Finans Politik & Ekonomik Yorumlar (675) Mart 2026: 237-266
Araştırma Makalesi

FACTORS AFFECTING THE CAPITAL STRUCTURE OF ENTERPRISES: THE CASE OF GULF COOPERATION COUNCIL FOR ARAB STATES (GCC)

Mehmet AKARÇAY[1]

Gönderim tarihi: 09.07.2025 *Kabul tarihi: 04.03.2026*

Abstract

The empirical findings of this study provide important insights into the determinants of capital structure in GCC countries. The negative association between leverage and liquidity, as measured by the acid-test ratio, suggests that firms with stronger short-term solvency tend to rely less on external debt, which is consistent with the pecking order theory. Similarly, the inverse relationship between asset structure and leverage indicates that firms with higher proportions of tangible assets may prefer internal financing mechanisms. In contrast, the positive and statistically significant effects of non-debt tax shields, firm growth, and firm size on leverage imply that larger and growing firms in GCC economies are more inclined to use debt financing, possibly due to better access to capital markets and lower borrowing costs. Moreover, the presence of bidirectional Granger causality between leverage and key firm-specific variables highlights the dynamic and interdependent nature of capital structure decisions in the region.

Keywords: Capital Structure, Leverage Rate, Panel Data

Jel Classification: C25, G30, G32

İŞLETMELERİN SERMAYE YAPILARINI ETKİLEYEN FAKTÖRLER: KÖRFEZ ARAP ÜLKELERİ İŞ BİRLİĞİ KONSEYİ (GCC) ÖRNEĞİ

Özet

Bu çalışmanın ampirik bulguları, Körfez İşbirliği Konseyi (GCC) ülkelerindeki sermaye yapısının belirleyicilerine ilişkin önemli bilgiler sağlamaktadır. Asit testi oranı ile ölçülen likidite ile kaldıraç arasındaki negatif ilişki, daha güçlü kısa vadeli ödeme gücüne sahip firmaların dış borçlanmaya daha az bağımlı olma eğiliminde olduğunu göstermektedir ki bu da hiyerarşik sıralama teorisiyle tutarlıdır. Benzer şekilde, varlık yapısı ile kaldıraç arasındaki ters ilişki, daha yüksek oranda maddi varlığa sahip firmaların iç finansman mekanizmalarını tercih edebileceğini göstermektedir. Buna karşılık, borç dışı vergi kalkanlarının, firma büyümesinin ve firma büyüklüğünün kaldıraç üzerindeki pozitif ve istatistiksel olarak anlamlı etkileri, GCC ekonomilerindeki daha büyük ve büyüyen firmaların, muhtemelen sermaye piyasalarına daha iyi erişim ve daha düşük borçlanma maliyetleri nedeniyle borç finansmanını kullanmaya daha yatkın olduğunu ima etmektedir. Dahası, kaldıraç ile temel firma özel değişkenleri arasında çift yönlü Granger nedenselliğinin varlığı, bölgedeki sermaye yapısı kararlarının dinamik ve birbirine bağımlı doğasını vurgulamaktadır.

Anahtar Kelimeler: Sermaye Yapısı, Panel Veri, Kaldıraç Oranı

Jel Sınıflandırması: C25, G30, G32

[1] Assist. Prof. Dr., Kırşehir Ahi Evran Üniversitesi Mucur Meslek Yüksekokulu, Kırşehir/Türkiye
Email: ahievran.akarcay@gmail.com. ORCID: 0000-0003-1933-3510

1. Introduction

In today's globalized environment, intensifying competition and heightened financial uncertainty are compelling firms across sectors to enhance their competitiveness merely to survive. Achieving a truly competitive position requires the adoption of contemporary strategies and innovations that enable firms to succeed in international markets. However, these strategic and innovative initiatives typically require substantial financial resources. To design, implement, and sustain such initiatives, companies must secure adequate funding and capital. This financing can be obtained from internal sources, such as retained earnings and operating cash flows, or from external sources, including commercial banks and other financial institutions, as well as through the issuance of new equity, bonds, or various forms of debt financing (Endri et al., 2021).

A firm's capital structure is a critical component of its financial strategy, significantly influencing its ability to exploit investment opportunities, enhance overall performance, and ensure long-term sustainability (Attia et al., 2023). This financial configuration directly shapes the firm's ability to meet shareholder expectations and deliver superior returns. In this context, an appropriately designed capital structure is essential for firms to withstand and navigate the pressures of today's highly competitive environment. Since the seminal contribution of Modigliani and Miller in 1958, extensive research has examined capital structure and its determinants. The original proposition that under conditions of perfect capital markets, with no taxes or bankruptcy costs, a firm's value is independent of its capital structure has progressively been revised. Contemporary financial theory widely acknowledges that firms tend to exhibit an optimal capital structure, defined as the most advantageous combination of debt and equity. This optimal mix emerges from a careful assessment of the trade-off between the benefits of debt (such as tax shields and potentially lower cost of capital) and its associated costs, including financial distress and agency problems (Boodhoo, 2009).

The work of Modigliani and Miller (1958) on the structure and cost of capital in the field of finance forms the basis of studies that continue to this day. While their initial theory, positing which capital structure is unrelated to firm value under ideal marketplace and tax-free situations, laid a crucial groundwork, it also paved the way for the prevailing contemporary view. This modern perspective proposes that an optimal combination of equity and debt

exists for sole proprietors, achieved by carefully balancing the costs and benefits of debt within the capital structure (Khaki & Akin, 2020).

Generally, there isn't extensive research on capital structure determinants in the GCC region when looking at international and Turkish academic studies. This research aims to identify the components influencing the capital structures of companies in the GCC region. Specifically, it seeks to determine these factors for the top 10 companies by market value in each GCC country (excluding financial companies), using quarterly financial data from 2015 to 2024. The leverage ratio is the dependent variable in this panel data regression analysis. This research, by covering quarterly financial data from 2015 to 2024 and analyzing a total of 60 companies (10 from each country with the highest market value and complete financial data in Bahrain, Oman, Saudi Arabia, Qatar, UAE, and Kuwait), stands out for its distinctiveness and relevance compared to other studies. Studies on the determinants of capital structure in GCC countries mostly rely on annual data and large, heterogeneous firm samples, and they do not provide a comprehensive analysis of causality using quarterly data for the firms with the highest market capitalization. Addressing this gap, this study examines the determinants of leverage for the 60 largest non-financial companies (by market value) across the six GCC countries over the period 2015–2024, using quarterly data. The determinants of leverage are tested through panel regression and Granger causality analyses, thereby filling a significant void in the literature in terms of data frequency, sample design, and methodological approach.

