Review MECAS V° 22/ N°1 / June 2026

Determinants of Capital Structure in Economic Companies: An Econometric Study of Economic Companies Listed on the Qatar Stock Exchange (2020 – 2024)

Damene Ouahiba [1]
Laboratory of Marketing and Economic Studies and Research / Lecturer A /Ferhat Abbas University - Setif 1-(Algeria)
ouahiba.damene@univ-setif.dz

Korichi Kenza
Laboratory of Partnership and Investment in SME in the Euro Maghreb space / Lecturer B / Ferhat Abbas University - Setif 1-(Algeria)
kenza.korichi@univ-setif.dz

Received date: 25.03.2026, Accepted date : 02.05.2026, Publication date: 02.06.2026

Abstract: This study aims to analyze the determinants of capital structure in companies listed on the Qatar Stock Exchange during the period (2020–2024). The analysis employs Panel data models to estimate cross-sectional regression models. The results indicate a statistically significant negative relationship between company size and the debt ratio, consistent with the Pecking Order Theory, while economic return shows a strong negative association with leverage, reflecting the preference of highly profitable companies for internal financing. Non current assets (guarantees) exhibit a negative relationship with leverage, contrary to the Trade off Theory, but consistent with the Agency Theory perspective. Moreover, company growth rate is positively associated with leverage, whereas general liquidity does not have a statistically significant effect on the debt ratio.

Keywords: Financial structure, Financial leverage, Determinants, Financial Theories, Qatar Stock Exchange.
Jel Classification Codes: C23; G31; G32; G15; L25

Introduction

The financial structure is considered one of the strategic pillars in financial management, where the efficiency of the company is reflected in its ability to form a financing mix that aligns with its needs and expansion aspirations. This financial preference encounters the inevitability of costs associated with each financial resource, whether derived from internal sources (equity) or external borrowing. This has made the issue of determining the appropriate financing mix one of the most debated problems in financial thought. Companies strive hard to find a precise balance point that achieves a harmony between the financial stability ensured by equity funds, and the tax advantages and financial leverage provided by borrowing.

[1]Corresponding Author

This endows this process with significant strategic importance that intersects with the goals of financial solvency and balanced growth of companies.

Understanding the financing behavior of these companies requires uncovering the real determinants that explain the variation in each choice from one company to another. These are not just numbers, they are variables that reflect the companies's strategy and its ability to face risks. Additionally, choosing an appropriate financial structure, whether relying on equity funds, borrowed funds, or a mix of both, requires in depth studies as it reflects the company's ability to restructure its financial positions and adapt to the internal and external conditions surrounding it.

Based on the above, this study aims to analyze the determinants of the financial structure in economic companies thru an empirical study targeting a sample of companies listed on the Qatar Stock Exchange during the period (2020–2024); with the aim of identifying the most significant variables affecting the composition of their financial structure, and providing results for decision makers to understand the dynamics of financing within the Qatari financial market. From this standpoint, the main issue of the study crystallizes in the following question:

What are the determinants of the financial structure in economic companies listed on the Qatar Stock Exchange during the period (2020–2024)?

Starting from the main hypothesis that **"there are a set of determinants of the financial structure in the economic companies listed on the Qatar Stock Exchange, which include the size of the institution, guaranties, economic profitability, liquidity, and growth rate during the period (2020–2024)."**

- **Study objectives:** The study aims to achieve the following objectives:
  - Addressing the concept of the financial structure of the economic company and the sources of financing that constitute it;
  - Understanding the most important theories explaining the financial structure in economic company;
  - Identifying the most important determinants of the financial structure in the economic company;
  - Building a standard model to explain the financing behavior of economic companies listed on the Qatar Stock Exchange by identifying the key determinants that affect the composition of their financial structure during the period (2020–2024).
- **Importance of the Study:**

The study of the determinants of the financial structure of an economic companies holds significant importance in contemporary financial literature, due to its pivotal role in interpreting financing decisions and achieving a balance between different sources of funds. The financial structure is not merely a technical choice between debt and equity; it represents a strategic decision influenced by a range of internal and external factors. In this context, our study gains its importance from being an empirical standard study conducted on a sample of economic companies listed on the Qatar Stock Exchange during the period (2020–2024). Where it seeks to build a standard model that determines the relative impact of each financial determinant in shaping the financial structure, contributing to a deeper theoretical and practical understanding of financing behaviors in emerging markets, and providing an analytical framework that helps decision-makers in economic companies adopt more efficient financing policies, thereby supporting the

sustainability of financial performance and maximizing the value of the company, especially in light of the economic and financial transformations witnessed during this period.

- **Study Methodology:**

In order to address the posed problem and test the main hypothesis, the descriptive analytical approach will be relied upon as it encompasses several methodologies. This will be applied in the theoretical aspect to identify the most important aspects surrounding the study topic, as well as in the practical aspect, using Eviews 14 to illustrate the impact of independent variables on the dependent variable.

