of Middle Eastern countries between 2010-2022?
4. Does agency cost significantly moderate the link between capital structure and firm performance of non-financial companies listed on stock exchanges of Middle Eastern countries between 2010-2022?
5. Are the statements proposed by agency theory still a pragmatic and valid framework for making financial decisions by non-financial firms listed on stock exchanges in Middle Eastern countries between 2010-2022?

2. RESEARCH OBJECTIVES

2.1 Research aims and objectives

Three primary objectives are pursued by this thesis. Initially, it will investigate the effects of a company's financial structure on its financial performance in developing economies, with a focus on countries in the Middle Eastern financial markets. Secondly, it will examine how a company's financial health is impacted by agency costs or disputes between management and shareholders. Lastly, the thesis is going to examine whether agency costs have an impact on how well a firm performs in regard to its financial structure, thereby adding new empirical results about the decisions on firms' capital structure to the existing literature on corporate finance. From the primary aims, the following specific objectives are developed:

1. This research reviews the related theories in the literature to support the proposed associations between agency cost, financial structure, and performance of the firms.
2. It investigates the direct effect of capital financing on the financial performance among non-financial companies that are listed on Middle Eastern stock markets between 2010 and 2022.
3. It examines the direct effect of agency cost on the performance of non-financial firms listed on the stock exchanges of Middle Eastern markets between 2010-2022.
4. It examines the direct connection between the effectiveness of managerial decisions and the performance of non-financial firms listed on stock exchanges of Middle Eastern markets between 2010-2022.

5. The study empirically examines whether agency costs as a moderator have any impact on the correlation between capital structure and the performance of non-financial firms listed on stock exchanges of Middle Eastern markets between 2010-2022.
6. It examines the validity of the application of agency theory on the connection between financial structure and firm performance of non-financial companies listed on stock exchanges of Middle Eastern markets between 2010-2022.

2.2 Research hypotheses

Based on the research questions and objectives, below are the study hypotheses that are proposed to conduct the study on the issue that is being investigated (see Table 1):

Table 1. Hypotheses of the study

Hypothesis 1 (H1). There exists a statistically significant relationship between a non-financial firm's capital structure and its financial performance on Middle Eastern stock exchanges.	
H1.1	A company's debt level (financial leverage) has a significant effect on its return on assets (ROA)
H1.2	A company's debt level (financial leverage) has a significant effect on its return on equity (ROE)
H1.3	A company's debt level (financial leverage) has a significant effect on its market-to-book value (MTBVE)
Hypothesis 2 (H2). There is a statistically significant connection between the intensity of agency costs and the performance of non-financial companies listed on stock exchanges in Middle Eastern markets.	
H2.1	Agency costs significantly impact return on assets (ROA).
H2.2	Agency costs significantly impact return on equity (ROE).
H2.3	Agency costs significantly impact market-to-book value (MTBVE).
Hypothesis 3 (H3). The efficiency of managerial decisions leads to improved performance for non-financial firms listed on Middle Eastern countries' stock markets.	
Hypothesis 4 (H4). The impact of capital structure on the financial performance of non-financial firms listed on Middle Eastern stock exchanges is not contingent on the level of agency costs.	
H4.1	Agency costs do not exert a moderating influence on the capital structure and return on assets (ROA) relationship.
H4.2	Agency costs do not exert a moderating influence on the capital structure and return on equity (ROE) relationship.

H4.3	Agency costs do not exert a moderating influence on the capital structure and market-to-book value (MTBVE) relationship.
Hypothesis 5 (H5). The propositions stated by agency theory are still applicable and valid for non-financial firms listed on Middle Eastern stock markets.	

Source: Author elaboration

2.3 Research framework

Based on the research objectives, research questions, and hypotheses, the study constructed the conceptual framework as shown in Figure 1.

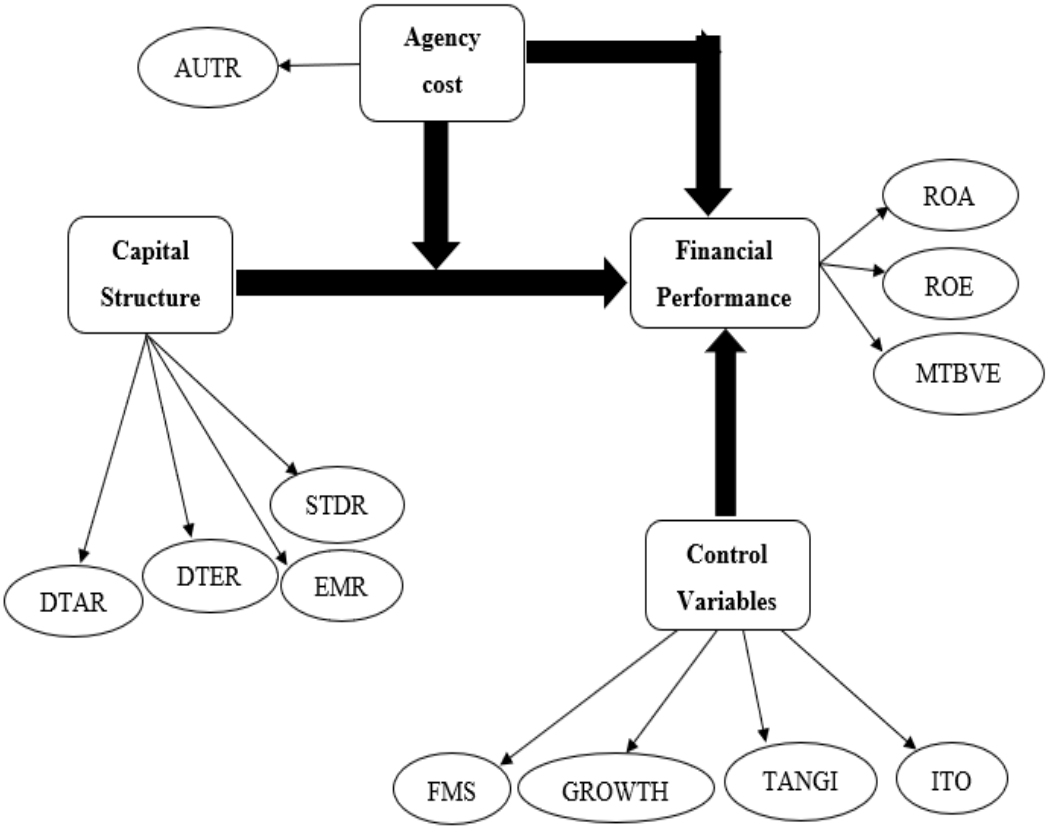

Figure 1. Research framework

Source: Author elaboration

3. MATERIAL AND METHOD

3.1 Sample and data

3.1.1 Sample selection

This study examines the dynamic interactions that exist between agency cost, capital structure, and performance among non-financial companies that are listed on Middle Eastern stock exchanges. Furthermore, it investigates how agency costs, viewed through the lens of agency theory, influence the aforementioned connection. Several criteria were applied to select the sample countries from the Middle East. These included the availability of financial data, active stock markets for accurate performance measurement, government control on the stock market, and a degree of economic stability and development.

Table 2. Purposive sample selection for countries in the Middle East

Criteria	Sample selection
Total Middle Eastern countries	16 countries
Non-availability of financial data	3 countries
Not active stock markets	3 countries
Economic instability	2 countries
Government control of the stock market	1 country
Final sample selection	**7 countries**

Source: Author elaboration

3.1.2 Data collection

This study adopts a mixed methods approach, drawing on both quantitative and qualitative data collection techniques. The primary method of providing evidence for addressing research questions and testing study hypotheses is the quantitative data underpinning the core analysis. Qualitative data complements quantitative analysis by providing additional context and in-depth insights that enhance the comprehension of the results. In corporate finance and accounting research, the integration of two or more collecting and analyzing data techniques creates "mixed" or "combined" methods (DEWASIRI ET AL., 2018). Mixed methods can be seen as an effective strategy that allows data to be validated by cross-checking it using more than one technique (SCHOONENBOOM, 2018). This type of methodology is also applied by (BAKER ET AL., 2020; OLÁH ET AL., 2019; IBRAHIM & FARAHIYAH, 2021).

Quantitative data for this research is based on secondary data and collected from reputable financial databases such as Thomson Reuters Eikon, and also from audited annual reports of 433 non-financial companies listed on the Middle Eastern stock markets. The data covers a period of thirteen years, from 2010-2022. To ensure the robustness of our findings, this study added more control variables to the models, which were obtained from the World Bank open data source. The study's timeline was chosen for two main factors. First, restricted credit markets brought about by the global financial crisis of 2007–2008 forced firms to reevaluate their financial choices. This period allows us to analyze how firms adapted to those challenges. Additionally, the period selected in this study contains economic growth in most Middle Eastern countries. Due to this, the expansion funding source for companies needs to be adjusted. By examining this period, the study can gain insights into how these adjustments affect agency costs, capital structure, and firm performance.

Further, in order to prepare the final sample in this study, some companies were excluded because they did not meet the criteria of data collection. For instance, firms that delisted from the stock market due to the effect of COVID-19 from 2020-2022 are not included in the analysis. Hence, the study used a completely balanced panel data. Additionally, when companies are not registered in the stock market, they use different criteria to prepare their financial reports and do not follow the domestic or international accounting rules. Hence, the study excluded them and left for future research to compare the results of the current study. Last but not least, the study excluded firms that did not have year-end accounting or/and market data at that time. Table 3 illustrates the number of firms for each country. By using all the above criteria, the current research uses data of 433 non-financial firms that registered on the seven Middle Eastern capital markets during 2010-2022. In total, there were 5,629 observations.

Table 3. Number of observations per country in the Middle Eastern market

Country	Number of firms	Observations	Percentage
Saudi Arabia	82	1066	29.79
Turkey	129	1677	14.78
Jordan	64	832	18.94
Kuwait	75	975	17.32
Qatar	25	325	5.77
Bahrain	19	247	4.39
Oman	39	507	9.01
Total	**433**	**5,629**	**100**

Source: Author elaboration

To further explore the intricate relationship between agency costs, capital structure, and firm performance, the research employed a qualitative case study approach in conjunction with quantitative analysis to complement and support the quantitative results. From this perspective, fourteen companies were selected for this study. These companies were chosen to ensure a representative sample across firm sizes within each country. Seven companies were large-sized firms, and seven were small-sized firms. For each group, the same companies were drawn that were used in the quantitative analysis. According to KOTHARI & BARONE (2006), the firm's annual report provides and contains both quantitative and qualitative data. Therefore, data for the qualitative analysis were collected from the companies' audited annual reports for the same period (2010-2022) used in the quantitative data collection. Specifically, researchers focused on the chairman's statements, board of directors' statements, shareholders' opinions, independent auditors' opinions, corporate governance reports, and notes to the consolidated financial statements. These sections were chosen because they typically contain insights into the company's strategic decision-making process, including its approach to financing. A coding scheme using a 0-2 scale (0 = Information not available, 1 = No, and 2 = Yes) was then applied to the information that was observed. This approach is proposed and accepted by (SALDAÑA, 2013; LINNEBERG & KORSGAARD, 2019), who argue that coding is suitable for numerous qualitative investigations, but especially for case studies and content analysis. This is consistent with our study approach, which involves textual data analysis using financial statements to identify certain variables associated with financial choices made by firms.

3.2 Selection of variables

3.2.1 Dependent variables

This study uses firm performance as a dependent (explained) variable. It is predicted by a number of theoretical frameworks to be impacted by internal characteristics, including capital structure and agency costs. The literature employs a variety of company performance metrics. In order to determine the achievement of a company, researchers typically utilize accounting data to develop metrics such as efficiency and profitability indices (AYAZ ET AL., 2021; AHMED ET AL., 2023b; KHUONG ET AL., 2022; TRAN ET AL., 2023). Furthermore, some other studies determine company performance by using market metrics such as market-to-book value (AHMED ET AL., 2023a; HOUQE ET AL., 2022; SDIQ & ABDULLAH, 2022). Consistent with previous studies, this investigation measures company performance considering both financial measurements, such as returns on assets (ROA), returns on equity (ROE), and market measurements, such as market-to-book value (MTBVE). Table 4 summarizes the variables used in this study along with their definitions and measurements.