While prior GCC studies have typically examined the relationship between capital structure and firm performance using annual data, this study analyzes leverage dynamics at a much higher temporal resolution by employing quarterly data for the 2015–2024 period. Unlike earlier GCC research that relies on broad samples of firms of varying sizes and sectors, this study includes, in each country, the ten largest non-financial firms by market capitalization, thereby distinguishing itself by focusing on the capital structure determinants of the region’s largest corporations. In the existing GCC literature, leverage is most often used as a control variable to explain firm performance or corporate social responsibility, whereas this study departs from that approach by treating the leverage ratio as the dependent variable and directly examining the factors that determine capital structure. Furthermore, while most previous GCC studies are confined to periods such as 2005–2017 or 2015–2020, this

study covers 2015–2024, offering a more up-to-date and extended time frame that jointly captures oil price shocks and the post-COVID-19 period, thus clearly setting itself apart from earlier work.

2. Literature Review

Pahuja and Sahi (2012) investigated what drives capital structure decisions for Indian businesses. They examined the balance sheets of thirty companies from the Bombay Stock Exchange's SENSEX index between 2008 and 2010. Using panel data regression, with the debt/equity ratio as the dependent variable, their empirical findings indicated, for the companies examined, growth and liquidity ratios emerged as the predominant determinants influencing their capital structure decisions. The findings are supported by the pecking order theory of capital structure theories.

Jöeveer (2013) explored the factors determining capital structure for firms on nine European countries, considering firm-level, country-level, and macroeconomic perspectives. Their empirical findings indicated that roughly half of the observed variation in leverage ratios, particularly those linked to national contexts, could be accounted for by identifiable macroeconomic and institutional factors. The remaining portion was attributed to unquantifiable differences in institutional frameworks.

Abdioğlu & Deniz (2015) conducted research specifically examining the determiners of capital structure for industrial companies traded on the Borsa Istanbul (BIST). They conducted a panel data regression analysis using financial statement data from 188 companies for the period 2009- 2013. With the leverage ratio as the dependent variable, their empirical findings revealed a statistically significant negative relationship between profitability ratio, liquidity ratio variables, and capital structure. However, they concluded that company growth and size variables didn’t have a significant relationship with capital structure. The findings support the assumptions of the pecking order theory, one of the theories of capital structure.

Chandra (2015) investigated the components affecting the capital structure of firms in Indonesia's Kompas index. This involved linear regression analysis using financial statement data from 77 companies. Their empirical findings, using the leverage ratio as the dependent variable, suggested that size, profitability ratio, growth rate, the ratio of short-term loan to total assets significantly impacted capital structure. Conversely, the tangible fixed asset ratio,

tangibility, and business risk did not show a significant effect. The findings are supported by the pecking order theory of capital structure theories.

Burucu and Öndeş (2016) analyze the firm-level determinants of capital structure within the Turkish manufacturing sector by focusing on companies listed on Borsa Istanbul (BIST). The study applies panel data techniques to a longitudinal dataset comprising 50 manufacturing firms over the 1990–2014 period. Estimation results obtained from leverage-based regression models reveal that firm size, the composition of assets, profitability, and liquidity conditions are inversely related to firms' leverage ratios. By contrast, indicators reflecting firms' expansion potential and growth performance are shown to be positively and significantly associated with leverage. Overall, the empirical evidence aligns with the financing hierarchy proposed by the pecking order theory, suggesting that firms' capital structure decisions are largely shaped by internal financing considerations.

Söylemez (2019) examines the determinants of capital structure decisions among firms operating in the steel and primary metal industry listed on Borsa Istanbul (BIST). Utilizing panel data regression techniques, the study analyzes financial statement information from 13 firms over the 2010–2017 period. The empirical framework is based on three alternative model specifications. The estimation results indicate that leverage is negatively and statistically associated with both liquidity and firm size. In contrast, non-debt tax shields and profitability are found to exert a positive and statistically significant influence on firms' leverage levels. Overall, the empirical evidence is consistent with the implications of both the trade-off theory and the pecking order theory in explaining firms' financing behavior.

Alitani (2020) investigates the determinants of corporate capital structure in firms operating across GCC and G7 countries by jointly incorporating firm-level and country-level characteristics into the analysis. The empirical results indicate that tangible asset intensity exerts a stronger and more pronounced influence on financing decisions in GCC economies than in G7 economies. Moreover, the study provides evidence that capital structure choices in GCC firms are predominantly driven by firm-specific attributes rather than macro-level factors. Taken together, these findings lend empirical support to theoretical frameworks emphasizing information asymmetry and agency cost considerations in corporate financing decisions.

Khaki & Akin (2020) examined both country and regional levels to find evidence regarding the factors of capital structures for financial companies operating in GCC countries and any differences. They argued that asset size, tangible fixed asset ratio, and market value-to-book value ratio positively influenced the dependent variable (leverage ratio), while profitability ratio, firm age, financial constraints, and liquidity ratios had negative effects on it. Their empirical findings also indicated that the institutional structures of GCC countries had only unimportant impact on leverage within a general regional model.

Nguyen and Tran (2020) examine the determinants of capital structure among construction companies listed on the Hanoi Stock Exchange. Employing panel data estimation techniques, the study utilizes firm-level financial statement data from 54 listed construction firms over the 2012–2019 period. The regression results, where the debt-to-equity ratio is specified as the dependent variable, indicate that firm growth and company size are positively and significantly associated with capital structure decisions, whereas profitability exhibits a statistically significant negative relationship with leverage.

Rahman et al. (2023) examined the determinants of capital structure using financial statements from 973 firms belonging to 47 non-financial industries listed in the United Kingdom between 1990 and 2019.Their panel data regression analysis revealed that increases in companies' profitability ratios led to significant decreases in leverage ratios. They also found that companies with tangible fixed assets used significantly more account in their capital structure.

Abdulbasith and Al-Fayoumi (2024) analyze the factors shaping the capital structure decisions of Islamic banks operating in GCC countries. Relying on regression-based estimations, the study examines financial data obtained from 12 Islamic banks over the 2005–2014 period. The empirical evidence indicates that leverage is positively associated with bank size and the market-to-book value ratio, while it is negatively related to return on assets, the proportion of tangible fixed assets, and the level of financial market development. Overall, these results are consistent with the financing hierarchy proposed by the pecking order theory.

Abdala et al. (2025) investigate capital structure determinants in family-owned firms located in GCC member states, with particular emphasis on firm-specific characteristics and their influence on leverage behavior. Utilizing firm-level financial data spanning the 2015–2023 period, the authors apply panel data regression techniques. The findings reveal that

higher profitability and increased sales levels are linked to lower debt usage among firms, thereby providing empirical support for the pecking order theory in the context of family businesses.