1. Theoretical framework of the study

1.1. The Concept of Financial Structure

Companies rely on various funding sources to support their operations, and this mix of funding sources is known as the financial structure or capital structure of the company (Khan, Akhtar, & Qasem, 2024, p. 18) , It is a pivotal concept in contemporary financial management, representing the mix of long-term funding sources used by companies to finance their activities. This includes common stocks, preferred stocks, bonds, long term loans, and retained earnings (Eid Aljamaan, 2018, p. 50). The financial structure is also defined as the mix of debt and equity used to finance the operational activities of the company and to achieve the strategic goals of financial growth. For this reason, choosing the debt to equity ratio to form an optimal financial structure and increase profit margins is one of the important decisions for companies to ensure their survival in a competitive environment (Rehan, Abdul Hadi , Iqbal Hussai, & Muhammad Adnan Hye , 2023, p. 2). The company's financial structure consists of (Khalfaoui & Medjellekh, 2022, p. 621):

- **Owned financing sources:** that is equity funds that belong to the companies, including issued capital, retained earnings, and reserves;
- **Borrowed financing sources:** that is debts (short and long term) where the company resorts to borrowing from external sources based on specific terms and procedures, and the size of the latter is determined based on the company's ability to meet its obligations.

1.2. The Main Theoretical Approaches to Financial Structure

The choice between different and diverse sources of financing is not made randomly but thru a well-considered decision and specific criteria, aiming to select an appropriate financial structure that balances return and risk with the goal of maximizing the value of the company. In this field, the study of capital structure has started from numerous hypotheses, some of which support the existence of an optimal capital structure that includes ideal ratios of borrowed financing, leading to a reduction in the cost of capital and thus maximizing the value of the company ، (Al-Amri, 2010, p. 172), Others support the neutrality of the impact of capital structure on the value of the company, based on the idea that the activity of the latter and the profitability of its investments are what lead to maximizing its market value.

1.2.1. Net Income Approach (NI) by David Durand (1950)

According to this approach, the value of the company is directly affected by the composition of its financial structure, and the financial structure that maximizes the company's net income is the optimal one for it (Kurada & Addada, 2023, p. 2) ,

this is in the context of market perfection where there are no taxes, transaction costs, bankruptcy, or agency costs, increasing reliance on low cost loans reduces the cost of capital, which positively reflects on the net profit available to shareholders and raises the value of the company. As the debt ratio increases, the cost of capital decreases until it reaches its minimum level and becomes equal to the cost of borrowing, accordingly, the optimal financial structure according to this approach is the structure that includes the highest possible proportion of loans, and the ideal structure is achieved when the company is fully financed by debt (Vadapalli, 2020).

1.2.2. Net Operating Income (NOI) Approach by David Durand (1952)

According to this approach, in a perfect market, the financial structure does not affect the cost of capital or the market value of the company, and the latter is determined solely based on its operating profit after deducting the cost of capital, as operating profit increases, the value of the company rises regardless of the financing method, this means that the choice of the company's financial structure depends on the expected net operating income it will achieve using a different mix of its own and borrowed financing sources, which will have a fixed cost regardless of its composition (Kurada & Addada, 2023, p. 2). To prove his point, this approach assumes that increasing levels of financial leverage will lead to a rise in the cost of equity due to the increased financial risks faced by shareholders. Therefore, the advantages of relying on low cost loans are lost as shareholders demand a higher return to compensate for the additional risks they are exposed to, which makes the cost of capital constant (Zaghib, 2009, p. 155), and thus the value of the company remains constant at all levels of borrowing.

1.2.3. THE Merton Miller & Franco Modigliani Approach

The Modigliani & Miller (M&M) theory (1958) is the cornerstone of capital structure studies, as it states that under perfect market conditions, there is no optimal financial structure, since the value of the company remains constant regardless of its borrowing ratio (Ebied, 2025, p. 1173), the latter depends on the value of its investments, the expected return from them, and the risks that this return may be exposed to, in other words, no matter what mix the structure is composed of financially, the market value of the company is related to investment decisions and not to financing decisions (MODIGLIANI & MILLER, 1958, p. 268). In 1963, (M&M) ventured into the real world, where they dismissed the assumption of tax absence. Under this assumption, "the company whose financial structure includes loans achieve tax savings estimated at the value of the interest multiplied by the tax rate". From this standpoint, (M&M) indicate that the market value of an company whose capital structure consists of loans and equity is equal to the market value of a similar company whose capital structure does not include loans, plus the present value of the tax savings from the interest on the loans (Ahmed, Fekiki, & Sabrou, 2017, p. 84) , this will drive decision makers toward fully relying on debt for financing in order to maximize the value of the company. However, in 1977, (M&M) published a third article that did not only focus on corporate taxes but also included taxes on individual investors that are deducted from their profits, which eliminates the advantage of tax savings, in this context, it was shown that taking into account these two tax systems leads to the same conclusions as in 1958, which is that the method of financing the company does not affect its value, meaning the idea of a financial structure becomes obsolete (Vernimmen).