Table 4. List of the variables with description

Variables	Acronym	Measure	Type	Description
Financial performance	ROA	Return on Assets	Dependent	Net income is divided by the average of total assets
	ROE	Return on Equity	Dependent	Net income is divided by the shareholders' equity
	MTBVE	Market to Book Value	Dependent	Market capitalization scaled by the book value of equity
Capital structure	DTAR	Total Debt to Assets Ratio	Independent	Total debt divided by total assets
	DTER	Total Debt to Equity Ratio	Independent	Total debt divided by shareholders' equity
	STDR	Short-Term Debt Ratio	Independent	Total short-term debt divided by total assets
	EMR	Equity Multiplier Ratio	Independent	Total assets divided by the shareholder equity
Agency cost	AUTR	Utilization Ratio	Independent and moderator	Annual sales divided by total assets
Firm-specific variable	FMS	Firm Size	Control	Logarithmic value of total assets
	TANGI	Tangibility of Assets	Control	Fixed assets divided by total assets
	GROWTH	Firm Growth	Control	Sales difference between year *t* and *t-1*, then divided by year *t-1* sales
	ITO	Investment Opportunities	Control	The difference in total assets between year *t* and *t-1*, then divided by year *t* total assets
Macroeconomic variable	GDP	Gross Domestic Product	Control	Growth rate of annual GDP
	INF	Inflation	Control	The Consumer Price Index (CPI)

Source: Author elaboration

***Note:** Macroeconomic factors, such as gross domestic product (GDP) and inflation, are added to the study models during the robustness check.*

3.2.2 Independent variables

One of the primary independent (explanatory) variables in this research that is predicted to have an impact on company performance is the structure of capital. capital structure is the combination

of debt and equity that it is going to use by firms to fund their operations (AHMED ET AL., 2023b; KONTUŠ, 2021). Following the direction of previous studies, this study proxied capital structure by the debt-to-asset ratio (DTAR), debt-to-equity ratio (DTER), short-term debt ratio (STDR), and equity multiplier ratio (EMR). Previous investigations have also operationalized capital structure through various ratios of financial leverage, such as debt-to-asset ratio, debt-to-equity ratio, short-term debt ratio, long-term debt ratio, market leverage ratio, equity ratio, and equity multiplier ratio (BAWUAH, 2024; BOSHNAK, 2023; BRENDEA ET AL., 2022; MUHAMMED ET AL., 2024; SIMAMORA, 2021; AHMED ET AL., 2024).

Moreover, drawing on agency theory, this study acknowledges the potential conflict of interest between the manager (agent) and shareholder (principal). This potential clash can lead to agency costs, which act as an independent and moderating variable in our research. The research posits that agency costs play a significant role in influencing and potentially moderating the relationship between capital structure and its overall performance. Prior studies have shown that asset utilization ratio, operating expense ratio, and free cash flow can serve as indicators of agency costs (AHMED ET AL., 2023a; KHUONG ET AL., 2022; RASHID KHAN ET AL., 2020; TAYEH ET AL., 2023). The asset utilization ratio is an accounting measure that evaluates how well a firm uses its resources to generate income. According to HIJAZI & CONOVER (2011) asset utilization ratio (AUTR) stands out as a particularly valuable indicator in gauging agency cost. Therefore, this study uses the asset utilization ratio (AUTR) as a measure of agency cost. \

3.3 Research design and econometric model

3.3.1 Research design

The present study employs a sequential explanatory mixed methods design to investigate the possible correlation between financial structure and a company's efficiency and examine the modulating influence of agency cost on that relationship. To make sense of the quantitative results, the qualitative data is gathered and examined after the quantitative data has been collected and examined. Thus, the research primarily relies on quantitative data analysis, which serves as the main source of evidence for answering the research questions and testing the study hypotheses. Figure 2 outlines a methodical process applied in this study whereby qualitative analysis is conducted after a quantitative analysis to provide an expanded description of the results.

In some domains, including organizational science, according to MOLINA-AZORIN ET AL. (2017) mixed methods have shown a certain level of success. Combining both quantitative and qualitative data is essential and beneficial to develop a deeper comprehension of the topic being studied (SCHOONENBOOM, 2018). Quantitative analysis facilitates thorough hypothesis testing and answering research questions, whereas qualitative data offers a more profound understanding of the "why" behind quantitative findings.

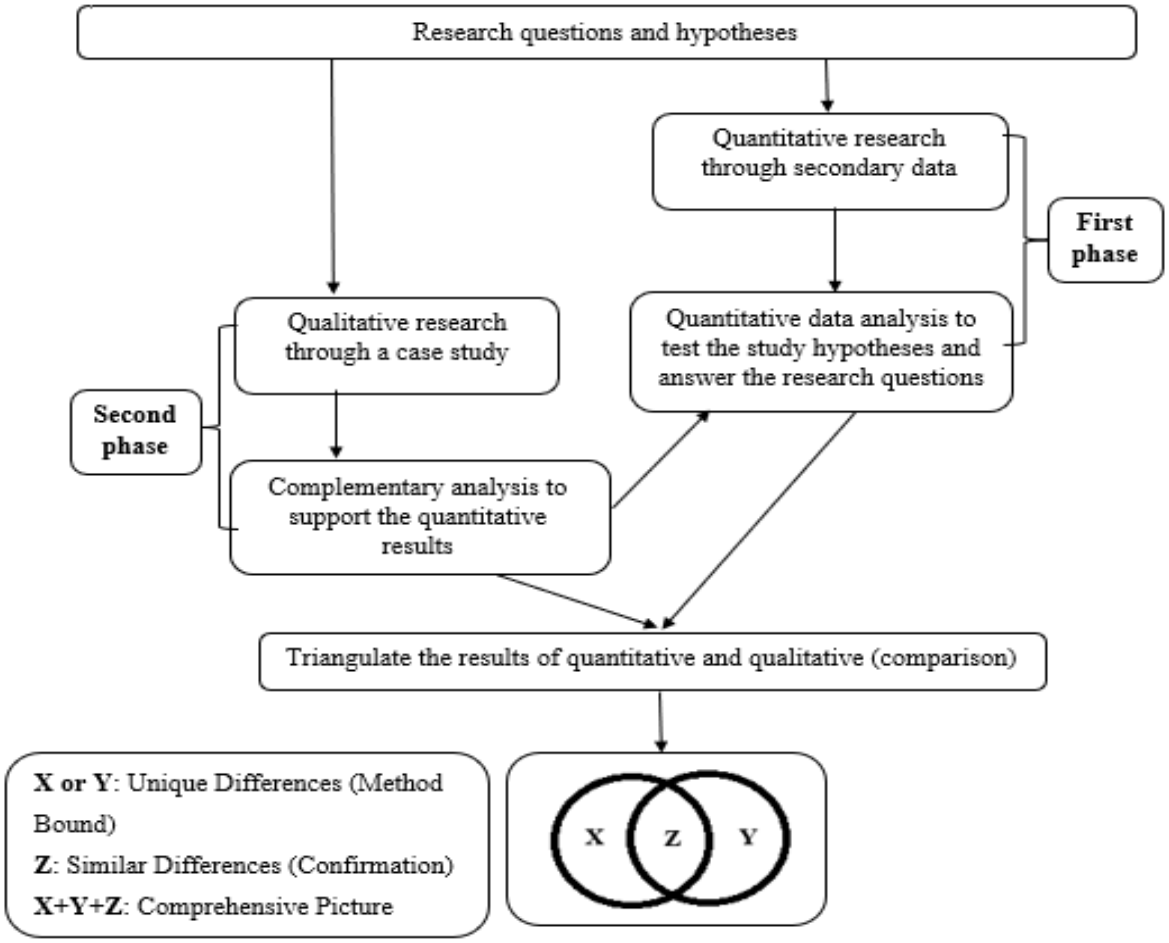

Figure 2. Flowchart for sequential explanatory mixed methods design
Source: Author elaboration

3.3.2 Model specification and estimation techniques

This research utilizes panel data estimation techniques to analyze the relationship between financial structure and corporate performance, and the influence of agency costs on that association. Compared to conventional or time-series analysis, panel data estimation has numerous benefits because it enables researchers to take the benefit of both the time-series variation within observations and cross-sectional variation across observations. From the prior literature, A number of common estimation techniques were used including Ordinary Least Square (OLS), Random Effect (RE) model, Fixed Effect (FE) model, Generalized Least Squares (GLS), and Generalized method of moments (GMM) (HOUQE ET AL., 2022; ABDULLAH & TURSOY, 2021; TRAN ET AL., 2023).

In order to examine the association between the study variables and obtain robust results, this research employed the generalized least squares (GLS) method. Moreover, the study also uses the Generalized method of moments (GMM) as dynamic regression in addition to GLS for the robustness tests. The use of GMM guarantees a constant expectation of a relationship between the dependent variable's lag and the residuals. A study by JACCARD ET AL. (1990) confirmed that the multiple regression approach is an excellent option for examining multiple relationships. Furthermore, the method of Generalized Least Squares (GLS) with cross-sectional weight was preferred by the researchers because it is resilient to some typical data problems. In contrast to

other methods, GLS can manage issues such as autocorrelation within panels, non-normality, heteroskedasticity, "the unequal variances across groups" and correlations among observations from multiple groups (WOOLDRIDGE, 2010). Therefore, the model of fixed effect with GLS cross-section weight is believed to be more precise as well as effective compared to the traditional model estimations of fixed effects (FE) and random effects (RE) because of the aforementioned advantages and limitations (SAIF-ALYOUSFI, 2020). The basic econometric model used in this research can be expressed logically as follows:

Model a (without interaction): $Fp_{it} = a_0 + a_1 CapStr_{it} + a_2 AgCo_{it} + a_3 Con_{it} + e_{it}$
Model b (with interaction): $Fp_{it} = a_0 + a_1 CapStr_{it} + a_2 AgCo_{it} + a_3 (CapStr_{it} \times AgCo_{it}) + a_4 Con_{it} + e_{it}$

Where, Fp_{it} represents the dependent variable (firm performance), a_0 signifies the intercept of the model, a_1-a_4 displays a vector notation for the independent variables in the model, $CapStr_{it}$ denotes indicators of capital structure (independent variable), $AgCo_{it}$ represents a measure of agency cost (independent and moderating variable), $CapStr_{it} \times AgCo_{it}$ represents the combined effect of explanatory and moderating variables. Con_{it} denotes control variables, and e_{it} displays unexplained error terms.

4 EMPIRICAL ANALYSIS AND DISCUSSION

4.1 Descriptive analysis

The descriptive statistics for the variables in this study (capital financing, corporate performance, agency cost, and control variables) are presented in Table 5. To guarantee the collection of precise data, it is interesting that this study included variables assessed at a ratio or interval level. MTBVE symbolizes performance driven by the market, while ROA and ROE are measures of corporate performance based on accounting data. The arithmetic means of ROA and ROE are 0.053 and 0.059 with a standard deviation of 0.089 and 0.252, respectively. The minimum and maximum values of ROA are -0.964 and 0.681, while the lowest and highest values of ROE are -3.971 and 2.668, respectively. Concerning MTBVE, the mean value is 2.524 with a deviation of 2.857. The minimum and highest values of MTBVE are 0.020 and 52.304, respectively. This clearly shows that the performance of the firm's market is almost better than the performance predicted by accounting ratios. In addition, the firm's financial leverage is quantified by DTAR, DTER, STDR, and EMR which reflect the firm's capital structure composition. Their arithmetic means are (M = 0.243, SD = 0.192, Min = 0.000, and Max = 0.970) for DTAR, (M = 0.844, SD = 1.488, Min = 0.000, and Max = 30.183) for DTER, (M = 0.114, SD = 0.119, Min = 0.000, and Max = 0.878) for STDR, and (M = 2.698, SD = 3.107, Min = 1.003, and Max = 49.850) for EMR. Further, AUTR measures agency cost and serves as an independent and moderating variable in this study. It has a mean value of 0.589 with a standard deviation of 0.540. The lowest and highest values are 0.000 and 5.342, respectively. The wide range of asset utilization ratios (0 to 5.342) indicates substantial differences in the asset utilization efficiency of companies. Even though on average companies use a moderate utilization ratio (0.589), the majority of companies seem far less efficient due to high agency costs related to equity.