Mirgen (2025) explored the elements affecting the capital structure of arms industry enterprises operating in Türkiye. Using quarterly financial data from 2011Q1-2023Q3, their empirical findings implied a statistically negative correlation between capital structure and liquidity rate. Opposed to there was a statistically positive and notable correlation with liquidity ratio, non-debt tax shield, and operating profit margin. Mirgen (2025) also argued that arms industry companies should grade strategic considerations like operational efficiency, liquidity management, and tax advantages in their capital structure resolutions.

3. Data and Methodology

3.1. Data Set and Sample Selection

This study examines the determinants of capital structure for non-financial firms operating in the Gulf Cooperation Council (GCC) countries. The sample consists of 60 publicly listed non-financial firms, selected as the top 10 firms by market capitalization in each GCC country (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). Financial institutions are excluded due to their distinct regulatory and balance- sheet structures.

The dataset covers the period from 2015Q1 to 2024Q4 and is constructed using quarterly financial statements, resulting in a balanced panel with 2.400 firm–quarter observations (60 firms × 40 quarters). All financial data are obtained from the StockAnalysis database. The empirical analysis is conducted using EViews 15.

The use of quarterly data allows for a more precise examination of short-run dynamics in capital structure decisions, which are often obscured in studies relying on annual data. In the panel data regression model in which the leverage ratio is taken as the dependent variable, the following sample hypotheses are formulated for the independent variables based on theoretical expectations:

H1: As firms' tangible fixed asset ratio increases, their leverage ratio is expected to increase (Trade-Off Theory).

H2: As firms' profitability increases, their leverage ratio is expected to decrease (Pecking Order Theory).

H3: As firm size increases, the leverage ratio is expected to increase (Trade-Off Theory).

H4: As firms' acid-test ratio increases, their leverage ratio is expected to decrease (Pecking Order Theory).

H5: As firms' growth rate increases, the leverage ratio is expected to increase (Pecking Order Theory).

H6: As firms' operating leverage increases, the leverage ratio is expected to increase (Trade-Off Theory).

H7: As firms' non-debt tax shields increase, their leverage ratio is expected to decrease (Trade-Off Theory).

3.2. Variable Definitions

The dependent variable in the analysis is the leverage ratio (LR), which serves as a proxy for firms' capital structure and is defined as total liabilities divided by total assets.

The explanatory variables are selected based on theoretical considerations and prior empirical literature on capital structure. Table 1 summarizes the variables, their abbreviations, and measurement definitions.

Table 1. Variables used in the study and their abbreviations

Leverage Ratio (LR)	Total Liabilities / Total Assets
Tangible Assets Ratio (TAR)	Property, plant, and equipment divided by total assets. This variable captures asset tangibility and collateral value.
Profitability Ratio (PR)	Earnings before interest and taxes (EBIT) divided by total assets, representing firms' internal financing capacity.
Firm Size (FS)	Natural logarithm of total assets.
Liquidity (ATO)	Acid-test ratio, calculated as (current assets − inventories) divided by short-term liabilities.
Growth Rate (GR)	Percentage change in total assets relative to the previous period.
Operating Leverage (OL)	Ratio of gross profit to EBIT, used as a proxy for operating risk.
Non-Debt Tax Shield (NDTS)	Depreciation and amortization divided by total assets.

All variables are transformed into natural logarithms to reduce skewness and allow coefficient estimates to be interpreted as elasticities. The tangible assets rate indicates the share of tangible fixed assets in total assets and reflects the level of assets that can be pledged as collateral when needed. Asset tangibility is frequently used as one of the main determinants of capital structure, with the primary aim of measuring its positive or negative effect on firms' leverage ratios. Because collateral value is important for creditors, the ratio of tangible fixed assets becomes a critical variable for explaining firms' borrowing capacity and leverage decisions within the framework of the trade-off and agency theories. The profitability ratio shows how efficiently and effectively a firm uses its assets or equity to generate profit and is generally measured by ROA or ROE. It is one of the most extensively examined determinants in the capital structure literature. The relationship between profitability and leverage is used to test the pecking order and trade-off theories. Since profitability directly affects a firm's internal financing capacity and its need for external debt, it is indispensable for explaining leverage decisions. Business size (firm size) represents the scale of the firm and is usually measured by the natural logarithm of total assets or sales. Firm size is a classical determinant of capital structure and is almost always included as a control variable capturing differences in bankruptcy costs, information asymmetry, and market access. Because borrowing conditions and risk profiles differ between large and small firms, firm size is a structural factor that must be controlled for when explaining leverage ratios.

The acid-test ratio is obtained by dividing current assets excluding inventories by short-term liabilities and is used to measure the firm's capacity to meet its short-term obligations rapidly. Liquidity ratios (current ratio, quick/acid-test ratio) are widely used to test the relationship between leverage, the firm's risk profile, and its internal financing capacity. High liquidity provides an internal funding buffer that can reduce the need for external debt, making its relationship with leverage highly relevant for interpreting the pecking order and trade-off theories. The growth rate is the ratio that shows the impact of the percentage change in sales on the percentage change in operating profit (EBIT). It captures the firm's fixed-cost intensity and business risk. As an indicator of business (operating) risk, it is included in capital structure studies and is generally derived from the variation in sales and EBIT. It is used to incorporate the risk dimension into the model and to test whether firms with higher operating risk take on additional financial risk (debt). The non-debt tax shield is usually measured

in the literature as depreciation/total assets. In the classical capital structure literature, it is treated as a substitute tax shield for the interest tax shield provided by debt, and its effect on leverage is intensively tested, especially within the trade-off theory framework. Since firms that obtain tax savings without using debt enjoy a lower marginal tax advantage from additional borrowing, non-debt tax shields constitute a theoretically crucial variable for understanding leverage decisions.