1.2.4. Agency Theory

The agency theory, developed by Meckling (1976), Berle and Means (1932), and Jensen (1986), asserts the existence of conflicts of interest between management, shareholders, and bondholders, it considers that the optimal capital structure for maximizing the value of the company is one that significantly reduces agency costs (Amanj Mohamed Ahmed, Deni Pandu , & István, 2023, p. 3) , and this cost arises from the agent's actions on behalf of the owner, as shareholders seek to maximize the value of the company, while managers may pursue their own interests. Jensen and Meckling (1976) identify two types of agency costs: the first is "equity agency cost," resulting from the conflict of interest between shareholders and managers, and the second is "debt agency cost," resulting from the conflict of interest between shareholders and bondholders (ADOGBEJI & Ohidoa, 2023, p. 431) , whether the agency cost arises from the conflict between shareholders and managers, or from the conflict between shareholders and lenders, many studies have shown that the agency cost increases with the increase in the borrowing ratio in the company, and the negative impact on the market value of the company also increases, this means that the latter decreases by the present value of the agency cost, as the borrowing ratio increases, the agency cost for equity decreases, while the agency cost for debt increases. Therefore, the optimal financial structure is determined at the optimal point where the total agency costs, whether for debt or equity, are at their lowest (Al-Hasnawi, 2022).

1.2.5. Trade-off Theory (TOT)

The Trade-off Theory of capital structure was introduced by Kraus and Litzenberger (1973) and later developed by Myers and Majluf (1984). According to this theory, there exists an optimal capital structure that maximizes the value of the company while considering the costs associated with financial distress. The company can increase its reliance on borrowing due to its lower real cost until the tax benefits derived from it (tax savings) balance with the increasing costs resulting from potential financial difficulties (Bui, Xuan, & Kieu, 2023, p. 6) . However, increasing the debt ratio beyond a certain limit will result in higher bankruptcy risks due to the possibility of the company being unable to meet its financial obligations toward creditors, this will lead to an increase in the required rate of return from shareholders and lenders, which ultimately results in a higher cost of capital and a decrease in the value of the company (Harkati n. , 2018, p. 218) , therefore, this theory starts from the assumption of the existence of a target debt ratio that reflects the balance between the tax benefits of using borrowing on one hand, and the costs of default, bankruptcy, and financial risks on the other hand, this means that companies will increase their debt until the marginal cost of potential financial distress or bankruptcy equals the marginal benefit of an additional unit of debt, which is primarily represented by the tax exemption (KOUNOUWEWA & Deng, 2024, p. 30).

1.2.6. Pecking Order Theory (POT)

This theory was developed by Myers (1984) and serves as a complements the trade off theory, as it assumes that companies prefer internal financing over external financing, meaning they prioritize the use of retained earnings and only resort to external financing when necessary, when arranging the latter, companies first resort to borrowing, then issue bonds, and as a last resort, issue stocks (Jahanzeb, Saif, &

ALL, 2014, p. 13), The financing hierarchy theory does not invalidate the arguments presented by previous theories regarding the importance of tax advantages and financial constraints on debt, instead, it emphasizes that the order in which companies resort to financing sources is more important than these factors, typically, the financial structure of well performing companies includes little debt because they rely on their internal resources and do not need external financing. In contrast, poorly performing companies often suffer from high levels of debt due to a lack of sufficient internal financing for their projects, forcing them to seek external financing to sustain their operations. As a result, the observed debt ratio for each company reflects the increasing need for external financing, which has grown over time in response to their performance and financing requirements (Bui, Xuan, & Kieu, 2023, p. 7).

1.3. Determinants of the Financial Structure

The decision to choose the financial structure is one of the most complex financial decisions faced by an economic company , due to its direct connection to the cost of capital and the value of the company. This decision is not made in isolation from the surrounding circumstances, but rather is subject to a set of intertwined factors and variables known as determinants, which can be divided into quantitative and qualitative determinants.

2.3.1. Quantitative Determinants of Financial Structure

- **Size of the company:** is considered a crucial distinguishing factor in choosing the financing structure, as it is related to the company's ability to access financial resources and the cost of these resources, large companies tend to have more complex financial structures and rely more on debt compared to small companies (Hakmaoui & Yerrou, 2014, p. 84), the size of the company is usually measured using the logarithm of total assets(Hacini , Mohammedi , & Dahou, 2022, p. 6);
- **Liquidity:** is considered a fundamental determinant of the financial structure, as companies with high levels of liquid assets tend to reduce their debt levels, this is due to these companies' ability to use their cash surpluses to finance their operational and investment needs, making them less reliant on external borrowing (Saddiqa, Rehmanؘ, & Mehmood Kan, 2024, p. 18) . Liquidity is measured by the ratio of current assets to current liabilities (Hacini , Mohammedi , & Dahou, 2022) ;
- **Profitability:** The profitability index is considered one of the most prominent and important indicators that assist in financial decision making, it reflects the company's ability and efficiency in generating revenues and controlling costs, especially the cost of borrowing with the increased use of debt, consequently, we find that the financial manager seeks to balance profitability and growth (Bekkari & Guemou, 2017, p. 166) ;
- **Growth rate**: Sales are considered a fundamental guaranty for the company and its survival in the market, as their growth indicates the achievement of profits and internal financing. This contributes to an increase in retained earnings, which the company uses as self financing, the growth of the latter may lead the company to avoid borrowing or at least ensure that it will repay others' money in case of borrowing. On the other hand, an company that enjoys sales growth and stability can also use a high degree of financial leverage, as it will not face difficulty in meeting its obligations (Benzamia, Hariri, & Ali Benyahia, 2021, p. 159);