Table 5. Descriptive statistics

Variables	Obs.	Mean	Median	Std. Dev.	Min.	Max.
ROA	5629	0.053	0.047	0.089	-0.964	0.681
ROE	5629	0.059	0.067	0.252	-3.971	2.668
MTBVE	5629	2.524	1.761	2.857	0.020	52.304
DTAR	5629	0.243	0.219	0.192	0.000	0.970
DTER	5629	0.844	0.413	1.488	0.000	30.183
STDR	5629	0.114	0.076	0.119	0.000	0.878
EMR	5629	2.698	1.834	3.107	1.003	49.850
AUTR	5629	0.589	0.484	0.540	0.000	5.342
FMS	5629	12.910	12.694	2.481	7.027	21.169
TANGI	5629	0.593	0.631	0.225	0.013	0.995
GROWTH	5629	0.216	0.078	1.296	-1.000	41.597
ITO	5629	0.063	0.044	0.198	-4.071	0.982
GDP	5629	3.626	2.980	4.000	-8.855	19.592
INF	5629	6.257	3.272	11.118	-2.540	72.309

Source: Author elaboration based on EViews output

4.2 Correlation analysis

The Pearson test outcomes provide correlation coefficients, which evaluate the degree of the relationship without determining the direction of the association between two parameters. Neither variable is given a dependent or explanatory designation; instead, they undergo treatment equally. After standardizing the coefficients of variation of the variables, the procedure yields a number (rho) between -1 and +1. When the variables rise simultaneously, there is a complete positive association, represented by a value of +1. A value of -1, on the other hand, implies a complete negative association, in which one variable rises as the other falls. In addition, Pearson correlation analysis can also be used for detecting multicollinearity, which is an issue that can occur in data with panel or time series characteristics. When there is a strong correlation between two independent variables (explanatory variables), this is commonly known as "multicollinearity" in a regression model. It is thus problematic to distinguish each of their distinctive impacts on the dependent or response variable. HAIR ET AL. (2019) emphasized how crucial it is for predictor variables in a regression model to have a small degree of collinearity. From the perspective of literature, WOOLDRIDGE (2010) argued that if the correlation coefficients among the explanatory (independent) variables are higher than a certain value, such as 0.7, then there may be a significant degree of multicollinearity between them.

The coefficients of correlation for each variable in the research are shown in Table 6. This contains the dependent, explanatory, and control variables. Table 6 presents evidence suggesting low correlations (all correlations less than 70%) between independent variables. In other words, the explanatory variables in this study are not substantially associated. This eliminates fears that multicollinearity will affect how the coefficients of the regression model are interpreted. The two indicators of firm financial performance, ROA and ROE, have a reasonably high and positive correlation. A market performance measurement that is gauged by its MTBVE has a weak and negative correlation with ROA and ROE. The control matrix analysis also illustrates an adverse correlation between all financial leverage metrics (DTAR, DTER, STDR, and EMR) and financial performance indicators (ROA and ROE), but positive on MTBVE as a proxy of market performance.

Table 6. Correlation coefficient

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) ROA	1	0.725 ***	-0.057 ***	-0.176 ***	-0.166 ***	-0.122 ***	-0.15 ***	0.226 ***	0.165 ***	-0.171 ***	0.084 ***	0.376 ***	0.163 ***	0.268 ***
(2) ROE	0.725 ***	1	-0.174 ***	-0.195 ***	-0.313 ***	-0.154 ***	-0.241 ***	0.166 ***	0.159 ***	-0.136 ***	0.058 ***	0.265 ***	0.106 ***	0.169 ***
(3) MTBVE	-0.057 ***	-0.174 ***	1	0.309 ***	0.585 ***	0.166 ***	0.580 ***	0.139 ***	-0.179 ***	-0.003	-0.029 **	-0.052 ***	-0.081 ***	-0.099 ***
(4) DTAR	-0.176 ***	-0.195 ***	0.309 ***	1	0.653 ***	0.613 ***	0.358 ***	-0.06 ***	0.283 ***	0.153 ***	-0.012	0.036 ***	0.006	0.031 **
(5) DTER	-0.166 ***	-0.313 ***	0.585 ***	0.653 ***	1	0.392 ***	0.669 ***	0.003	0.191 ***	0.074 ***	-0.009	0.033 **	0.026 *	0.055 ***
(6) STDR	-0.122 ***	-0.154 ***	0.166 ***	0.613 ***	0.392 ***	1	0.210 ***	0.176 ***	0.007	-0.236 ***	-0.031 **	0.016	0.037 ***	0.101 ***
(7) EMR	-0.150 ***	-0.241 ***	0.58 ***	0.358 ***	0.0.7 ***	0.210 ***	1	0.025 *	0.187 ***	-0.009	-0.003	0.057 ***	0.034 *	0.096 ***
(8) AUTR	0.226 ***	0.166 ***	0.139 ***	-0.06 ***	0.003	0.176 ***	0.025 *	1	-0.044 ***	-0.472 ***	-0.014	0.111 ***	0.116 ***	0.126 ***
(9) FMS	0.165 ***	0.159 ***	-0.179 ***	0.283 ***	0.191 ***	0.007	0.187 ***	-0.044 ***	1	0.155 ***	0.016	0.196 ***	0.173 ***	0.216 ***
(10) TANGI	-0.171 ***	-0.136 ***	-0.003	0.153 ***	0.074 ***	-0.236 ***	-0.009	-0.472 ***	0.155 ***	1	0.013	-0.120 ***	-0.093 ***	-0.160 ***
(11) GROWTH	0.084 ***	0.058 ***	-0.029 **	-0.012	-0.009	-0.031 **	-0.003	-0.014	0.016	0.013	1	0.135 ***	0.076 ***	0.140 ***
(12) ITO	0.376 ***	0.265 ***	-0.052 ***	0.036 ***	0.033 **	0.016	0.057 ***	0.111 ***	0.196 ***	-0.120 ***	0.135 ***	1	0.227 ***	0.369 ***
(13) GDP	0.163 ***	0.106 ***	-0.081 ***	0.006	0.026 *	0.037 ***	0.034 **	0.116 ***	0.173 ***	-0.093 ***	0.076 ***	0.227 ***	1	0.210 ***
(14) INF	0.268 ***	0.169 ***	-0.099 ***	0.031 **	0.055 ***	0.101 ***	0.096 ***	0.126 ***	0.216 ***	-0.160 ***	0.140 ***	0.369 ***	0.210 ***	1

Note(s): *** p < 1%; ** p < 5%; * p < 10%.

Source: Author elaboration based on EViews output

Moreover, the correlations of DTAR with DTER, STDR, and EMR are 0.653, 0.613, and 0.357, respectively. Moreover, the asset utilization ratio (AUTR), which is used to measure agency cost, has a positive correlation with all performance indicators. However, AUTR is negatively correlated with one hyphenated measure of financial leverage (DTAR), with a coefficient of -0.059. The correlation between AUTR and other indicators of capital structure (DTER, STDR, and EMR) is positive, at around 0.002, 0.175, and 0.024, respectively. Control variables, such as (FMS, GROWTH, and ITO), are positively related to ROA and ROE, while negatively correlated with MTBVE. The correlations of FMS with TANGI, GROWTH, and ITO are 0.155, 0.016, and

0.196, respectively. The highest correlation between control variables and all proxies of capital structure is 0.283, which is between FMS and DTAR. Macroeconomic variables, such as GDP and INF are positively linked to ROA and ROE, but negatively on MTBVE. The correlation of GDP with DTAR, DTER, STDR, and EMR is weak and positive, about 0.006, 0.025, 0.036, and 0.034, respectively. INF and DTAR, DTER, STDR, and EMR are positively and weakly correlated with 0.031, 0.054, 0.101, and 0.095, respectively.

Furthermore, to supplement the correlation matrix analysis, I employed the commonly used Variance Inflation Factor (VIF) method to examine any multicollinearity issues. A study by SHRESTHA (2020) demonstrated that substantial multicollinearity among independent variables appears when tolerance levels are smaller than 0.1, and VIF values exceed a value of 10. The maximum VIF found in our investigation is 3.071, while the lowest tolerance value is 0.326, as displayed in Table 7. In combination, these results imply that multicollinearity is not expected to have a significant effect on the results of our study.

Table 7. Variance Inflation Factors (VIF)

Variables	**Value of VIF**	**Tolerance value**
DTAR	3.015	0.332
DTER	3.071	0.326
STDR	2.072	0.483
EMR	2.047	0.489
AUTR	1.315	0.761
FMS	1.283	0.780
TANGI	1.539	0.650
GROWTH	1.035	0.966
ITO	1.229	0.814
GDP	1.106	0.905
INF	1.262	0.792
Mean	***1.724***	

Source: Author elaboration based on EViews output

4.3 Results of panel data model selection tests

The basic assumptions that protect the accuracy of linear regression must be confirmed before we can examine the outcomes of our models. Three main methods are available for analyzing panel data, pooled Ordinary Least Squares (OLS), fixed effects (FE) model, and random effects (RE) model (ABDULLAH & TURSOY, 2021; AHMED ET AL., 2023a). To select the most appropriate and optimal model among pooled OLS, fixed effects (FE), and random effects (RE) models, this research employs all three diagnostic tests (Chow test, Hausman test, and Lagrange multiplier (LM) test), and the results of these tests are presented in Table 8. With a statistically significant *p*-value of less than 5%, the pooled OLS model suitability null hypothesis was rejected by the Chow test. This result implies that when compared to the pooled OLS model, the fixed effects (FE) model gives a more appropriate fit to the data.

Moreover, this idea was then validated by the Hausman test, which produced a *p*-value of less than 5%. The FE model has been further backed as a more reliable option than the RE model, as this finding contradicts the null hypothesis that there are no random consequences.

Table 8. Data panel model estimation

Panel Data Model Selection Test	Model 1 (ROA)	Model 2 (ROE)	Model 3 (MTBVE)	Results
Chow Test (Pooled OLS vs. FE)	2615.36***	2030.99***	5257.67***	FEM
Hausman Test (FE vs. RE)	188.69***	96.52***	135.96***	FEM
Lagrange Multiplier Test (Pooled OLS vs. RE)	44.56***	35.51***	85.62***	REM

Note(s): Confidence level * (α = 0.1), ** (α = 0.05), *** (α = 0.01).

Source: Author elaboration based on EViews output

However, the selected FE model has a few shortcomings. In the FE model residuals, Table 9 shows the existence of heteroscedasticity and possible serial correlation (dependency of residuals over time). Hence, the determined coefficients' reliability may be challenged by these problems. To address the above limitations and consider endogeneity issues, this study applied a fixed effect model with the GLS cross-section weight. Studies by AHMED ET AL. (2023a); SAIF-ALYOUSFI (2020) confirmed that the GLS technique is an improved version of the OLS method that exhibits superior results in estimating models with serial correlation or/and heteroscedasticity problems. AHMED ET AL. (2024) also argued that GLS aims to correct the serial correlation, and heteroscedasticity problems, which lead to enhanced statistical conclusions and more reliable estimations. In addition, the study also uses the Generalized method of moments (GMM) as a dynamic regression in addition to GLS for the robustness test. The use of GMM guarantees a constant expectation of a relationship between the dependent variable's lag and the residuals. Given the aforementioned factors, I can conclude that this research technique is an appropriate method of examining the influence of capital structure on the corporate performance of non-financial firms listed on Middle Eastern stock markets. It additionally facilitates investigating potential interactions between agency costs and the above relationship.

Table 9. Results of the normality and heteroscedasticity test

Test Summary (Chi-Square)	Model 1 (ROA)	Model 2 (ROE)	Model 3 (MTBVE)
Jarque–Bera (Normality Test)	96.77***	142.10***	1006.6***
Breush–Pagan–Godfrey (Heteroskedasticity Test)	214.43***	422.40***	934.46***

Note(s): Confidence level * (α = 0.1), ** (α = 0.05), *** (α = 0.01).