Taken together, these variables profitability, asset structure, size, liquidity, growth, risk, and tax advantage jointly capture the main dimensions of capital structure and allow the leverage ratio to be explained within both the pecking order and trade-off theory frameworks. Our choice of variables was guided by both national and international academic literature. For example, the leverage ratio specifically drew upon works by Başaran (2008), Frank & Goyal (2009), Cortez & Susanto (2012), Sheikh & Wang (2011), Elitaş & Doğan (2013), Abdioğlu & Deniz (2015), Burucu & Öndeş (2016), Söylemez (2019) and Rahman et al. (2023). The tangible fixed assets/total assets ratio was informed by Başaran (2008), Frank & Goyal (2009), Sheikh & Wang (2011), Cortez & Susanto (2012), Elitaş & Doğan (2013) and Abdioğlu & Deniz (2015). For the profits before interest and taxes/total assets ratio, we considered Başaran (2008), Cortez & Susanto (2012), Sarıoğlu et al. (2013) and Abdioğlu & Deniz (2015). The natural logarithm of total assets was based on Shah & Kausar (2012), Elitaş & Doğan (2013), Abdioğlu & Deniz (2015), Burucu & Öndeş (2016) and Nguyen & Tran (2020). For the growth rate, references included Başaran (2008), Abdioğlu & Deniz (2015), Cortez & Susanto (2012), Gülşen & Ülkütaş (2012), Abdioğlu & Deniz (2015) and Nguyen & Tran (2020). Finally, for the gross profit/profit before interest and tax ratio, we referenced Başaran (2008), Frank & Goyal (2009), Abdioğlu & Deniz (2015), Burucu & Öndeş (2016), Söylemez (2019), Sarıoğlu et al. (2013), Abdioğlu & Deniz (2015) and Söylemez (2019).

3.3. Econometric Model Specification

To investigate the determinants of capital structure, the following panel regression model is estimated:

$$LR_{i,t} = a + \beta_1 TAR_{i,t} + \beta_2 PR_{i,t} + \beta_3 BS_{i,t} + \beta_4 ATO_{i,t} + \beta_5 GR_{i,t} + \beta_6 OL_{i,t} + \beta_7 NDTS_{i,t} + \varepsilon_{I,t} \quad (1)$$

where here *i* denotes firms and *t* denotes time. α is the intercept and β_j are slope coefficients, and ε_{it} is the idiosyncratic error term.

3.4. Panel Data Methodology

Panel data analysis combines cross-sectional and time-series dimensions, allowing for the control of unobserved firm-specific heterogeneity. The baseline panel regression framework can be expressed as:

$$y_{it} = a + a_i + \sum_{k=1}^{K} \beta_k X_{kit} + \varepsilon_{it}$$

Where a_i, represents unobserved, time-invariant firm-specific effects. Depending on the assumptions regarding the correlation between ai and the explanatory variables, two alternative specifications are considered: fixed effects (FE) and random effects (RE) models (Baltagi, 2020).

3.5. Fixed Effects Model

The fixed effects model is designed to examine the relationship between dependent and independent variables by exploiting variation within individual cross-sectional units over time. By allowing each unit such as a firm or country to have its own intercept, the model controls for unobserved, time invariant heterogeneity that may influence the dependent variable. The term fixed effects reflects the assumption that individual-specific characteristics remain constant over the sample period, even though they may differ across units. Moreover, the model assumes that slope coefficients are homogeneous across individuals and time. By focusing on within unit variation, the fixed effects estimator isolates the effects of explanatory variables that change over time, thereby providing consistent estimates when unobserved individual effects are correlated with the regressors. This feature makes the fixed effects model particularly suitable for panel data analyses involving countries or firms with persistent structural differences (Oloyede et al., 2021).

The fixed effects model allows for firm-specific intercepts, thereby controlling for unobserved heterogeneity that may be correlated with the independent variables. The fixed effects specification is written as:

$$y_{it} = a_i + \sum_{k=1}^{K} \beta_k X_{kit} + \varepsilon_{it}$$

This approach exploits within-firm variation over time and yields consistent estimates when firm-specific effects are correlated with the explanatory variables (Baltagi, 2020).

3.6. Random Effects Model

The random effects model is based on the assumption that unobserved individual-specific characteristics are independent of both the explanatory variables and the disturbance term. A notable advantage of this specification is that it allows for the inclusion of regressors that remain constant over time. In contrast to the fixed effects framework where such time-invariant variables are subsumed by unit-specific intercepts the random effects model treats unobserved heterogeneity as a random component rather than a fixed parameter to be estimated. (Sheytanova, 2015; Ejemeyovwi et al., 2019).

The random effects model assumes that firm-specific effects are uncorrelated with the explanatory variables and are randomly distributed:

$$y_{it} = a + \sum_{k=1}^{K} \beta_k X_{kit} + u_i + \varepsilon_{it}$$

where u_i represents the random individual effect and ε_{it} is the idiosyncratic error term Baltagi, 2020).

3.7. Model Selection: Hausman Test

To determine the appropriate panel estimator, the Hausman (1978) specification test is employed. The null hypothesis states that the random effects estimator is consistent and efficient, while the alternative hypothesis favors the fixed effects estimator.

Based on the Hausman test results, the null hypothesis is rejected, indicating that the fixed effects model is more appropriate for the data.

3.8. Robust Estimation

Given the presence of cross-sectional dependence, heteroscedasticity and serial correlation in the panel, conventional standard errors may be biased. Therefore, the regression model is

re-estimated using Driscoll–Kraay standard errors, which are robust to cross-sectional dependence, heteroscedasticity and autocorrelation. This approach ensures reliable statistical inference in panels with large time dimensions.

3.9. Granger Causality Analysis

To examine the direction of causality among the variables, the Dumitrescu–Hurlin (2012) panel Granger causality test is applied. This method accommodates heterogeneity across cross-sectional units and is suitable for panels with moderate time dimensions. The lag length is set to two periods, consistent with standard practice and the dynamic structure of the data. The test evaluates both unidirectional and bidirectional causal relationships at the panel level.

In panel Granger causality analysis, the choice of lag length is of critical importance for the reliability of the estimated relationships. In this study, the lag length is set to two (lag = 2), following the default specification suggested by the panel Granger causality procedure in EViews. This default choice provides a balanced compromise in light of the time dimension of the panel and the dynamic properties of the variables, avoiding excessive parameterization while still allowing short-run causal effects to be captured.

Moreover, fixing the lag length at two lags is consistent with the dynamic structure employed in the panel regression analysis. In the empirical panel-data literature, two-lag specifications are frequently preferred when short-run interactions are of interest and when panels have a medium-length time dimension, as they tend to yield stable and reliable results under such conditions. In this context, adopting the EViews default lag structure ensures coherence between the software's internal optimization logic and the characteristics of the data used in the study.

Finally, there is no methodological conflict between the fixed-effects panel regression estimates and the Dumitrescu–Hurlin panel Granger causality results. On the contrary, the dynamic relationships among the variables are assessed in a way that is internally consistent with the panel structure, providing an integrated and coherent evaluation of causality within the econometric framework.

4. Findings

Table 2 presents the expressive statistics for these companies operating in GCC countries that were included in our analysis.