- **Operational Risks**: Operational risks are among the most influential factors on business risks, the higher the operational risks, the higher the business risks. Operational risks refer to the extent of change in net operating profit resulting from changes in sales value. Most empirical studies show that an increase in operational risks drives company management to reduce the debt ratio in their financial structures and to rely more on equity funds for financing to avoid the risk of increased likelihood of financial failure in meeting obligations to creditors (Herkati, 2018, p. 220);
- **Asset structure:** Asset structuring is one of the determinants of the financial structure, as financial theories have focused on how to arrange funding sources to prevent the company from facing financial distress, which puts it at risk due to its inability to pay interest and loans on the due date. Therefore, companies whose assets provide a significant element of security to lenders (the size of non current assets) resort to financing their activities thru debt (Benzamia, Hariri, & Ali Benyahia, 2021, p. 159).

1.3.2. Qalitative Determinants of the Financial Structure

- **Suitability:** It refers to the extent to which the sources of funds used align with the nature of the assets that will be financed from these sources. This factor requires establishing a connection between the expected cash flows from the use of the assets and the cash outflows to settle the obligations arising from owning these assets. The general rule in financing is that non current assets should be financed from long term funding sources such as equity or long term loans, while short term sources are suitable for financing current assets. The process of aligning the nature of the sources with the nature of short term uses is essential to establish a connection between the expected cash flows from the financed assets and the settlement of the obligations arising from acquiring these assets (Bourbia, (2011- 2012), p. 132);
- **Flexibility**: Financial flexibility refers to the company's ability to adjust its financing plan according to changes in financial needs, meaning the alignment between prevailing financial conditions and the financing sources used. It is well-known that companies operate in an unstable environment, which necessitates their continuous capability to face environmental changes and to rearrange their internal situations to suit those environmental developments (Cherabil, (2013-2014), p. 41);
- **Tax savings**: Among the most important advantages of loans as a source of financing for the company is that their interest is considered one of the costs deducted from revenues before calculating the profit tax, this can generate tax savings that have positive effects on the company's net result. Tax savings models predict that when the company's profits are subject to income tax, an increase in the proportion of loans in the financing structure will lead to a decrease in the taxes owed (a reduction in the tax burden), and consequently an increase in after tax cash flows, thereby increasing the value of the company. Hence, it is expected that companies with high tax rates will rely on a large proportion of debt (Tibi & Bekhaoua, 2023, p. 225) .

2. Methodology of the applied study

2.1. Study Population and Sample

The study population consists of all the companies listed on the Qatar Stock Exchange, totaling 53 companies in the main market. The study sample included all companies from the following sectors: industry, services and consumer goods, transportation, and telecommunications, totaling 26 companies whose financial data were collected over the period from 2020 to 2024. This selection was based on several considerations, the most important being the reliance on financial debt for funding. It is worth noting that 3 companies were previously excluded from the sample selection for not meeting this criterion. The total number of observations was 130 (26 companies × 5 years).

2.2. Applied Study Model

After reviewing the theoretical literature, and in order to analyze the impact of independent variables on the financial structure, this study relied on the following model:

$$DR= \beta_0 + \beta_1*TA + \beta_2*GA + \beta_3*RE+ \beta_4*LQ + \beta_5* GR +E$$

Where:

- **The dependent variable (DR):** It stands for (Debt Ratio), which is the indicator that measures the financial structure of the company;
- **Independent variables (determinants**): Size of the company **(TA),** guaranties **(GA),** economic profitability (RE), general liquidity **(LQ)**, growth rate **(GR)**;
- **Statistical parameters (β 0):** The constant represents the value of borrowing when all other determinants are zero;
- **The coefficients β_1 to β_5:** The regression coefficients measure the amount of change in the debt ratio when each determinant changes by one unit;
- **E:** Represents the random error term or other variables that were not included in the model.

The following table presents a summary of the variables employed in the model and the corresponding measurement methods.