Source: Author elaboration based on EViews output

4.4 Cointegration test results

The Kao cointegration test, which is an improved version of the (ENGLE & GRANGER, 1987) method, applies the augmented Dickey-Fuller (ADF) t-statistic to decide if a long-term equilibrium connection (cointegration) exists between the panel characteristics. The main goal of the cointegration test is to determine if all variables have a shared dynamic pattern. Cointegration indicates that parameters are essentially related and that short-term variations from their long-term equilibrium connection are normal. Comprehending the dynamic interactions among economic factors and generating predictions for the future requires this knowledge. The lack of a cointegration link among the parameters is the null hypothesis of the Kao tests. We could cancel the null hypothesis assuming there is no cointegration if the ADF t-statistic is less than the crucial value (0.05). Table 10 demonstrates evidence that the value of *t*-statistics for all models (ROA, ROE, and MTBVE) is significantly lower than the value that is critical (5%), resulting in the failure to accept the null hypothesis. In short, the results indicate that all of the variables have a long-term relationship.

Table 10. Cointegration Test

Kao test	ROA		ROE		MTBVE	
	t-Stat.	Prob.	t-Stat.	Prob.	t-Stat.	Prob.
ADF	-9.475	0.000***	-4.649	0.000***	-13.090	0.000***
Residual variance	0.0049		0.0543		1.2815	
HAC variance	0.0029		0.0218		0.8783	

*Note: significance levels are *** (1%), ** (5%), * (10%).*

Source: Author elaboration based on EViews output

4.5 Findings and Analysis

This study investigates the effect of financial structure on firm financial performance and explores the moderating effect of agency costs on the above relationship through the lens of agency theory. The Middle Eastern stock markets offer an exciting study prospect because of their distinct socioeconomic environment, continuous regional economic development, and different economic characteristics. The research is based on a cross-country dataset that spans the years 2010 to 2022 and includes data from selected non-financial listed companies. Using both quantitative and qualitative methodologies, the research attempted to provide an in-depth comprehension of this complex interaction.

4.5.1 Unveiling the link between capital financing and firm performance

As presented in Table 11, the findings show a statistically significant and negative correlation between DTAR and ROA with a coefficient of -0.098, suggesting that ROA decreases as the amount of debt financing (DTAR) increases. This implies that the associated interest expense of debt financing can reduce the profitability of a business even though it might increase earnings through financial leverage. In other words, excessive levels of debt beyond the average level are linked to threats and larger expenses. The return on assets (ROA) is positively and significantly impacted by the debt-to-equity ratio (DTER) with a coefficient of 0.002. This implies that there may be a marginal improvement in ROA with an average rise in debt financing compared to equity. Employing optimum debt levels in comparison to equity financing might increase the efficiency of assets, possibly as a result of debt's tax advantages. In addition, ROA is significantly and negatively with a value of -0.024 impacted by short-term debt (STDR). This is mainly due to the fact that short-term debt often has interest rates that are greater than those of long-term debt, further taxing a company's capacity to make cash from its resources and weakening its operational viability and financial capabilities.

The equity multiplier ratio (EMR) has a negative and significant influence on ROA with a coefficient of -0.003. This suggests that ROA decreases as the amount of debt increases. This suggests that ROA decreases as the amount of debt funding increases. This drop may be explained by increased agency costs and possible conflicts between managers (agents) and owners (principals). According to this companies with a reasonable amount of equity funding may have lesser risk associated with finances, however, greater utilization of assets and high profitability are not always assured with equity financing or internal financing.

The above findings clarify and support the hypothesis (H1.1) that a company's debt level (financial leverage) has a significant effect on its return on assets (ROA) and are in line with some aspects of trade-off and pecking order theory. Trade-off theory points out that an ideal debt level can optimize profitability before debt becomes excessively dangerous while the pecking order theory points out that firms should rely on debt financing if the internal source of financing

is not sufficient. These findings also align with the research conducted by (AHMED ET AL., 2023a; MUHAMMED ET AL., 2024).

Table 11. Panel regression results without interaction

Variables	Model 1 (ROA)		Model 2 (ROE)		Model 3 (MTBVE)	
	Coef. GLS with FEM	Std. Error	Coef. GLS with FEM	Std. Error	Coef. GLS with FEM	Std. Error
C	-0.137***	0.015	-0.561 ***	0.032	6.527 ***	0.156
DTAR	-0.098***	0.007	-0.101 ***	0.016	0.606 ***	0.061
DTER	0.002***	0.0008	-0.029 ***	0.004	0.727 ***	0.020
STDR	-0.024***	0.008	-0.094 ***	0.017	-0.152 **	0.074
EMR	-0.003 ***	0.0004	-0.011 ***	0.002	0.284 ***	0.013
AUTR	0.067 ***	0.003	0.154 ***	0.006	0.601 ***	0.032
FMS	0.016 ***	0.001	0.052 ***	0.002	-0.465 ***	0.012
TANGI	-0.057 ***	0.006	-0.103 ***	0.011	0.197 ***	0.048
GROWTH	0.003 ***	0.0005	0.002 ***	0.0009	0.009 ***	0.003
ITO	0.088 ***	0.004	0.201 ***	0.007	0.335 ***	0.030
R-Square	0.701		0.711		0.942	
Adjusted R-Square	0.676		0.686		0.932	
F-statistic	27.62		28.97		192.32	
Prob.	0.000		0.000		0.000	
Obs.	5629		5629		5629	

*Note: significance levels are *** (1%), ** (5%), * (10%).*

Source: Author elaboration based on EViews output

Moreover, there is a significant and adverse correlation between DTAR and ROE (-0.101). This supports the idea that, although debt potentially increases overall profitability (ROA), high financing through debt might reduce shareholders' returns. A decreased ROE results from the interest expenses caused by debt, which lowers the net income available to investors in stocks. In a similar vein, DTER has a significant and detrimental effect on ROE (-0.029), however, it may have a lesser effect than DTAR. This implies that while an excessively leveraged capital structure may still be harmful to shareholder returns, moderate usage of debt funding may not considerably decrease ROE. In other words, leveraging debt in conjunction with equity may initially increase profits, however, an over-dependence on debt can result in declining returns for equity investors because of the increased risk and expenses associated with high debt levels. ROE is also negatively and significantly impacted by short-term debt (-0.094). The higher interest rates of short-term borrowing have the potential to eat into firms' profits and diminish shareholders' returns. The connection between EMR and ROE is also significant and negative and registered at -0.011, suggesting that firms with higher equity multiplier ratios may have agency difficulties (agency problems), in which managers promote personal gain ahead of optimizing shareholder returns. This brings lower profitability and high agency costs therefore lower ROE. Together, these findings highlight the detrimental impacts of excessive leverage and short-term debt on shareholders' return and propose the necessity of a balanced capital structure strategy to maximize the value of owners. Therefore, the hypothesis (H1.2) that a company's debt level (financial leverage) has a significant effect on its return on equity (ROE), is accepted and supported by both trade-off and agency theory. According to the trade-off theory, firms should make a balance between the tax shield of debt with the cost of bankruptcy.

This means that substantial levels of debt raise the risk of financial distress as well as interest costs, which weakens ROE even when overall profitability improves. On the other hand, a moderate level of debt may provide better performance and fewer risks. Agency theory also points out that an optimum level of debt (mixture of debt and equity) has a disciplinary impact, while large equity or debt financing could result in agency issues when managerial decisions decrease earnings and ROE because managers promote personal gain ahead of optimizing shareholder returns. These results are also consistent with the investigation carried out by (KALASH, 2021; TRAN ET AL., 2023).

Regarding market performance, measured by (MTBVE), the effect of both DTAR and DTER on MTBVE is significant and positive, with a coefficient of 0.606 and 0.727, respectively. This suggests that firms with a reasonable amount of debt financing may be valued more highly by the market and have higher future earnings, as the market perceives them to have greater growth prospects. This may be because debt is considered a productive utilization of capital and has tax-shielding advantages. Overly high DTAR, however, could offset these benefits by raising concerns about financial risk.

As illustrated in Table 11, the MTBVE is significantly and negatively impacted by STDR (-0.152). This implies that firms having large levels of short-term borrowing may be seen by the market as riskier because of possible difficulties in refinancing, likely problems with access to liquidity, and increased rates of interest. Thus, a weaker valuation of the market in comparison to book value could be observed. The correlation between MTBVE and EMR is registered at 0.284, and it is significant and positive. This claims that a moderate mix of debt and equity funding can make a company appear less dangerous to the market, which might increase its market valuation over book value. A firm's projected profitability can also be enhanced by the lack of significant debt funding costs, which raises the MTBVE even further.

Together, these findings demonstrate that, while moderate leverage can signify potential for development and improving market valuation, a substantial amount of short-term borrowing brings risks that could negatively affect the value of a firm in the marketplace. Therefore, the hypothesis (H1.3) is accepted, which states that a company's debt level (financial leverage) has a significant effect on its market-to-book value (MTBVE) and is supported by both agency and trade-off theory. Agency theory argues that managers are under pressure to operate successfully and produce cash flow in order to avoid failure when they have fixed commitments, such as payments for interest. As a result, they are in line with the objectives of owners who want to observe profits and a high market value. The trade-off theory also proposes that companies should weigh the positive and negative aspects of both equity and debt financing in order to determine the best possible structure for capital. The tax shield and management control (discipline) are the main benefits of borrowing. However, the costs of financial challenges, such as the potential risks of bankruptcy and agency costs, may offset these advantages. Additionally, these findings align with the research conducted by (ABDULLAH & TURSOY, 2021; AHMED ET AL., 2023a; SDIQ & ABDULLAH, 2022).

4.5.2 The Influence of agency cost (managerial divergence) on firm performance

Once the direct effects of capital structure on company performance have been examined, it is essential to further investigate by taking agency costs into consideration as this research aims to examine. Although decisions about a company's capital structure affect its profitability and financial stability, managers' use of these types of funding has an enormous effect on performance.

The positive and significant link between AUTR and ROA displays that when companies employ their assets more efficiently produce better returns on their capital investments. Two primary steps underlie this. Firstly, higher productivity and sales are the result of effective utilization of assets, and this happens without corresponding increases in costs. Ultimately, this increases ROA through improved cost control and larger profit margins. Secondly, companies may enhance profitability by decreasing unused assets, which reduces related expenses such as depreciation and storage. These arguments confirm the hypothesis (H2.1) that agency costs significantly impact return on assets (ROA) and are consistent with some aspects of agency theory. According to this theory, there is a misalignment between the manager (agent) and owner (principal) interests, as uncontrolled managers follow their personal goals rather than the shareholders' goals. However, when assets are used effectively, both parties can gain immediately from increased operational effectiveness, lower expenses, and larger profit margins. This means that operational methods that improve asset efficiency and overall profitability are the outcome of lower agency costs, which are demonstrated by higher utilization of assets and a managerial alignment of interests with owners. These results are consistent with the study conducted by (KALASH, 2024; NGUYEN ET AL., 2023).

Moreover, a strong and significant correlation between AUTR and ROE is also revealed by the investigation and this result implies a greater effect on the value of shareholders because ROE accounts for both financial leverage and profitability. Like ROA, effective utilization of resources increases profitability, but in this instance, the firm's use of financial leverage enhances the benefit in a better way. Companies that have a greater AUTR can convert better returns on resources into a larger improvement in ROE by carefully employing financing through debt. Due to this impact, firms may increase their dividend payments to shareholders without requiring raising equity investments correspondingly. Therefore, the favorable effect on ROE lends credibility to the agency theory that increased AUTR is correlated with reduced agency expenses. Appropriate asset use by managers enhances profitability and demonstrates a dedication to maximizing shareholder value, which is a fundamental principle in reducing agency issues. Hence, the hypothesis (H2.2) that agency costs significantly impact return on equity (ROE) is accepted. The above findings are also similar to the work of (KHUONG ET AL., 2022).

Other interesting findings in this investigation are the positive influence of AUTR on MTBVE. This highlights that high market performance can be achieved by the firms as a result of the effective utilization of assets. Investors assess these firms through possessing a strong management team, along with having lower conflicts of interest. A firm's ability to create a considerable amount of cash flow from its present resources is a reflection of productive asset use. This capability might boost trust among investors and indicate potential for future development. Thus, any improved market valuation compared to the book value could be evidenced. The idea that reduced agency costs, which result from effective asset utilization, contribute to a more positive market impression, is supported by the robust market reaction. The above finding clarifies and supports the hypothesis (H2.3) that agency costs significantly affect market-to-book value (MTBVE), and is in line with agency theory, which asserts that enhanced corporate performance and improved market reputation are caused by a reduction in agency costs. The above findings are also consistent with the studies of (AHMED ET AL., 2023a; HOUQE ET AL., 2022; RASHID KHAN ET AL., 2020).