Table 2. Descriptive statistics for variables

					Jarque-Bera Test	
	A. Mean	**Std. Deviation**	**Skewness**	**Kurtosis**	**Test Statistic**	**p-value**
LR	0.415	0.194	-0.153	2.516	29.846	**0.0001***
ATO	1.818	3.269	9.368	148.709	1963972.744	**0.0001***
BS	7.567	2.801	-0.244	2.278	69.004	**0.0001***
NDTS	0.010	0.011	0.797	42.827	144577.954	**0.0001***
GR	0.012	0.139	15.997	399.286	14383993.637	**0.0001***
OL	2.488	4.718	6.108	80.047	553779.633	**0.0001***
PR	0.022	0.038	5.418	81.524	571798.296	**0.0001***
TAR	0.661	0.197	-1.071	3.980	504.776	**0.0001***

*, $p<0.01$.

Table 2 presents the descriptive statistics for the variables included in the study and the results of the Jarque-Bera test conducted to evaluate the normality assumption. The findings show that the p-values for all variables are statistically significant at the 0.01 level. This means that, according to the Jarque-Bera test, all variables statistically deviate from a normal distribution. Examining the arithmetic mean values for the enterprises in our analysis, we observe that the leverage ratio is 0.415. Consequently, the distributions of all variables in this study are not statistically normal, suggesting that appropriate data transformation techniques should be considered.

Figure 1. Changes in variables over time

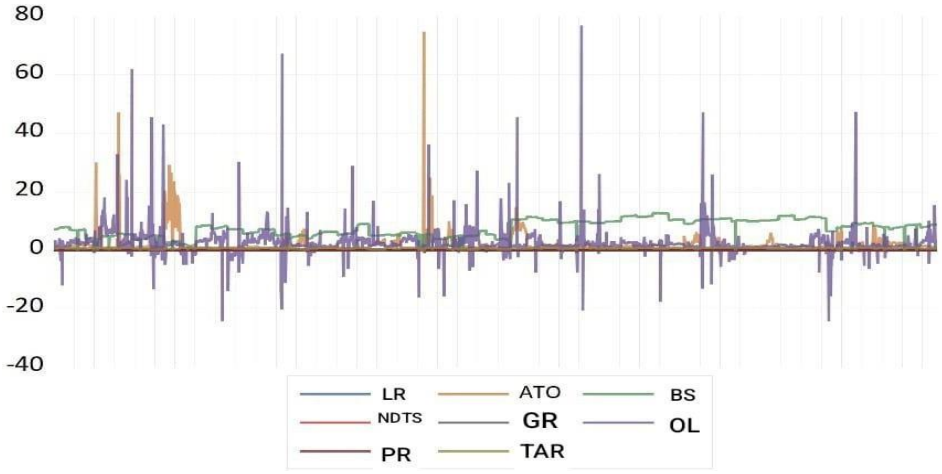

Figure 1 visually represents how the variables in our study have changed over time. A close look at the graph reveals that the Operating Leverage (OL) and Acid-Test Ratio (ATO) variables, in particular, show sudden increases and decreases, indicating high volatility over time. These fluctuations align with the high skewness and kurtosis values we observed in the distributions of these variables. Overall, the graphical patterns are in line with the Jarque–Bera test results, indicating that the majority of the variables do not follow a normal distribution. Table 3 shows the conclusions of the cross-sectional dependence tests, which examine the relationships between the different units of our variables.

H_0: There is no cross- sectional dependence.

H_1: There is cross-sectional dependence.

Table 3. Cross-sectional dependence findings for variables

	Breusch-Pagan LM		Pesaran scaled LM		Bias-corrected scaled LM		Pesaran CD	
	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value
LR	11407.60	0.0001*	177.80	0.0001*	177.07	0.0001*	0.20	0.845
ATO	6664.35	0.0001*	92.33	0.0001*	91.60	0.0001*	3.53	0.0004*
BS	15159.75	0.0001*	245.41	0.0001*	244.67	0.0001*	26.81	0.0001*
NDTS	5260.75	0.0001*	67.04	0.0001*	66.31	0.0001*	4.72	0.0001*
GR	1979.41	0.0001*	7.92	0.0001*	7.18	0.0001*	7.42	0.0001*
OL	2101.97	0.0001*	10.13	0.0001*	9.39	0.0001*	0.50	0.618
PR	16478.68	0.0001*	269.18	0.0001*	268.44	0.0001*	85.56	0.0001*
TAR	9165.15	0.0001*	137.40	0.0001*	136.66	0.0001*	14.78	0.0001*

*, *p<0.01.*

According to the results reported in Table 3, all LM-type tests (Breusch–Pagan LM, scaled LM, and bias-corrected scaled LM) are statistically significant at the 0.01 level for all variables included in the analysis. This indicates that the null hypothesis of no cross-sectional dependence is rejected in favor of the presence of cross-sectional dependence. The Pesaran CD test results, however, differ for some variables. In particular, for the leverage ratio and operating leverage variables, the CD test p-values (0.845 and 0.618, respectively) exceed the conventional significance level. Therefore, for these two variables, the Pesaran CD test does not provide evidence of cross-sectional dependence. For all remaining variables, the p-values of the Pesaran CD test statistics are statistically significant, implying the existence of meaningful interdependencies across cross-sectional units. Overall, when the multiple test results are evaluated jointly, cross-sectional dependence is found to be statistically significant for the vast majority of the variables. Given the presence of cross-sectional dependence, second-generation panel unit root tests are employed for the unit root analysis. The results of these second-generation unit root tests are presented in Table 4.

Hypotheses:

H_0: The series contains a unit root.

H_1: The series does not contain a unit root and is stationary.

Table 4. Second generation unit root test results (PANIC)

Variables	Bai and NG - PANIC		Ahn and Horenstein - PANIC	
	Statistic	p-value	Statistic	p-value
LR	-0.601	0.548	+/- Inf	0.0001*
ATO	+/- Inf	0.0001*	+/- Inf	0.0001*
BS	-3.273	0.0001*	-3.337	0.0001*
NDTS	+/- Inf	0.0001*	+/- Inf	0.0001*
GR	+/- Inf	0.0001*	+/- Inf	0.0001*
OL	+/- Inf	0.0001*	+/- Inf	0.0001*
PR	8.148	0.0001*	+/- Inf	0.0001*
TAR	2.293	0.022**	+/- Inf	0.0001*

**, $p<0.01$, **, $p<0.05$.*

Table 4 reports the results of the second-generation panel unit root tests, namely the Bai and Ng (PANIC) and Ahn and Horenstein (PANIC) tests, which are employed to examine the stationarity properties of the panel data variables. For both tests, the null hypothesis states that the series contain a unit root and are therefore non-stationary. The empirical results indicate that the p-values associated with all variables in both tests are below the 5% significance level, leading to the rejection of the null hypothesis. These findings suggest that the variables are statistically stationary, implying that their means and variances remain stable over time. In addition, Table 5 presents the results of the Pesaran Cross-Sectionally Augmented IPS (CIPS) unit root test.