Table 1. Variables of the empirical study

variables	code	Account relationship
Debt ratio	DR	DR = Total Debts / Total Assets
Company size	TA	TA= Ln Total Assets
Guarantees	GA	GA= Non-current assets / Total assets
Economic returns	RE	RE= Exploitation result / Total assets
General liquidity	LQ	LQ= Current assets / Short-term debt
Company growth rate	GR	GR=(**Sales** n –**Sales** n-1)/ **Sales** n-1

Source: Prepared by the two researchers.

2.3. Statistical analysis methods used

To estimate the model, the study relied on the Panel Data Method with its three models (Pooled Regression Model, Fixed Effects Model, and Random Effects Model), using the Multiple Linear Regression method, which tests the effect of independent variables on the dependent variable by constructing an equation used for prediction or interpretation. The Redundant Fixed Effects test was also used to differentiate between the Pooled Regression Model (PRM) and the Fixed Effects Model (FEM), and the Hausman test was used to differentiate between the Fixed Effects Model (FEM) and the Random Effects Model (REM).

3. Analysis of the Study Results

3.1. Descriptive Statistics of the Study Variables

Table 2. Descriptive Statistics of the Study Variables

	DR	TA	GA	RE	LQ	GR
Mean	0.514111	19.40851	0.660228	0.053097	2.188728	0.263817
Median	0.450024	19.70170	0.724579	0.044654	1.501280	0.058077
Maximum	8.567893	23.14842	0.975071	0.664991	14.93183	9.772356
Minimum	0.063312	13.79644	0.015452	-0.399141	0.137151	-0.900248
Std. Dev.	0.754492	2.605680	0.237703	0.085664	2.410846	1.230011
Skewness	9.466656	-0.285269	-1.150241	1.929180	2.934233	6.569751
Kurtosis	101.4744	1.815562	3.700532	28.16973	12.26297	48.27867
Jarque-Bera	54468.28	9.362210	31.32437	3512.178	651.3080	12040.19
Probability	0.000000	0.009269	0.000000	0.000000	0.000000	0.000000
Sum	66.83445	2523.107	85.82960	6.902667	284.5346	34.29626
Sum Sq. Dev.	73.43423	875.8545	7.288876	0.946634	749.7708	195.1677
Observations	130	130	130	130	130	130
Cross sections	26	26	26	26	26	26

Source: Prepared by the researchers based on the outputs of the Eviews 14 software.

The table presents the descriptive statistics of the study variables, namely DR, TA, GA, RE, LQ, and GR, based on panel data comprising 130 observations distributed across 26 cross-sectional units. The results indicate that the mean values of DR, TA, GA, RE, LQ, and GR are 0.514, 19.41, 0.66, 0.053, 2.189, and 0.264, respectively. The corresponding standard deviations are 0.754 for DR, which is relatively high, indicating substantial heterogeneity across companies and reflecting differences in their financing policies, 2.61 for TA, suggesting moderate dispersion and relative stability in company sizes within the study sample, 0.238 for GA, implying a relatively homogeneous pattern in non-current asset growth rates among companies, 0.086 for RE, reflecting a strong concentration of values around the mean, 2.41 for LQ, indicating pronounced disparities in liquidity levels across companies, Regarding (GR), its standard deviation reached 1.230, indicating a large fluctuation in growth rates.

With regard to the normality test of the study variables, the skewness coefficients indicate substantial asymmetry, as most values exceed the threshold of ±1. In this context, the DR and GR variables exhibit markedly high positive skewness, suggesting that the data distributions are not symmetric around the mean and display a pronounced rightward tail. Moreover, the kurtosis coefficients reveal very high values exceeding the benchmark value of 3, particularly for DR, RE, GR, and LQ, indicating leptokurtic distributions with positive kurtosis and the presence of extreme values that may influence the mean and bias regression estimates. The results of the Jarque Bera test further confirm the rejection of the null hypothesis of normality for most variables, as the test statistics are exceptionally large and associated with p-values below 5%, implying that the data do not follow a normal distribution. Such findings are common in empirical economic and financial studies relying on panel data, especially given the sample size employed in the analysis.

3.2. Time Series Stationarity Test

To examine the stationarity of the study variables, the Levin Lin Chu (2002) test is employed, which is one of the panel data unit root tests. This test assumes a homogeneous unit root coefficient across all cross-sectional units, implying that the time series dynamics are similar across panels. By applying the test to each variable individually, the following results are obtained:

Table 3. Stationarity of the Study Variables

variables	Statistic	Prob
DR	-53.1610	0.0000
TA	-25.3771	0.0000
GA	-20.6523	0.0000
RE	-6.98097	0.0000
LQ	-22.9318	0.0000
GR	-24.2903	0.0000

Source: Prepared by the researchers based on the Eviews 14 output.

The table results show that the test statistics for all variables DR, TA, GA, RE, LQ, and GR are negative and large in absolute value, with associated p-values equal to 0.0000, which are below the 5% significance level. Accordingly, all study variables are stationary at levels and do not suffer from a unit root problem, that is, they are integrated of order zero, I(0).