Furthermore, the findings offer strong evidence in favor of the hypothesis that better performance for non-financial companies in Middle Eastern countries' stock markets is a result of managerial decisions that should be made efficiently. Our results show a significant and

favorable relationship between the asset utilization ratio (AUTR) and shareholder value (ROE), efficiency in operations (ROA), and market capitalization (MTBVE). This in-depth examination highlights the different methods that management effectiveness contributes to overall business performance in the Middle Eastern stock markets. A possible way to consider the concept of AUTR is as a stand-in for management efficacy in terms of allocating and using resources. Managers who make excellent use of their resources can increase profits, successfully control spending, and possibly even indicate future development prospects. Thus, this general increase in corporate performance is consistent with the idea that effective decision-making by managers makes a company profitable. The above arguments confirm and accept the third hypothesis (H3) that the efficiency of managerial decisions leads to improved performance for non-financial firms, and are supported by agency theory claims that managers should prioritize optimizing earnings above minimizing waste, which enhances the value of investors, operational efficiency, and the value of the market. This is due to the fact that managers' effective decision-making fights for the benefit of shareholders and reduces agency expenses. These findings are also in line with the results of (SIMAMORA, 2021; TAYEH ET AL., 2023).

4.5.3 Investigating the contingent influence of agency costs as a moderator on the capital structure-performance relation

After examining the distinct impacts of agency costs and financial structure on firm performance, this study investigates the moderating role of agency costs in the link between capitalization structure and corporate performance. According to agency theory, the level of agency conflicts (agency problems) that arise between managers and shareholders can be impacted by a company's financing strategy.

Table 12 demonstrates that the interaction between (AUTR*DTAR) significantly and favorably affects ROA. A possible explanation for this is that companies with typical levels of debt appear to have a lower fall in profitability (ROA) when they implement effective and efficient asset management techniques due to low agency costs related to debt. The negative impact of increased debt on ROA is mitigated when managers use assets efficiently and appropriately, indicating that low agency costs are associated with suitable debt levels, thereby improving firm performance.

In contrast to DTAR, ROA is negatively and significantly impacted by the interaction term of (AUTR*DTER), suggesting that when the utilization of assets is poor, the beneficial effect of borrowing on ROA diminishes. Increased dependence on equity financing and an excessive debt load, together with ineffective asset management, may result in reduced profitability through inefficiency in operations. This emphasizes how crucial for non-financial firms in Middle Eastern markets to adopt a mixed capital structure (debt and equity) with effective asset management in order to optimize return on assets because of stronger agency conflicts and their costs associated with higher equity and debt funding.

In addition, the interaction term between (AUTR*STDR) and ROA is significant and negative, indicating that high utilization of resources for non-financial firms mitigates the adverse impact of STDR on ROA. The pressure to achieve results swiftly brought on by short-term financing may cause managers to prioritize decisions that might harm their company's long-term achievement. Although a larger percentage of short-term borrowings may be present, effective asset management may lessen these constraints and redirect management resources into methods that increase overall performance among non-financial firms listed on the Middle Eastern Stock Exchange.

The negative and significant interaction between (AUTR*EMR) and ROA suggests a factor that lessens the determinant effect of debt financing on ROA. According to these findings, a substantial debt ratio is typically linked to higher financial risk, it can also result in agency issues due to managers' overspending or the establishment of their empires. Nevertheless, effective utilization of resources combined with low agency costs appears to mitigate these adverse consequences, highlighting the significance of balanced debt and equity in enhancing firm performance (ROA) by bringing managers' and shareholders' objectives into alignment. The above findings reject the hypothesis (H4.1) that agency costs do not exert a moderating influence on the capital structure and return on assets (ROA) relationship and are similar to the arguments of (LEGESSE & GUO, 2020; KONTUŠ, 2021).

Table 12. Panel regression results with interaction

Variables	Model 1 (ROA)		Model 2 (ROE)		Model 3 (MTBVE)	
	Coef. GLS with FEM	Std. Error	Coef. GLS with FEM	Std. Error	Coef. GLS with FEM	Std. Error
C	-0.148***	0.015	-0.595 ***	0.032	6.531 ***	0.158
DTAR	-0.118 ***	0.008	-0.220 ***	0.021	0.268 ***	0.090
DTER	0.006 ***	0.001	-0.014 ***	0.005	0.932 ***	0.030
STDR	-0.006	0.010	-0.081 ***	0.023	0.214 **	0.103
EMR	-0.003 ***	0.0006	-0.005 ***	0.002	0.202 ***	0.016
AUTR	0.073 ***	0.004	0.179 ***	0.009	0.509 ***	0.050
AUTR*DTAR	0.048 ***	0.012	0.277 ***	0.033	0.606 ***	0.174
AUTR* DTER	-0.008 ***	0.002	-0.021 ***	0.008	-0.309 ***	0.037
AUTR* STDR	-0.027 **	0.014	-0.086 ***	0.034	-0.629 ***	0.186
AUTR*EMR	-0.001 *	0.0007	-0.015 ***	0.004	0.118 ***	0.020
FMS	0.017 ***	0.001	0.053 ***	0.002	-0.461 ***	0.012
TANGI	-0.056 ***	0.006	-0.098 ***	0.011	0.225 ***	0.047
GROWTH	0.003 ***	0.0005	0.002 **	0.0007	0.010 ***	0.003
ITO	0.089 ***	0.004	0.207 ***	0.008	0.350 ***	0.030
R-Square	0.703		0.748		0.938	
Adjusted R-Square	0.678		0.726		0.932	
F-statistic	27.65		34.61		176.65	
Prob.	0.000		0.000		0.000	
Obs.	5629		5629		5629	

*Note: significance levels are *** (1%), ** (5%), * (10%).*

Source: Author elaboration based on EViews output

The connection between the interaction term (AUTR*DTAR) and ROE is also significant and beneficial, and indicates how effective asset management may increase the benefits of borrowing on equity returns, as shown in Table 12. One possible reason for this is that when agency costs are low (balanced interests between owners and managers), management demonstrates a greater tendency toward effective asset usage. Consequently, this enhances the favorable impacts of leverage on return on equity (ROE). However, the correlation between (AUTR*DTER) and ROE is negative and significant. This suggests that executives who use assets efficiently can reduce the adverse effect of DTER on ROE.

Additionally, ROE is negatively and significantly impacted by the interaction of (AUTR*STDR), asserting that the detrimental impact of short-term debt on ROE can be lessened by efficient asset

consumption that is connected to lower agency costs. Similarly, the relationship between (AUTR*EMR) and ROE is negative and significant, maintaining that maximizing ROE requires both effective resource use and a balanced strategy for debt. The aforementioned results cannot confirm hypothesis (H4.2) that agency costs do not exert a moderating influence on the capital structure and return on equity (ROE) relationship and are consistent with the work of (AYAZ ET AL., 2021; HOANG ET AL., 2019).

Similar to ROE, the interaction between (asset utilization and capital structure) with market performance portrays a nuanced picture. The positive association between (AUTR*DTAR) and MTBVE demonstrates that the favorable impact of debt on market value is greatly increased by the effective utilization of assets (low agency cost). However, according to the findings, when agency costs increase, the positive effect of financial leverage on market performance weakens or may even be turned into negative.

As exhibited in Table 12, the significant connection between (AUTR*DTER) and MTBVE illustrates that efficient asset utilization by managers reduces the favorable effect of DTER on MTBVE, possibly as a result of higher agency costs related to financing through equity. Additionally, the negative and significant interaction effect between (AUTR*STDR) and MTBVE highlights that the adverse effect between short-term borrowing and firm market performance will be diminished when agency costs are low (managers employ the firm's resources efficiently and effectively). Last but not least, the beneficial association with EMR suggests that the effective use of assets might strengthen the favorable market sentiment linked to a significant percentage of debt. In other words, the crucial role of mixing (debt and equity) and effective utilization of resources will lower agency costs, thereby enhancing market performance. The results mentioned above fail to validate the hypothesis (H4.3) that Agency costs do not exert a moderating influence on the capital structure and market-to-book value (MTBVE) relationship, and are similar to the investigation of (SIMAMORA, 2021; BAWUAH, 2024).

Furthermore, the findings of this research provide compelling and strong evidence for hypothesis (H5), according to which the claims made by agency theory are still current, accurate, and useful for non-financial companies that are listed on Middle Eastern stock markets. The noteworthy results obtained by examining different firm performance metrics, such as Return on Equity (ROE), Return on Assets (ROA), and Market-to-Book Value (MTBVE), indicate that agency costs are a key moderator in the link between capital structure and corporate performance. A significant finding that was released in this study is the debt financing at the optimum level that could push managers to focus on the shareholders' value and improve firm performance. Additionally, according to agency theory, debt financing is one strategy for minimizing conflict of interest (agency problems) and associated costs. This is because when debt levels rise, managers are under pressure to spend money on profitable investments and generate a greater amount of free cash flow. They are also obligated to pay more attention to the achievement of the company and to consistently fulfill their obligations. Consequently, the company's performance can be strengthened and enhanced. These findings are in line with the findings of (AHMED ET AL., 2023a; SDIQ & ABDULLAH, 2022). Table 13 provides a synopsis of hypothesis testing.

Table 13. The outcome of hypothesis testing

Objectives	Postulated Hypotheses		Decision
Objectives 1 and 2	**H1.** There exists a statistically significant relationship between a non-financial firm's capital structure and its financial performance on Middle Eastern stock exchanges.		
	H1.1	A company's debt level (financial leverage) has a significant effect on its return on assets (ROA)	Accepted
	H1.2	A company's debt level (financial leverage) has a significant effect on its return on equity (ROE)	Accepted
	H1.3	A company's debt level (financial leverage) has a significant effect on its market-to-book value (MTBVE)	Accepted
Objective 3	**H2.** There is a statistically significant connection between the intensity of agency costs and the performance of non-financial companies listed on stock exchanges in Middle Eastern countries.		
	H2.1	Agency costs significantly impact return on assets (ROA)	Accepted
	H2.2	Agency costs significantly impact return on equity (ROE)	Accepted
	H2.3	Agency costs significantly impact market-to-book value (MTBVE)	Accepted
Objective 4	**H3**	The efficiency of managerial decisions leads to improved performance for non-financial firms listed in Middle Eastern countries' stock markets	Accepted
Objective 5	**H4.** The impact of financial structure on the financial performance of non-financial firms listed on Middle Eastern stock exchanges is not contingent upon the level of agency costs.		
	H4.1	Agency costs do not exert a moderating influence on the capital structure and return on assets (ROA) relationship	Rejected
	H4.2	Agency costs do not exert a moderating influence on the capital structure and return on equity (ROE) relationship	Rejected
	H4.3	Agency costs do not exert a moderating influence on the capital structure and market-to-book value (MTBVE) relationship	Rejected
Objective 6	**H5**	The propositions stated by agency theory are still applicable and valid for non-financial firms listed on Middle Eastern countries' stock markets	Accepted

Source: Author elaboration

From the above results, Figure 3 is developed in the context of non-financial firms that operate in Middle Eastern markets. The link between the performance of a company and its level of financial leverage (debt) is seen in the figure as a U-shaped correlation. In other words, the graph illustrates how a firm's optimum debt level follows a quadratic curve, where performance first climbs with debt until reaching the optimum level and then ultimately drops due to a high level of debt, but when reaching the optimum level (balanced capital structure), the firm value is improved, that is agency cost significantly moderates the connection between financial choice and firm achievements. This implies that extremes of debt levels, either very low or very high, are linked to lower outcomes. This is probably because these extremes (low or high) include substantial agency costs or agency problems (conflicts of interest between managers and owners).