Table 5. Second Generation unit root test results (Pesaran CIPS)

Variables	Pesaran CIPS				
	t-statistic	Critik Values			p- value
		1%	5%	10%	
LR	-2.167	-2.22	-2.1	-2.04	<0.05
ATO	-2.319	-2.22	-2.1	-2.04	<0.01
BS	-2.596	-2.22	-2.1	-2.04	<0.01
NDTS	-3.075	-2.22	-2.1	-2.04	<0.01
GR	-5.431	-2.22	-2.1	-2.04	<0.01
OL	-4.753	-2.22	-2.1	-2.04	<0.01
PR	-3.800	-2.22	-2.1	-2.04	<0.01
TAR	-2.496	-2.22	-2.1	-2.04	<0.01

The null hypothesis (H0) of the Paseran CIPS test in Table 5 is that the series contains a unit root, meaning it is mobile. However, the test statistics for all variables are below the particular values at the 1%, 5%, and 10% important levels, which means we must reject the null hypothesis.

In building our model, we designated the leverage ratio series as the dependent variable and constructed a regression model accordingly. We took the logarithms of all variables. In order to control for multicollinearity within the independent variables in our regression analyses, we examined their Variance Inflation Factor (VIF) values. Table 6 presents the VIF test findings of the variables.

Table 6. Findings on VIF values

Independent Variables	VIF
ATO	1.046
BS	1.203
NDTS	1.059
GR	1.002
OL	1.026
PR	1.031
TAR	1.215

An examination of the VIF results reported in Table 6 indicates that the VIF values for all explanatory variables are relatively low, ranging from 1.002 to 1.215. These values fall well below commonly accepted threshold levels, suggesting the absence of serious multicollinearity among the independent variables included in the regression model. Accordingly, the degree of correlation among the regressors is unlikely to distort the estimated coefficients, thereby supporting the statistical reliability and robustness of the model estimates.

The Hausman Test is applied in panel data analysis to compare random effects and fixed effects models. Its purpose is to settle that model is the most suitable for the given dataset (Hausman, 1978). Table 7 displays the Hausman Test findings.

H_0: Random effects model is appropriate.

H_1: Fixed effects model is appropriate.

Table 7. Findings regard to Hausman Test

	Hausman Test	
	Test Statistic	p-value
Model	246.09	0.0001*

, p<0.01

According to the Hausman test results reported in Table 7, the test statistic is 246.09, with a corresponding p-value of 0.0001, which is well below the 1% significance level. This finding indicates that the null hypothesis is rejected and that the fixed effects model is statistically more appropriate for the estimation of the model.

Following the determination of the appropriate model, Table 8 presents the results of the Durbin–Watson autocorrelation test, which examines the presence of autocorrelation, one of the key assumptions of this model.

Table 8. Durbin Watson autocorrelation test findings

	Test Statistic	**Critical Value range (α=0.01)**	
		dL	**dU**
Model	0.843	1.887	1.905

In Table 8, the results of the Durbin–Watson autocorrelation test, which is applied to assess whether autocorrelation exists in the error terms—one of the fundamental assumptions of the panel regression model are presented. In this test, the null hypothesis states that there is no first-order positive autocorrelation among the error terms. The obtained test statistic is 0.843, which is substantially below the lower bound critical value (dL = 1.887) and the upper bound critical value (dU = 1.905) at the 1% significance level. This indicates that the test statistic lies outside the inconclusive grey region and leads to the rejection of the null hypothesis. Therefore, the presence of first-order positive autocorrelation in the error terms of the regression model is found to be statistically significant. This finding implies that the dependence structure in the model should not be ignored and that appropriate correction procedures (robust standard errors) must be applied in order to eliminate the effects of autocorrelation. Table 9 presents the outcomes of the heteroscedasticity test.

H_0: There is no varying variance problem in the model.

H_1: There is a varying variance problem in the model.

Table 9. Wald test findings for the detection of constant variance problem

Test Statistic		Degrees of Freedom	p-value
Model	20855.68	56	0.0001*

*, *p<0.01**

According to the Wald test findings presented in Table 9, the Wald test statistic is 20,855.68, with 56 degrees of freedom and a p-value of 0.0001. Since the p-value is smaller than the 0.01 significance level, the null hypothesis H_0 is rejected. Since this situation may

reduce the reliability of the model's estimates and the series are observed to exhibit autocorrelation, the Driscoll–Kraay standard errors estimator is employed in Table 10 to obtain consistent coefficient estimates, and the model is re-estimated accordingly.

Table 10. Coefficients and model findings

	Coefficients (β)	**Drisc/Kraay Std. Error**	**t**	**p-Value**	**Confidence Interval (%95)**	
ln_TAR	-0.079	0.031	-2.580	0.014**	-0.141	-0.017
ln_PR	-0.295	0.092	-3.210	0.003*	-0.481	-0.109
ln_BS	0.225	0.016	14.030	0.0001*	0.193	0.258
ln_ATO	-0.069	0.007	-10.430	0.0001*	-0.082	-0.056
ln_OL	-0.003	0.002	-1.610	0.115	-0.007	0.001
ln_NDTS	0.472	0.270	1.750	0.089	-0.075	1.018
ln_GR	0.009	0.007	1.330	0.190	-0.005	0.023
sabit	-0.030	0.033	-0.910	0.369	-0.097	0.037

**, p<0.01. **, p<0.05.*

The estimation results reported in Table 10 indicate that the coefficient on ln_TAR is negative and statistically significant at the 5% level (β = −0.079). This finding suggests that a 1% increase in TAR leads to an approximate 0.079% decrease in the dependent variable. Similarly, ln_PR exhibits a negative and highly significant relationship with leverage (β = −0.295; p < 0.01), implying that firms in the sample achieve higher profitability with lower leverage ratios. By contrast, the firm size variable (ln_BS) has a positive and statistically significant impact on leverage (β = 0.225; p < 0.01), indicating that larger firms tend to make greater use of debt financing. The coefficient of ln_ATO is also negative and significant at the 1% level (β = −0.069), showing that increases in liquidity contribute to reductions in leverage. Although ln_NDTS is positively related to leverage at the 10% significance level, the coefficients on ln_OL and ln_GR are not statistically significant, suggesting that these variables do not exert a meaningful influence on the dependent variable. The lack of statistical significance of the intercept term indicates that variations in leverage are predominantly explained by proportional changes in the explanatory variables, rather than by a constant effect. Given the log–log functional form of the model, all estimated coefficients can be interpreted as elasticities. Moreover, the use of Driscoll–Kraay standard errors ensures that the

statistical inference is robust in the presence of both autocorrelation and cross-sectional dependence.