3. 3. Panel Data Models and Model Selection

Panel data models will be estimated and compared in order to select the most appropriate model for the study.

3.3.1. Pooled Regression Model (PRM)

This model is considered one of the simplest panel data models, as all coefficients are assumed to be constant across all time periods and any time effects are ignored. It does not account for heterogeneity across companies in other words, the estimation is conducted as if the sample consisted of a single company, thereby disregarding both dimensions of the data time series and cross-sectional units. Accordingly, the pooled regression model can be specified as follows (Ben Amra, 2021, p. 3) : $Y_{it} = \beta_0 + \Sigma_{(j=1\rightarrow k)} \beta_j X_{j(it)} + \varepsilon_i$

Table 4. Pooled Regression Model (PRM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LQ	-0.049100	0.029143	-1.684786	0.0945
RE	-0.534898	0.927626	-0.576631	0.0252
GA	-0.433563	0.298979	-1.450142	0.0495
TA	0.046563	0.011985	3.885007	0.0002
GR	0.020062	0.064587	0.310622	0.0000

Root MSE	0.750123	**R-squared**	0.333885
Mean dependent var	0.514111	**Adjusted R-squared**	0.306987
S.D. dependent var	0.754492	**S.E. of regression**	0.764978
Akaike info criterion	2.339764	**Sum squared resid**	73.14897
Schwarz criterion	2.450054	**Log likelihood**	-147.0846
Hannan-Quinn criter.	2.384578	**Durbin-Watson stat**	1.102010

Source: EViews 14 output.

The estimation results of the (PRM) indicate limited variability in the explanatory power of the independent variables with respect to changes in the dependent variable (DR) , specifically, the coefficient of determination (R^2 = 0.33389) and the adjusted R^2 (0.3070) reflect the weak explanatory capacity of the pooled model, as the independent variables jointly fail to provide a statistically sufficient explanation of the variations in the dependent variable over the study period. In addition, the Durbin Watson statistic suggests the possible presence of positive autocorrelation in the error terms, which further underscores the need to move toward either the fixed effects or random effects models. Such models allow for the examination of unobserved individual effects and contribute to improving the statistical quality of the estimates and the overall goodness of fit of the model.

3.3.2. Fixed Effects Model (FEM)

This model accounts for variations in both the intercept and slope across cross-sectional units within the studied sample, assuming that the parameters vary in a fixed manner. On this basis, it is referred to as the fixed effects model. It captures both the individual and temporal dimensions of a panel data model, allowing for estimation through comparisons of units over time. Accordingly, the model can be specified as follows (Ben Amra, 2021, p. 3): $Yit = \beta_{0(i)} + \Sigma_{(j=1\rightarrow k)} \beta j \, X_{j(it)} + \varepsilon_{it}$

Table 5. Fixed Effects Model (FEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.772435	5.423006	1.617633	0.0089
LQ?	-0.021108	0.046658	-0.452409	0.0590
RE?	-0.547961	1.116283	-0.490880	0.0000
GA?	-0.523370	0.542082	-0.965481	0.0167
TA?	-0.404432	0.279567	-1.446638	0.0012
GR?	0.045266	0.069576	0.650596	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.604302	**R-squared**	0.553522
Mean dependent var	0.514111	**Adjusted R-squared**	0.535590
S.D. dependent var	0.754492	**S.E. of regression**	0.692482
Akaike info criterion	2.307439	**Sum squared resid**	47.47359
Schwarz criterion	2.991236	**Log likelihood**	-118.9836
Hannan-Quinn criter.	2.585289	**F-statistic**	1.804584
Durbin-Watson stat	1.703401	**Prob(F-statistic)**	0.015992

Source: EViews 14 output.

The estimation results of the (FEM) indicate that the explanatory power of the model's variables is relatively acceptable. The coefficient of determination (R^2 = 0.5535) suggests that the independent variables jointly explain approximately 55.35% of the total variance in the dependent variable (DR). The adjusted R^2 value (0.5356) further confirms the model's satisfactory explanatory capacity. Moreover, the F-statistic demonstrates the overall significance of the model at the 5% significance level, indicating that the model is statistically valid and that the fixed effects, representing structural differences across cross-sectional units, contribute substantial explanatory value. Additionally, the Durbin–Watson statistic confirms

the absence of serious autocorrelation in the residuals, which further supports the reliability and quality of the model.

- **Redundant Fixed Effects Test**

To compare the (PRM) and (FEM), the Redundant Fixed Effects Test is used, this test examines whether the fixed effects coefficients representing differences across individuals or cross-sectional units are statistically significant and contribute meaningful explanatory power to the model compared to the pooled model, such that:

- **H_0**: The (PRM) is appropriate, as $p > 0.05$ (no fixed effects exist across cross-sectional units) ;
- **H_1**: The (FEM) is appropriate, as $p < 0.05$ (significant fixed effects exist across cross-sectional units).