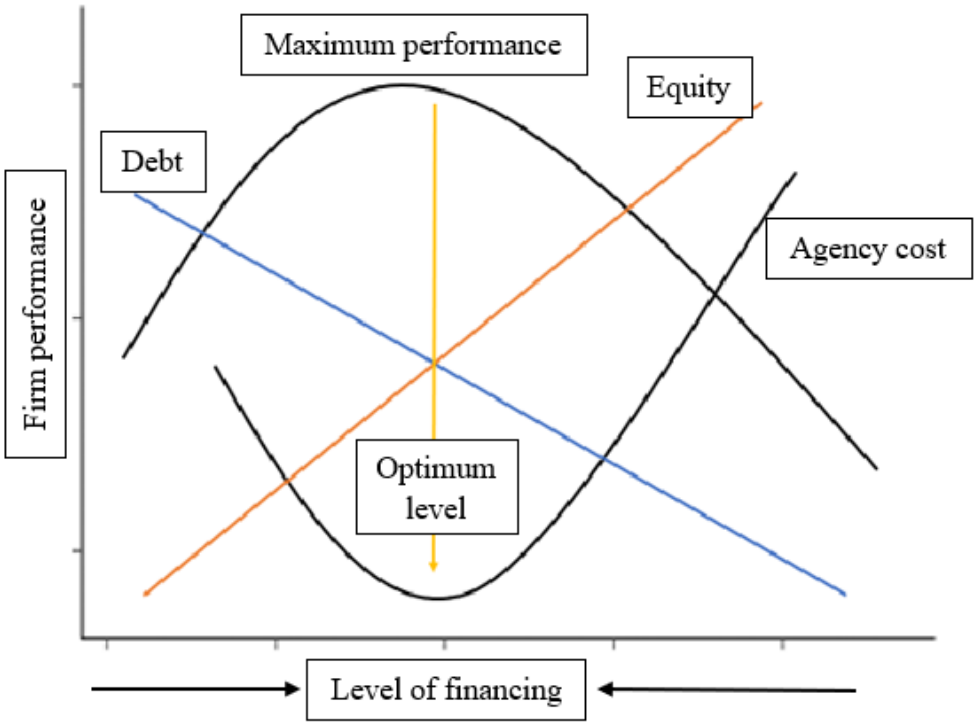

Figure 3. Capital financing, corporate performance, and agency cost
Source: Author elaboration

4.5.4 Robustness check

This research conducted an intensive robustness check to strengthen the findings and increase the validity of our initial results. This is performed by adding country-level macroeconomic factors to the study models. Both Generalized Least Squares (GLS) and Generalized Method of Moments (GMM) estimators were used for examining the robustness check. The use of GMM guarantees a constant assumption of the relationship between the dependent variable's lag and the residuals. This strategic integration aims to minimize the possible influence of extraneous macroeconomic factors on corporate performance. This is especially crucial since the financing structure and business performance may be endogenous; for instance, greater debt may be available to firms that perform well. Robustness tests can also lessen the impact of any restrictions (limitations) in the original model formulation and unobserved firm-specific variation. This technique has also been applied in previous studies by (AHMED ET AL., 2024; TIAN ET AL., 2024).

Tables 14 and 15 demonstrate the results of the robustness check. The results confirm the preliminary findings, showing that under different circumstances, there is an ongoing connection between financial structure and firm performance as well as a moderating influence of agency costs on that link. The comparable results obtained from estimating approaches provide more support to the research by indicating that our findings are not dependent on the specific econometric approach used or any endogeneity problems.

Table 14. Panel regression results (ROA, ROE, and MTBVE) without interaction

Variables	Model 1 (ROA)		Model 2 (ROE)		Model 3 (MTBVE)	
	Coef. GLS	**Coef. GMM**	**Coef. GLS**	**Coef. GMM**	**Coef. GLS**	**Coef. GMM**
C	-0.047*** (0.018)	-0.007 (0.023)	-0.403*** (0.038)	-0.263*** (0.048)	7.590*** (0.203)	5.201*** (0.268)
DTAR	-0.083*** (0.007)	-0.059*** (0.007)	-0.058*** (0.016)	-0.040** (0.021)	0.802*** (0.072)	0.248** (0.109)
DTER	0.003*** (0.0008)	0.003** (0.001)	-0.030*** (0.004)	-0.027*** (0.006)	0.714*** (0.021)	0.686*** (0.049)
STDR	-0.034*** (0.008)	-0.024*** (0.009)	-0.121*** (0.017)	-0.095*** (0.020)	-0.251*** (0.084)	-0.162* (0.091)
EMR	-0.003*** (0.0005)	-0.002*** (0.0007)	-0.010*** (0.002)	-0.006*** (0.002)	0.286*** (0.013)	0.222*** (0.030)
AUTR	0.058*** (0.003)	0.050*** (0.005)	0.138*** (0.006)	0.121*** (0.011)	0.482*** (0.034)	0.410*** (0.054)
FMS	0.009*** (0.001)	0.003** (0.002)	0.038*** (0.003)	0.023*** (0.004)	-0.552*** (0.016)	-0.381*** (0.022)
TANGI	-0.059*** (0.006)	-0.040*** (0.008)	-0.099*** (0.011)	-0.062*** (0.014)	0.253*** (0.056)	0.176** (0.070)
GROWTH	0.002*** (0.0005)	0.003*** (0.001)	0.001* (0.0008)	0.003*** (0.001)	0.009*** (0.003)	0.009*** (0.002)
ITO	0.079*** (0.004)	0.078*** (0.005)	0.178*** (0.008)	0.198*** (0.011)	0.271*** (0.034)	0.231*** (0.048)
GDP	0.002*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.002*** (0.0002)	0.003* (0.001)	0.001 (0.001)
INF	0.001*** (0.0001)	0.001*** (0.0001)	0.001*** (0.0001)	0.001*** (0.0002)	0.008*** (0.0007)	0.005*** (0.0006)
ROA_lag1		0.342*** (0.015)				
ROE_lag1				0.297*** (0.016)		
MTBVE _lag1						0.226*** (0.016)
R-Square	0.722	0.587	0.712	0.775	0.934	0.942
Ad. R-Square	0.698	0.548	0.687	0.755	0.928	0.936
F-statistic	30.47		28.93		166.25	
Prob.	0.000		0.000		0.000	
Obs.	5629	5196	5629	5196	5629	5196

*Note: significance levels are *** (1%), ** (5%), * (10%).*

Source: Author elaboration based on EViews output

Table 15. Panel regression results (ROA, ROE, and MTBVE) with interaction

	Model 1 (ROA)		**Model 2 (ROE)**		**Model 3 (MTBVE)**	
Variables	**Coef. GLS**	**Coef. GMM**	**Coef. GLS**	**Coef. GMM**	**Coef. GLS**	**Coef. GMM**
C	-0.058*** (0.027)	-0.022 (0.023)	-0.426*** (0.038)	-0.289*** (0.049)	7.587*** (0.204)	5.321*** (0.266)
DTAR	-0.101*** (0.013)	-0.088*** (0.010)	-0.165*** (0.021)	-0.158*** (0.030)	0.427*** (0.103)	0.104 (0.142)
DTER	0.006*** (0.002)	0.005*** (0.002)	-0.016*** (0.005)	-0.017** (0.009)	0.922*** (0.030)	0.864*** (0.047)
STDR	-0.016* (0.013)	-0.003 (0.011)	-0.104*** (0.023)	-0.065** (0.026)	0.236** (0.115)	0.075 (0.141)
EMR	-0.003*** (0.001)	-0.002** (0.001)	-0.005*** (0.002)	-0.003** (0.001)	0.196*** (0.016)	0.152*** (0.026)
AUTR	0.064*** (0.007)	0.055*** (0.006)	0.159*** (0.009)	0.138*** (0.014)	0.359*** (0.052)	0.306*** (0.089)
AUTR*DTAR	0.044*** (0.021)	0.070*** (0.016)	0.262*** (0.034)	0.310*** (0.060)	0.706*** (0.179)	0.219 (0.244)
AUTR* DTER	-0.007*** (0.003)	-0.005 (0.003)	-0.019** (0.008)	-0.012 (0.015)	-0.320*** (0.036)	-0.285*** (0.076)
AUTR* STDR	-0.026** (0.024)	-0.048*** (0.018)	-0.100*** (0.034)	-0.160*** (0.048)	-0.914*** (0.194)	-0.360 (0.255)
AUTR*EMR	-0.001 (0.002)	-0.002 (0.002)	-0.015*** (0.004)	-0.012*** (0.004)	0.140*** (0.019)	0.117*** (0.040)
FMS	0.010*** (0.002)	0.005*** (0.002)	0.039*** (0.003)	0.025*** (0.004)	-0.546*** (0.016)	-0.385*** (0.022)
TANGI	-0.057*** (0.010)	-0.040*** (0.008)	-0.094*** (0.011)	-0.061*** (0.015)	0.278*** (0.055)	0.179** (0.072)
GROWTH	0.002*** (0.001)	0.003*** (0.001)	0.001 (0.0008)	0.002** (0.001)	0.010*** (0.003)	0.010*** (0.002)
ITO	0.079*** (0.005)	0.078*** (0.005)	0.184*** (0.008)	0.204*** (0.012)	0.272*** (0.033)	0.224*** (0.049)
GDP	0.001*** (0.0001)	0.001*** (0.0001)	0.002*** (0.0002)	0.002*** (0.0002)	0.002** (0.001)	0.001 (0.001)
INF	0.001*** (0.0001)	0.001*** (0.0001)	0.001*** (0.0001)	0.001*** (0.0002)	0.008*** (0.0007)	0.006*** (0.0007)
ROA_lag1		0.337*** (0.015)				
ROE_lag1				0.291*** (0.017)		
MTBVE _lag1						0.220*** (0.016)
R-Square	0.726	0.778	0.738	0.794	0.931	0.944
Ad. R-Square	0.702	0.757	0.715	0.774	0.925	0.938
F-statistic	30.74		32.65		157.57	
Prob.	0.000		0.000		0.000	
Obs.	5629	5196	5629	5196	5629	5196

*Note: significance levels are *** (1%), ** (5%), * (10%).*

Source: Author elaboration based on EViews output

4.5.5 Additional analysis based on the qualitative evidence

A qualitative assessment was also carried out as an additional and complementary analysis to the quantitative study to give a deeper comprehension of the outcomes. The quantitative results were supplemented with insightful information from the qualitative investigation, in which I used a qualitative case study technique. The statistical associations that were identified were better understood and contextualized due to this investigation. As illustrated in Figures 4 and 5, the qualitative analysis shows a U-shaped link between financial structure, corporate performance, and agency expenses, which supports the findings from the quantitative analysis.

As demonstrated by the low frequency of conflicts between managers and owners, this corresponds to stable or improving financial performance combined with continuously reduced agency expenses. A lack of financing from outside limits expansion and may impair performance in businesses that depend entirely on internal finance. There are negative effects when this ideal debt limit is not met (having debt above the optimum level). There is a growth in agency expenses when the firms rely on a high level of debt or equity. However, climbing beyond this ideal debt (optimum level of debt) leads to adverse consequences. This is because relieved of the burden of repaying debt, managers can set their own goals, which might cause ownership conflicts and eventually hurt the bottom line of the company.

Moreover, managers are relieved from the responsibility of prioritizing cash flow for debt repayment when there is a significant debt burden. Due to their independence, they might pursue personal objectives that diverge from the interests of shareholders, bringing the opportunity for ownership disagreements. Therefore, the bottom line (profitability) of the company may ultimately suffer from these conflicts. This idea is in line with arguments that excessive amounts of debt bring high agency expenses and related issues, and consequently, firm performance will be diminished.

Overall, the findings display that business performance is significantly influenced by financial structure, and this relationship is significantly moderated by agency costs. The present research focuses on the Middle Eastern capital market; therefore, the results may not be applied in other regions. Nevertheless, the knowledge obtained presents the framework for comprehending the moderating influence of agency costs. Therefore, additional research can broaden these conclusions by using data from other countries or regions that offer comparability and solve the problems of generalizability.