Table 11. Granger causality analysis findings

Direction of Causality	F	p-value	Direction of Causality	F	p-value
ATO→ LR	29.609	0.0001*	TAR→ BS	11.728	0.0001*
LR→ ATO	22.226	0.0001*	BS→ TAR	10.961	0.0001*
BS→ LR	7.557	0.001*	OL→ NDTS	2.901	0.055***
LR→ BS	3.035	0.048**	NDTS→ OL	16.650	0.0001*
LR→ NDTS	5.335	0.005*	PR→ NDTS	6.416	0.002*
LR→ OL	3.352	0.035**	NDTS→ PR	11.874	0.0001*
PR→ LR	4.431	0.012**	GR→ TAR	5.681	0.003*
LR→ PR	2.369	0.094***	TAR→ PR	2.487	0.083***
TAR→ LR	8.759	0.0001*	PR→ TAR	4.127	0.016**
LR→ TAR	3.343	0.036**	ATO→ NDTS	3.276	0.038**
BS→ ATO	5.042	0.007*	ATO→ GR	10.907	0.0001*
ATO→ BS	17.343	0.0001*	TAR→ ATO	7.163	0.001*
NDTS→ ATO	5.662	0.004*	ATO→ TAR	19.514	0.0001*

*, *p<0.01,* **, *p<0.05,* ***, *p<0.10.*

According to the Granger causality analysis findings presented in Table 11, statistically significant bidirectional and unidirectional causal relationships are identified among the variables. For example, there is a bidirectional causal relationship between ATO and LR; statistically significant relationships are observed both from ATO to LR (ATO → LR; F = 29.609, p = 0.0001) and from LR to ATO (LR → ATO; F = 22.226, p = 0.0001). This result indicates that the leverage ratio and the acid-test ratio mutually influence each other. Similarly, significant bidirectional causality is detected from BS to LR (BS → LR; F = 7.557, p = 0.001) and from LR to BS (LR → BS; F = 3.035, p = 0.048). In addition, there is statistically significant bidirectional causality between TAR and LR in both directions (TAR → LR and LR → TAR) with p-values of 0.0001 and 0.036, respectively. By contrast, some variable pairs exhibit only unidirectional causality. For instance, while the NDTS → LR relationship is statistically insignificant (p = 0.963), the reverse direction LR → NDTS is significant (F = 5.335, p = 0.005). Likewise, although the direction ATO → TAR is significant (F = 19.514,

p = 0.0001), the opposite direction (TAR → ATO; F = 7.163, p = 0.001) is also significant, confirming a bidirectional relationship. For some variable pairs, causal relationships are weak or statistically insignificant. Examples include GR → BS (p = 0.438), BS → GR (p = 0.938), and OL → BS (p = 0.432), which are therefore regarded as lacking meaningful causality. Overall, the results indicate strong and statistically significant causal relationships among several financial indicators in the model, with evidence of bidirectional causality between certain pairs of variables.

5. Conclusion and Evaluation

Capital structure refers to the mix of equity and debt a firm employs to finance its activities. Businesses require capital to sustain operations, evaluate investment opportunities, and acquire fixed assets. In this context, the choice between external borrowing and internal (self) financing constitutes one of the most critical and strategic financial decisions facing firms. The main objectives underpinning these decisions are to minimize the relative cost of debt and equity, ensure business continuity, and maximize market value. Accordingly, this study uses the leverage ratio as a proxy for capital structure.

This study aims to identify the factors influencing the capital structure of non-financial firms in the Gulf Cooperation Council (GCC) countries. Using quarterly financial data for the period 2015–2024, panel data regression and Granger causality analyses are conducted for 60 publicly traded companies (10 from each GCC country), selected as the largest by market capitalization and excluding financial firms. The main proxy for capital structure is the leverage ratio. The Tangible Fixed Assets/Total Assets ratio is used to represent asset structure, while the Earnings Before Interest and Taxes/Total Assets ratio measures profitability. The natural logarithm of total resources is included to capture firm size, and acid test ratio is incorporated to assess firms' liquidity. Finally, Gross Profit/Pre-Interest and Pre-Tax Profit is employed to measure operating leverage, Total Depreciation and Amortization/Total Assets is used to compute the non-debt tax shield ratio, and these variables are included in the model as independent variables.

The empirical findings of the panel data regression analysis indicate that the coefficient of the tangible assets ratio variable is -0.079, and this effect is statistically significant. This

result shows that a one-unit logarithmic increase in the tangible assets ratio leads to approximately a 7.9% decrease in the dependent variable. According to trade-off theory, as the proportion of tangible fixed assets increases, firms' collateral value in borrowing rises and their debt capacity expands; therefore, the coefficient would be expected to be positive. A key explanation for the negative sign may be that, for firms operating in GCC countries, a stronger asset base enhances internal financing capacity, thereby reducing their need for external debt (a pecking order effect). In addition, banks in these countries may place greater emphasis on non-collateral factors, which weakens the role of tangible fixed assets in borrowing decisions. The sectoral structure (for example, high capital intensity but a weak tradition of debt financing) may also help explain this negative relationship.

Another variable that is found to be significant within the scope of the panel data regression analysis is the profitability ratio. The coefficient of the profitability ratio variable is -0.295, indicating that this effect is statistically significant. This result shows that a one-unit logarithmic increase in firms' profitability ratio leads to approximately a 29.5% decrease in the leverage ratio. According to the pecking order theory, profitable firms primarily use internal funds (retained earnings); therefore, a decrease in leverage as profitability increases (negative coefficient) is an expected outcome. The result obtained from the regression analysis is consistent with the pecking order theory. Firms operating in the GCC region tend to use their profits first to finance investment and growth, and rely less on external debt. In addition, high profitability increases the accumulation of equity, mechanically reducing the debt-to-equity ratio. Relatively weak tax advantages or high borrowing costs may further reinforce the tendency of profitable firms to avoid debt.

The coefficient of the firm size variable, which is found to be statistically significant in the estimated model, is 0.225, indicating a very high level of significance. As firm size increases, the leverage ratio increases strongly. According to trade-off theory, large firms borrow more easily and at a lower cost because information asymmetry is lower and bankruptcy risk is reduced; therefore, a positive relationship between size and leverage is expected as firm size increases. This result is consistent with trade-off theory. In the GCC, large-scale firms generally have better access to banks and capital markets, and possess stronger collateral and reputational structures. In addition, because large firms tend to have larger project

scales, their dependence on external finance may increase. Government support and credit channels working in favor of large firms can also strengthen this positive relationship.