Table 6. Redundant Fixed Effects Test

Test	Statistical value	Prob
F- Test	1.661034	0.0413
Chi-square	45.535310	0.0073

Source: EViews 14 output.

Since the p-values associated with both the F and Chi-square statistics are below the significance level (0.05), the null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_1), indicating that the fixed effects model is appropriate. This confirms the presence of statistically significant fixed effects across the cross-sectional units**.**

3.3.3. Random Effects Model (REM)

Unlike the (FEM), the (REM) treats both cross-sectional and temporal effects as random rather than fixed, in this model, the intercept is assumed to vary randomly across units, the appropriate estimation method for this type of model is the generalized least squares (GLS) approach, which combines both between unit and within unit variations in the estimation process. The model can be specified as follows (Ben Amra, 2021, p. 3): $Yit = \beta_0 + \Sigma_{(j=1\rightarrow k)} \beta j\, X_{j(it)} + ui + \varepsilon_{it}$

Table 7. Random Effects Model (REM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.659828	0.623982	2.660056	0.0088
LQ?	-0.053112	0.031445	-1.689027	0.0937
RE?	-0.769697	0.929639	-0.827952	0.0093
GA?	-0.601993	0.334294	-1.800788	0.0742
TA?	-0.031083	0.032039	-0.970178	0.0338
GR?	0.046003	0.061865	0.743601	0.4585
Effects Specification				
			S.D.	**Rho**
Cross-section random			0.275219	0.1364
Idiosyncratic random			0.692482	0.8636
Weighted Statistics				
Root MSE	0.674549		**R-squared**	0.259449
Mean dependent var	0.384287		**Adjusted R-squared**	0.230191

S.D. dependent var	0.698231	**S.E. of regression**	0.690676
Sum squared resid	59.15214	**F-statistic**	1.567526
Durbin-Watson stat	1.370139	**Prob(F-statistic)**	0.174111

Unweighted Statistics

R-squared	0.081067	**Mean dependent var**	0.514111
Sum squared resid	67.48111	**Durbin-Watson stat**	1.201027

Source: EViews 14 output.

The estimation results of the (REM) indicate that the coefficient of determination (R^2 = 0.2594) is low, meaning that the independent variables collectively explain only about 25.94% of the total variance in the dependent variable, reflecting weak explanatory power. The adjusted R^2 (0.2302) further confirms the limited contribution of the explanatory variables, additionally, the F-test shows that the model as a whole is not statistically significant at the 5% level, indicating that the random effects model fails to convincingly explain the relationship between the studied variables. The Durbin–Watson statistic, being close to 2, confirms the absence of significant autocorrelation in the residuals. This suggests that the weakness of the model is not due to standard estimation problems but rather stems from the inadequacy of the random effects assumptions themselves.

- **Hausman Tes**

This test serves to compare the (FEM) and the (REM). If the differences are statistically significant (p-value < 0.05), the (FEM) is preferred. Conversely, if the differences are not significant (p-value > 0.05), the(REM) is considered more efficient and thus more appropriate. Specifically:

- **H_0:** The random effects model (REM) is appropriate ;
- **H_1:** The fixed effects model (FEM) is appropriate.

Table 8. Hausman Test

Test	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob
Cross-section random	24.3540	5	0.0127

Source: EViews 14 output.

We observe that the p-value corresponding to the Chi-square statistic is less than 0.05. Therefore, the null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_1), indicating that the fixed effects model is the appropriate model at the 5% significance level.

3.4. Model Specification and Hypothesis Testing

3.4.1. Study Hypothesis

The study hypothesis can be formulated as follows: **there is a statistically significant effect of financial structure determinants based on, company size, guarantees, economic return, general liquidity and growth rate on the financial structure represented by the leverage ratio, of economic companies listed on the Qatar Stock Exchange during the period 2020–2024.**

To test this hypothesis, it is expressed as:

- **H_0**: There is no statistically significant effect of financial structure determinants based on, company size, guarantees, economic return, general liquidity and growth rate on the financial structure represented by the leverage ratio, of

economic companies listed on the Qatar Stock Exchange during the period 2020–2024.

- **H_1**: There is a statistically significant effect of financial structure determinants based on, company size, guarantees, economic return, general liquidity and growth rate on the financial structure represented by the leverage ratio, of economic companies listed on the Qatar Stock Exchange during the period 2020–2024.

3.4.2. Model Specification

After estimating the parameters of the proposed model, an inverse relationship is observed between the leverage ratio (DR) and each of company size (TA), guarantees (GA), economic return (RE), and liquidity (LQ), whereas a positive relationship is noted with the growth rate (GR). This can be expressed in the following equation:

DR = 8.772435 -0.404432TA - 0.523370 GA - 0.547961 RE - 0.021108 LQ + 0.045266 GR + ε

3.4.3. Model Goodness of Fit Test

Based on the coefficient of determination (R^2), it can be observed that approximately 55.35% of the variations in the leverage ratio (DR) are explained by the independent variables, while the remaining 44.65% of the variations remain unexplained and are attributable to other factors not included in the model.