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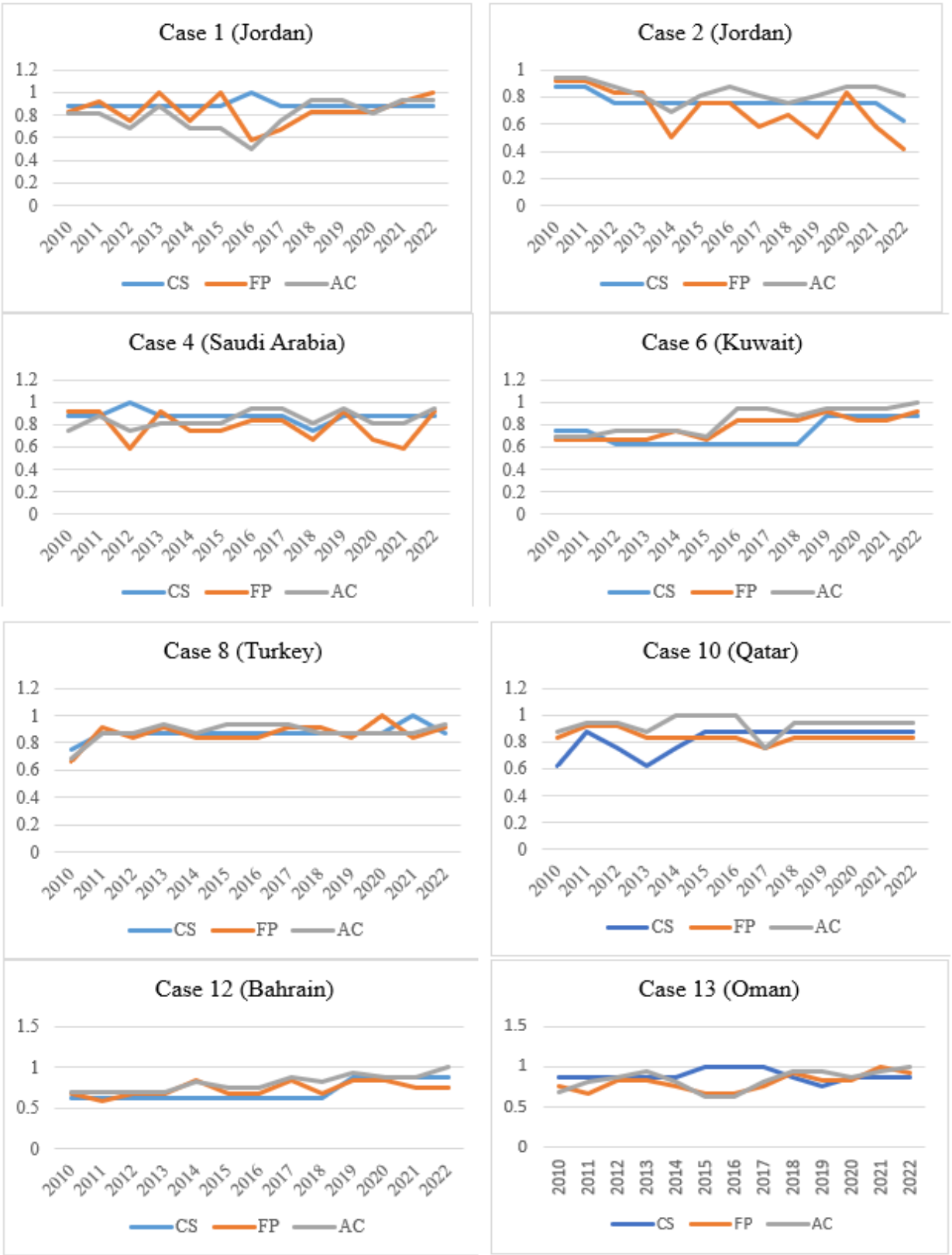

Figure 4. The wave of agency cost when the firms changed capital structure decisions
Source: Author elaboration based on qualitative analysis

Figure 5. The wave of agency costs when the firms have not changed their capital structure decisions

Source: Author elaboration based on qualitative analysis

5 CONCLUSION, POLICY IMPLICATION, AND LIMITATION

5.1 Conclusion

In a highly competitive environment, firms suffer a variety of challenges and difficulties in obtaining their objective of profitability and high performance. Therefore, the decisions that are made by managers regarding asset management and capital structure must be carefully analyzed before they are implemented. In order to follow the principle of sustainability and develop the financial outcomes, companies need to assess their performance and explore the possible advantages of utilizing resources. According to agency theory, the conflict of interest that results from the separation of duties between managers and principals minimizes firm performance and profitability. Nevertheless, the theory claims that debt at the balanced level can be applied as a form of discipline and minimize agency problems, and enhance profitability. The main objective of this study is to expand the current literature by empirically examining hypotheses related to the association between financial structure, agency costs, and company performance. Moreover, it examines how agency costs as a moderator affect the nexus between capital structure and firm outcomes among non-financial firms recorded on Middle Eastern capital markets. Finally, it will examine the validity and usefulness of the application of agency theory.

The study adopts a mixed-method approach, drawing on both quantitative and qualitative data collection techniques. The primary method of providing evidence for obtaining research objectives and testing study hypotheses is quantitative data. The quantitative data comes from balanced panel data and was collected from reputable financial databases such as Thomson Reuters Eikon and also from audited annual reports of 433 non-financial firms listed on Middle Eastern stock markets over the period 2010-2022. Additionally, qualitative data based on a case study approach in conjunction with quantitative analysis is used in this study to complement and support the quantitative results.

Using a panel econometric approach, namely a GLS regression model, the results show that the structure of firm capital indicated by (DTAR, DTER, and EMR) has a significant and negative impact on firm performance (ROA and ROE), but a positive impact on market performance (MTBVE). This claims that high dependence on excessive amounts of debt in forming capital is harmful to the company, as they are expected to be risky and more expensive. STDR is also found to affect all performance metrics inversely. This is due to STDT's habit of carrying higher and more frequent interest payments in comparison to long-term debt. Asset utilization ratio (AUTR) has a positive and significant effect on all performance proxies, suggesting that agency costs hamper firm achievements. This means that when managers utilize assets efficiently and effectively, they can reach beneficial goals, such as a larger market share, more profits for shareholders, and higher profitability.

Further, our analysis finds that agency costs, as assessed by (AUTR), significantly moderate the link between financial leverage and firm performance. This suggests a U-shaped correlation when performance climbs with debt until reaching the optimum level and then ultimately drops due to a high level of debt and related agency costs (weak asset utilization). However, when reaching the optimum level (balanced capital structure), the firm's performance is improved due to low agency costs related (High asset utilization), that is agency cost significantly moderate the connection between financing and firm achievements. To confirm the validity, consistency, and accuracy of the results derived from the preliminary outcomes, a robustness test was conducted. The results of these tests confirm the preliminary findings, showing that under different

circumstances, there is an ongoing connection between corporate performance and financial structure as well as a moderating influence of agency cost on the above relation.
Moreover, the qualitative analysis also supports and complements the U-shaped relationship observed from the quantitative analysis between financial structure, business performance, and agency expenses. These findings validate the empirical agency theory, that managers are prevented from executing unconscious and hasty decisions by mounting debt. This policy also limits managers' autonomy to pursue self-serving actions because debt encourages management to prioritize shareholder value first.

5.2 Policy implications

Based on the study findings, we provide the following practical implications that highlight the potential significance of the results.
1. This thesis examines the empirical relationship between financial leverage and corporate performance. It also investigates how this link is strengthened or weakened by agency costs. This study contributes new and novel findings from a less developed region to a library of previously published work regarding the relationship between financial structure with business performance, and expands the corpus of knowledge already available in corporate finance and accounting literature. It also fills the gap in the literature by utilizing the long-term perspective and accounting for the moderating influence of agency cost on the aforementioned relation.
2. It is suggested that policymakers and banks in the Middle East regulate the amount of debt acquired by non-financial firms and encourage them to strive for a well-rounded capital structure that encompasses both debt and equity financing. This avoids the problem of relying excessively on debt or equity.
3. Strategies that enhance the utilization of firms' assets should be supported by laws and policies. This can reduce agency costs and enhance the performance of the company as a whole.
4. The influence on possible agency costs should be taken into consideration by stakeholders and policymakers when creating organizational governance structures or financial legislation. Minimizing conflicts of interest and encouraging actions that benefit owners must be the primary objectives of policy.
5. The research emphasizes the necessity of financial literacy for corporate entities, particularly in choosing the best financial policy. From this perspective, conferences, business debates, workshops, training, and other educational programs could be helpful to provide knowledge for the firms that need to make financial decisions.
6. The findings indicate that the Middle Eastern financial markets need an efficient regulatory framework. This approach needs to strike a balance between protecting investors and making it easier for firms to obtain financing.

5.3 Limitation

Similar to previous studies, this research has some limitations, and they are listed below:
1. The present investigation employed data from listed non-financial firms, as these companies allow all parties to make investments and hold a portion of the firm by selling stocks in the marketplace. Therefore, it is recommended for future studies to conduct a study and incorporate data from non-listed firms to see if any comparable findings can be found, as they do not have a stock market and their ownership is held by a limited number of investors.

2. Given that Middle Eastern financial institutions are expected to have distinct and unique financial and regulatory requirements, we encourage future research to examine the links that have been taken into account in our analysis.
3. The results of the current research are focused on the Middle Eastern stock market, which limits how broadly they can be applied to other regions. Nonetheless, the knowledge acquired establishes the foundation for comprehending the moderating effect of agency issues. By adding more countries or regions, future research could broaden this study, enabling comparisons and resolving the generalizability problem.
4. In order to reduce the bias caused by missing variables, future studies could examine the moderating role of certain macroeconomic parameters in the relationship between financial structure and company performance. It is assumed that the economic conditions of a given region have some bearing on the corporate-level variables, including performance and important choices made by the company's manager.
5. Since the field of behavioral finance has developed, studies related to agency problems and associated costs are required to make sure businesses can optimize their profits while maintaining a suitable level of borrowing in their capital framework.

6 NEW AND NOVEL SCIENTIFIC FINDINGS

This thesis investigated the interplay dynamic between capital structure and firm financial performance, and it further examines how agency costs moderate the association between these two factors under the consideration of agency theory. It consists of six objectives and eleven hypotheses that were tested through the use of econometric modeling instruments. The findings of this study include some new and novel scientific findings that may serve as a foundation for future investigations. Moreover, further analysis might be executed to utilize novel and supplementary analytical constructions in the research framework, such as creating a multigroup examination for various countries.

1. From the findings of this research, I can confirm that there is a statistically significant and negative connection between financial structure proxies (debt-to-asset ratio, short-term debt ratio, and equity multiplier) and indicators of firm performance (ROA and ROE) among non-financial firms in the Middle Eastern markets. This highlights that firm performance is lowered by excessive borrowing (short- or long-term financing) beyond an optimum level of debt. In addition, the adverse effect of equity multiplier on corporate performance suggests a significant stage of balanced financial structure. This means that a higher equity multiplier is recorded as a result of high financing through debt. If this debt is not controlled well, adequate firm performance may not be achieved due to different interests observed between managers and owners. These findings emphasize financial success and economic expansion in the long run that could be obtained by effective financial management and a reduction in relying high debt burden.

2. From the viewpoint of market performance, I discovered that a balanced level of debt has the potential to develop company performance in the market, improve shareholders' confidence, and stock price growth. Firms that apply a reasonable amount of borrowing have more investment opportunities, and this leads to higher economic activity and higher market perception.

3. The study findings confirm that one of the tools that motivates and disciplines managers is debt funding. This is due to the fact that debt financing puts emphasis on managers to improve the firm's cash flow and participate in attractive project investments. From this perspective, managers are accountable and should continue to meet their commitments and achieve the firm's objectives. Hence, the firm's financial performance can be strengthened and heightened.

4. The findings acknowledge that the financial outcomes of non-financial firms are significantly affected by effective asset use. This claims that when managers utilize assets efficiently, agency cost will be reduced and as a result the performance of non-financial firms is enhanced. Moreover, effective resource utilization can be seen as a good sign of operational performance, and this leads to avoiding intensive conflict that may be observed between owners and managers through supervising the firm's objectives and managers' plans. The above results are also compatible with stakeholder interests, as an effective management plan helps to increase profitability and pay governments taxes and spend funds in building social infrastructure.

5. Based on the results, I can also verify that the relationship between capital structure and agency costs is significantly affected by moderating variables such as agency costs. This implies that the magnitude of agency costs has a significant impact on determining debt funding and its effect on corporate performance. This novel understanding emphasizes the significant role of a moderate level of debt policy in reducing agency costs, increasing efficiency, and thereby improving firm value. It also implies firms should use both internal efficiency and external financing choices to fund their projects. In other words, enhanced business performance across all indicators (ROA, ROE, MTBV) is the result of a balanced capital structure (combination of debt and equity) with efficient handling of assets.