The coefficient of the Acid-Test Ratio variable is -0.069 and is also highly significant. As firms' liquidity ratios increase, their level of indebtedness decreases. High liquidity can increase debt-servicing capacity and thus make higher borrowing possible (a positive expectation); however, from a pecking order perspective, high liquidity implies abundant internal funds, which reduces the need for external debt and thus may indicate a negative relationship. The literature reports evidence in both directions. This finding is more in line with the pecking order perspective. As the level of cash and cash-like liquid assets increases in GCC firms, they tend to finance their investments and operations with these internal resources, thereby reducing the need for borrowing. Moreover, high liquidity may be the result of prudent risk management and a preference for low debt; macro risks such as oil price volatility may have encouraged firms to remain liquid and low leveraged.

The Operating Leverage variable is negative and not statistically significant. As operating leverage increases, the firm's business risk rises. According to trade-off theory, firms with riskier cash flows tend to avoid additional financial leverage; therefore, a negative relationship between operating and financial leverage is theoretically expected. However, the model does not identify a clear effect of operating leverage on leverage. This may be because borrowing decisions in the GCC are driven primarily by collateral, firm size, and profitability, while business risk remains of secondary importance. In addition, possible data limitations in measuring operating leverage or sectoral heterogeneity may have prevented the emergence of statistical significance.

The coefficient of the Non-Debt Tax Shield variable is positive and statistically insignificant. Trade-off theory predicts that as non-debt tax shields such as depreciation increase, firms can obtain tax benefits without relying on debt, weakening the tax-shield role of borrowing; hence, a negative relationship between NDTS and leverage is expected. The positive and weakly significant result is opposite to this classical prediction. The design of GCC tax regimes (low corporate tax rates and specific exemptions in some countries) may limit the tax-shield role of debt; in this setting, the expected substitution between NDTS and debt may be blurred. Moreover, high depreciation and similar expenses are typically associated with

large, capital-intensive projects, which may simultaneously trigger higher borrowing and thus explain the positive sign.

The Growth Rate variable has a positive and insignificant coefficient. High-growth firms are usually characterized by strong financing needs and relatively limited tangible collateral, relying more on expected future earnings. From a pecking order perspective, when internal funds are insufficient, these firms may prefer external equity to debt because of information asymmetry; therefore, a negative or ambiguous relationship between growth and leverage is expected. Some trade-off arguments, however, suggest a positive relationship due to profitable investment opportunities. In the estimated regression model, growth has no statistically significant effect on leverage. In the GCC context, growth investments may be funded through equity issuance, government partnerships, or project finance structures that do not fully appear as on-balance-sheet debt. Furthermore, volatility in growth rates and in the indicators used to measure growth (such as sales growth) may have weakened the statistical relationship. When these findings are compared with the literature, they are consistent with the results of Abdioğlu and Deniz (2015), Chandra (2015), Burucu and Öndeş (2016), Söylemez (2019), Khaki and Akin (2020), Rahman et al. (2023), and Mirgen (2025).

The intercept term is -0.030 and not statistically significant. The intercept represents the level of leverage when all independent variables are zero in logarithmic terms; it generally lacks a specific theoretical interpretation and instead reflects the model's overall equilibrium level. The insignificance of the intercept indicates that the variation in leverage is primarily explained by the regressors, with no structural constant bias. This can be viewed as a technical indication that the model specification is broadly reasonable.

Capital structure regression results indicate that hybrid (mixed) capital structure theories are valid for GCC firms. The strong and negative relationship between profitability and leverage, showing that profitable firms primarily rely on internal funds and postpone borrowing, is fully consistent with the classical Pecking Order theory. Similarly, the negative association between liquidity and indebtedness suggests that firms with high cash holdings and current assets tend to meet their financing needs through self-financing, which is also explained by the Pecking Order framework. In contrast, the positive relationship between firm size and leverage aligns with Trade-Off theory, which posits that larger firms, due to their lower bankruptcy risk, stronger collateral base, and easier access to capital markets, enjoy higher debt

capacity. Recent empirical studies on GCC economies emphasize that no single theory can fully explain firms' financing choices; rather, Pecking Order mechanisms dominate for internal factors such as profitability and liquidity, while Trade-Off mechanisms are more relevant for firm size and adjustment toward target leverage ratios. In this context, the regression findings suggest that capital structure decisions in the GCC cannot be captured within a single theoretical lens and instead point to a hybrid configuration in which Pecking Order and Trade-Off theories operate as complementary mechanisms.

The findings of the Granger causality test reveal significant bidirectional and unidirectional causality relationships between the variables. There is a bidirectional causality correlation between the acid test ratio and the leverage ratio; statistically important relationships are found both in the direction of ATO → LR and LR → ATO. This shows that leverage ratio and acid test ratio variables mutually affect each other. Similarly, BS → There is a significant bidirectional relationship in the LR and LR→ BS directions. Moreover, there is a statistically significance bidirectional causation in the directions of TAR→ LR and LR → TAR. However, only one-way causality is found between some variables. For example, while the NDTS → LR relationship is not significant, the LR → NDTS direction is significant. Similarly, while the ATO → TAR direction is significant, the opposite direction is also significant. In general, it is accomplished that there are strong and statistically significance causal relationships between many fiscal indicators in the model, and bidirectional causality between some pairs of variables.

The findings of this study indicate that capital structure decisions of firms in GCC countries are largely determined by firm-specific factors. This underscores the importance of institutional and market-based regulations in the design of policies aimed at enhancing the effectiveness of corporate financing decisions. First, deepening capital markets and diversifying financing instruments are of critical importance in enabling firms to achieve a more balanced debt–equity structure. Regulatory measures aimed at facilitating initial public offerings and developing bond and sukuk markets would help reduce firms' excessive reliance on bank-based financing.

Moreover, reducing financial constraints particularly those faced by small and medium-sized enterprises is essential. Strengthening credit rating mechanisms and promoting non-

bank financing instruments would enhance firms' financial flexibility and positively influence their capital structure decisions. In addition, improving the level of corporate governance and transparency would contribute to lowering the cost of capital by mitigating information asymmetry. The wider adoption of international financial reporting standards and the effective implementation of corporate governance principles constitute key policy areas for fostering investor confidence. Finally, in the context of the low-tax environment prevailing in GCC countries, the design of incentive mechanisms that support investment and capital accumulation, along with the expansion of managerial training programs aimed at enhancing financial decision-making capacity, would contribute to the formation of more sustainable long-term capital structures.

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