3.4.4. Statistical Significance Test of Estimated Parameters

To assess the significance of the estimated parameters, the t-statistic is used to test each coefficient individually. According to the Fixed effects model table, the p-values for TA, GA, RE, and GR are 0.0012, 0.0167, 0.0000, and 0.0000, respectively, all of which are below the 5% significance level, this indicates that these coefficients are statistically highly significant over the study period, therefore, the null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_1), which posits that these variables have a significant effect on the financial structure of economic companies listed on the Qatar Stock Exchange during the period 2020–2024.

Meanwhile, the p-value for LQ is 0.0590, which is greater than 5%, indicating that the coefficient of LQ is not statistically significant. Accordingly, the alternative hypothesis (H_1) is rejected in favor of the null hypothesis (H_0), which states that this variable has no significant effect on the financial structure of economic companies listed on the Qatar Stock Exchange during the period 2020–2024.

3.4.5. Model Quality Test

From Table (5) it is observed that the F-statistic is estimated at 1.8046, with an associated p-value (Prob(F-statistic)) of 0.01599, which is below the 5% significance level, this indicates that the model as a whole is statistically significant at the 5% level.

Based on the above:

- The null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_1), which states that there is a statistically significant effect of the financial structure determinants on the financial structure, represented by the leverage ratio (DR) of economic companies listed on the Qatar Stock Exchange during the period 2020–2024, with respect to the variables: company size (TA), guarantees (GA), economic return (RE), and growth rate (GR).

- Conversely, the alternative hypothesis (H_1) is rejected in favor of the null hypothesis (H_0), which states that there is no statistically significant effect of the financial structure determinants on the financial structure, represented by the leverage ratio (DR) of economic companies listed on the Qatar Stock Exchange during the period 2020–2024, with respect to the variable liquidity (LQ).

Conclusion

In conclusion, this study shows that capital structure decisions in economic companies are influenced by a set of interrelated financial and economic determinants, the empirical analysis, conducted on a sample of economic companies listed on the Qatar Stock Exchange over the period 2020–2024, made it possible to identify the nature and significance of these effects, thereby providing a solid scientific basis for explaining financing behavior and supporting sound financial decision-making. Accordingly, the study reached a number of key findings, the most important of which are as follows :

- The determinants of capital structure appear to exert a selective influence on the debt ratio (DR) of the companies under study, which is partially consistent with the prevailing theoretical frameworks in the finance literature. It was found that company size (TA) is negatively associated with the debt ratio, indicating that larger companies rely less on debt, in line with the Pecking Order Theory (POT), which posits that financially strong companies tend to use internal funds before resorting to external borrowing, similarly, Economic Return (RE) exhibited a strong negative relationship with leverage, reinforcing this tendency and highlighting the ability of highly profitable companies to finance their activities from internal resources without the need for debt financing;
- On the other hand, guarantees (GA) show a negative association with leverage, which contrasts with the classical predictions of the Trade off Theory (TOT), where higher non current assets are expected to provide greater collateral and thus facilitate higher borrowing, this result can be interpreted through the lens of Agency Theory, as companies with high fixed assets may avoid debt to circumvent stricter lender constraints and associated agency costs;
- Conversely, the company growth rate (GR) demonstrates a positive relationship with leverage, suggesting that fast growing companies rely more on external financing to support expansion opportunities, which partially reflects the Trade-off Theory's (TOT) emphasis on balancing the cost and benefits of debt;
- Regarding general liquidity, the results indicate that it does not have a significant effect on the capital structure, as represented by the debt ratio, for economic companies listed on the Qatar Stock Exchange during the period 2020–2024;
- Overall, these findings indicate that corporate capital structure choices are determined by a combination of theoretical perspectives, with the Pecking Order Theory (POT) appearing dominant in financing behavior, while Agency Theory and elements of the Trade-off Theory (TOT), provide complementary explanations for some observed relationships. These results contribute to the current empirical literature by offering insights into how company specific characteristics affect debt financing and underscore the importance of extending this analysis across diverse samples and institutional contexts.

Recommendation

- **Diversify Financing Strategies According to company Size:** Since company size (TA) is negatively associated with leverage, larger companies are advised to continue relying primarily on internal funds to reduce borrowing costs and enhance financial flexibility, smaller companies, on the other hand, should adopt balanced financing strategies to meet growth needs without taking excessive financial risks;
- **Utilize Internal Earnings Efficiently:** Given the strong negative relationship between economic return (RE) and leverage, highly profitable companies should prioritize using retained earnings to finance their operations and investments, thereby reducing reliance on debt and strengthening financial stability;
- **Careful Debt Financing for High Growth companies:** The positive relationship between growth rate (GR) and leverage suggests that fast growing companies tend to rely more on external financing. It is recommended that these companies carefully evaluate expansion opportunities and ensure that debt financing supports growth without compromising solvency or increasing financial risk.

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