6. From the findings of this research, I discovered the continued usefulness, applicability, and validity of agency theory through understanding the association between the financial structure and performance of the firms among non-financial firms registered on the Middle Eastern stock market, particularly when the different objectives between agents and principals exist. This finding emphasizes accountability and competent governance that help in supporting reasonable economic policies and inequalities.

7 LIST OF MY PUBLICATIONS

A. Scientific journal articles in English

1. AHMED, A.M*, NUGRAHA, D.P., & HÁGEN, I. (2024). Assessing the Impact of COVID-19 on Capital Structure Dynamics: Evidence from GCC Economies. *Economies, 12*(5), 103. https://doi.org/10.3390/economies12050103 **(Scopus Q2 & WOS)**

2. NOFRIANTO, N., NUGRAHA, D.P., **AHMED, A.M***, MUTTAQIN, Z., FEKETE-FARKAS, M., & HÁGEN, I. (2024). Exploring the Resilience of Islamic Stock in Indonesia and Asian Markets. *Journal of Risk and Financial Management, 17*(6), 239. https://doi.org/10.3390/jrfm17060239 **(Scopus Q2)**

3. HÁGEN, I. Z., & **AHMED, A. M***. (2026). Role of Cost Efficiency, Capital Leverage, and Cost of Capital in Determining Shareholders' Value. *Emerging Science Journal, 10*(1), 542–558. https://doi.org/10.28991/ESJ-2026-010-01-027 **(Scopus Q1)**

4. HÁGEN I, **AHMED A. M***. (2024). Carbon Footprint, Financial Structure, and Firm Valuation: An Empirical Investigation. *Risks, 12*(12):197. https://doi.org/10.3390/risks12120197 **(Scopus Q2 & WOS)**

5. AHMED, A.M*, SHARIF, N.A., ALI, M.N., & HÁGEN, I. (2023). Effect of Firm Size on the Association between Capital Structure and Profitability. *Sustainability, 15*(14), 11196. https://doi.org/10.3390/su151411196 **(Scopus Q1 & WOS)**

6. HÁGEN, I., & **AHMED, A.M*.** (2025). The Dynamic Interplay between Working Capital Management and Profitability: Empirical Insights from European Markets. *DANUBE, 16*(4), 304–317. **(Scopus Q3)**

7. AHMED, A.M*, NUGRAHA, D.P., & HÁGEN, I. (2023). The Relationship between Capital Structure and Firm Performance: The Moderating Role of Agency Cost. *Risks, 11*(6):102. https://doi.org/10.3390/risks11060102 **(Scopus Q2 & WOS)**

8. NUGRAHA, D. P., FAUZAN, H., PUTRA, I., **AHMED, A. M***, FEKETE-FARKAS, M., & HAGEN, I. (2023). The Effect of Consumer Perception Toward Home Financing Moderated by Religious Belief. *Iranian Economic Review*, *29*(2), 645-673. https://doi.org/10.22059/ier.2024.359826.1007731 **(Scopus Q4)**

9. SETIAWAN, B., UTAMI, D., ARIFIN, F., & **AHMED, A.M***. (2025). Exploring the Adoption of Fintech P2P Financing Among MSMEs Practitioners: MGA and IPMA Approaches. *Sriwijaya International Journal of Dynamic Economics and Business*, *9*(2), 105–136. https://doi.org/10.29259/sijdeb.v9i2.105-136

10. AHMED, A.M*, ALI, M.N., & HGEN, I. (2023). Corporate governance and capital structure: Evidence from Europe. *International Journal of Professional Business Review, 8*(7), 1-22. https://doi.org/10.26668/businessreview/2023.v8i7.1663

11. AHMED, A.M*, ALI, M.N., & HÁGEN, I. (2023). Corporate Governance and Its Relationship with the Working Capital Management in Europe. *Shirkah: Journal of Economics and Business, 8*(2), 202-217. https://doi.org/10.22515/shirkah.v8i2.609

12. AHMED, A.M*, & HÁGEN, I. (2023). Corporate Governance and its Relationship with Financial Performance in Iraq. *Acta Carolus Robertus, 13*(1), 76–89. https://doi.org/10.33032/acr.4099

13. AHMED, A.M*, Mahmood, M.A, Mustafa, K.H., & HÁGEN, I. (2023). Analyzing the Impact of Financial Ratios on Firm Financial Performance "Applied Study on Agriculture Sector". *Controller Info, SI*. https://controllerinfo.hu/analyzing-the-impact-of-financial-ratios-on-firm-financial-performance-applied-study-on-agriculture-sector/

14. AHMED, A.M*, ZSOLT, T., & ISTVÁN, Z. H. (2024). The Impact of Monetary Policy on Inflation and Financial Stability in Post-Conflict Iraq. *Controller Info, 12*, 8–12. https://controllerinfo.hu/the-impact-of-monetary-policy-on-inflation-and-financial-stability-in-post-conflict-iraq/

15. SETIAWAN, B., PANDU, N.D., **AHMED, A.M***, EMILDA, E., & NATHAN, R.J. (2023). What Drives Individuals to Adopt Fintech: Extended TAM Model with Gender as Moderating Variable. *Jurnal Minds: Manajemen Ide Dan Inspirasi, 10*(1), 1-16. https://doi.org/10.24252/minds.v10i1.35081

16. SALIH, R.H., SANGAWI, S.S., SALIH, K.H., **AHMED, A.M*,** & AHMAD, K.K. (2024). The Impact of the Current Ratio and Profitability Ratio on Solvency Ratios: An Applied Study in the Tehran Stock Exchange. *Tikrit Journal of Administrative and Economic Sciences, 20*(65, part 1), 314–330. https://doi.org/10.25130/tjaes.20.65.1.18

17. AHMED, A.M* (2025). Financial Market Development and its Implication on Economic Performance: Evidence from APEC countries. *Academic Journal of International University of Erbil, 2*(2), 149-159. https://doi.org/10.63841/iue22595

18. AHMED, A.M* (2025). Factors affecting the financial outcomes of Iraqi-listed banks. *Academic Journal of International University of Erbil, 2*(3), 274-283. https://doi.org/10.63841/iue23583

19. ALI, M.N., & **AHMED, A.M*** (2023). The Phenomenon of Money Laundering and Its Impact on Economic Growth in Iraq. *Journal of Kurdistani for Strategic Studies, 6*, 249-265.

20. AHMED, A.M* (2022). The Relationship Between Firm Size and Profitability: "Evidence from the Commercial Banks in Iraq". *The Scientific Journal of Cihan University–Sulaimaniya, 6*(1), 145-156. https://doi.org/10.25098/6.1.34

21. ALI, M.N., & **AHMED, A.M*** (2023). The Effect of Capital Structure on Financial Performance "Applied study in Turkish Stock Exchange". *Eurasian Journal of Management & Social Sciences, 2*(3), 43-57. https://ejmss.tiu.edu.iq/volume-2-issue-3-article-4/

22. AHMED, A.M* (2020). Consumer Behavior toward the Use of Credit Cards: The Empirical Evidence from Iraq. *Shirkah: Journal of Economics and Business, 5*(1), 53-69. https://doi.org/10.22515/shirkah.v5i1.303

23. Mustafa, K.H., & **AHMED, A.M*** (2020). A Critical Review of the Market Efficiency Concept. *Shirkah: Journal of Economics and Business, 5*(2), 271-285. https://doi.org/10.22515/shirkah.v5i2.326

24. AHMED, A.M*, & ALI, M.N. (2020). The Impact of Taxation as An Aid to Economic Development (Applied Study in Kurdistan Regional Government). *Studies and Scientific Researches. Economics Edition, 31*, 6-16. https://doi.org/10.29358/sceco.v0i31.453

25. AHMED, A.M* (2018). The Impact of Financial Statement Analysis on the Profitability Assessment (Applied Study of Kirkuk Company for Producing Constructional Materials). *Studies and Scientific Researches. Economics Edition, 28*, 19-30. https://doi.org/10.29358/sceco.v0i28.417

26. SULAIMAN, O.I., & **AHMED, A.M*** (2016). The Impact of Reviewing Interim Financial Reports on the Investors Decisions in Kurdistan Region. *International Journal of Scientific & Technology Research 5*(12), 221-225.

27. AHMED, A.M*, & MUHAMMED, A.A. (2018). Internal Control Systems and Its Relationships with the Financial Performance in Telecommunication Companies "A Case Study of Asiacell". *Studies and Scientific Researches. Economics Edition, 28*, 6-18. https://doi.org/10.29358/sceco.v0i28.416

B. Scientific journal articles in other language

28. MUHAMMAD, A.A., **AHMED, A.M***, & FATTAH, N.H. (2021). The Impact of Changes in Government Accounting Policies to Achieve the Requirements of Administrative Reform: (Reconnaissance study of a sample of government departments operating in Sulaimaniyah province - Kurdistan province of Iraq). *The Scientific Journal of Cihan University– Sulaimaniya, 4*(2), 312-330. https://doi.org/10.25098/4.2.14

C. Conference publication in English

29. AHMED, A.M*, FEKETE-FARKAS, M., HÁGEN, I. (2024). Do Profitability and Leverage Influence Dividend Policy? Evidence from Emerging Countries. In: Kot, S., Khalid, B., Haque, A.u. (eds) Corporate Practices: Policies, Methodologies, and Insights in Organizational Management. EEEU 2023. *Springer Proceedings in Business and Economics*. Springer. (pp. 495-509). https://doi.org/10.1007/978-981-97-0996-0_29 **(Scopus indexed)**

30. AHMED, A.M*, BUJDOSÓ, Z., HÁGEN, I. (2025). Examining the Effects of Innovation, Market Competition, and Financial Choice on Firm Value. In: Kot, S., Khalid, B., ul Haque, A. (eds) New Challenges of the Global Economy for Business Management. EEEU 2024. *Springer Proceedings in Business and Economics*. Springer. (pp. 21-38). https://doi.org/10.1007/978-981-96-4116-1_2 **(Scopus indexed)**

31. AHMED, A.M*, NUGRAHA, D.P., MAHMOOD, M.A., & HÁGEN, I. (2023). Working Capital Management and Profitability: Evidence from Europe. *International CEO Communication, Economics, Organization & Social Sciences Congress (CEOSSC)*. Acacia University, United States of America (Host University for 6th CEO Congress), 23-34. ISBN: 9786259915708

32. AHMED, A.M* (2019). The Development of Statements of Accounting Concepts and Accounting Standards in Less-Developed Countries "in the Case of Oil Producing Countries". *International Conference on Accounting, Business, Economics and Politics (ICABEP),* 102-109. https://doi.org/10.23918/ICABEP2019p14

D. Book chapter in English

33. AHMED, A.M*, NUGRAHA, D.P., & HÁGEN, I. (2024). Corporate Governance and Sustainable Improvement of Islamic Banking Performance in Iraq. In *Development of Islamic Economy: Lesson Learned from Various Countries,* (pp. 1-25). Yayasan Bhakti Masyarakat Ekonomi Syariah. ISBN: 9786239490218

34. AHMED, A.M*, & HÁGEN, I. (2024). The Role of Islamic Banking on Iraqi Economic Development. In *Development of Islamic Economy: Lesson Learned from Various Countries,* (pp. 96-118). Yayasan Bhakti Masyarakat Ekonomi Syariah. ISBN: 9786239490218

E. Papers accepted and will be published later

35. HÁGEN, I., & **AHMED, A.M*.** (2026). Analyzing the Impact of FDI, Government Debt, and Economic Indicators on Renewable Energy Development. *Montenegrin Journal of Economics 22*(4), 45-56. **(Scopus Q3)**

F. Papers submitted (Under Review)

36. YAMAN, B., NUGRAHA, D. P., MUBAROK, F., **AHMED, A. M***, FARKAS, M. F., HAGEN, I., & TÉGLA, Z. (2025). The Effect of Environment Social Governance on Firm Value in Southeast Asia: The Moderating Role of Digitalization. *Journal of Risk and Financial Management*. **(Scopus Q2)**

37. AHMED, A.M*, & HÁGEN, I. (2025). AI-Driven Industry 4.0: Enhancing Auditing, Corporate Governance, and Financial Performance. *Regional and Business Studies*.

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