

CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS IN INDUSTRIAL COMPANIES: EVIDENCE FROM JORDAN

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Abstract

The aim of this study was to investigate the relationship between capital structure and profitability in industrial companies. The study collected data by reviewing the annual financial reports of 32 industrial firms during the period from 2012 to 2022. An analytical descriptive approach was adopted to analyze the data and explore the impact of various financial variables on profitability, measured in terms of Return on Assets (ROA) and Earnings per Share (EPS). The analysis of the data yielded significant findings concerning the interplay of different financial metrics with profitability. Notably, the study revealed that the debt ratio, debt-to-equity ratio, and short-term debt displayed a negative correlation with profitability. These results suggest that higher levels of debt and short-term obligations might have adverse effects on both ROA and EPS, potentially hampering the financial performance of industrial companies in Jordan. Additionally, the study identified a positive association between sales growth and firm size with profitability. This implies that companies experiencing higher sales growth and operating on larger scales tend to exhibit improved profitability, as reflected in both ROA and EPS. Such findings indicate that expanding sales and operating at a larger size can be beneficial for enhancing the financial performance of industrial firms in the Jordanian market. Based on the study's results, it is recommended that industrial companies in Jordan carefully assess their capital structure decisions, keeping in mind the potential impact on profitability. Minimizing debt levels and ensuring a balanced mix of long-term and short-term obligations can help mitigate adverse effects on ROA and EPS.

Keywords: Capital Structure, Profitability, Firm Size, Sales Growth, Industrial firms.

1. Introduction

The Jordanian industrial sector includes a broad spectrum of businesses engaged in a variety of industries and makes a considerable contribution to the national economy. A blend of historic and contemporary sectors, including as manufacturing, pharmaceuticals, food processing, building materials, textiles, chemicals, and electronics, make up Jordan's industrial landscape. Jordan's industrial businesses encounter a variety of particular difficulties and chances. The scarcity of natural resources, particularly in terms of water and energy, is a major problem. To maintain long-term survival, this calls for a focus on resource efficiency and the implementation of sustainable practices.

The impact of capital structure on financial performance is a topic of great interest in the Jordanian business landscape. Numerous studies have explored the relationship between capital structure indicators, such as debt ratio, debt-to-equity ratio, and financial performance metrics such as

Return on Assets (ROA) and Earnings per Share (EPS). The findings suggest that the capital structure decisions of firms in Jordan can significantly influence their financial performance outcomes. Optimal capital structure choices can lead to improved profitability, increased shareholder value, and enhanced overall financial health. However, it is important for companies to strike a balance in their capital structure, as excessive reliance on debt may lead to increased financial risk and potential financial distress. Jordanian firms should carefully evaluate their capital structure options, considering factors such as industry dynamics, market conditions, and the company's growth objectives. By selecting an appropriate capital structure that aligns with their specific circumstances and financial goals, companies in Jordan can position themselves for sustainable financial success in a competitive market environment. Hajisaaaid (2020) The primary aim of this study is to investigate the correlation between capital structure and profitability within the Amman Stock Exchange (ASE), specifically focusing on key financial indicators such as Return on Assets (ROA) and Earnings per Share (EPS). The researcher seeks to analyze how the capital structure of companies listed on the ASE relates to their profitability, as measured by these important financial metrics. By examining this relationship, the study aims to provide valuable insights into the impact of capital structure decisions on the financial performance of firms operating in the ASE.

The researcher identified the problem of the study through his review of many previous studies, despite its critical significance, the relationship between capital structure decisions and profitability outcomes in Jordanian industrial companies remains inadequately explored. Existing research lacks comprehensive evidence regarding how different capital structure choices impact the financial performance of firms operating within the Jordanian industrial landscape. Consequently, there is a pressing need for an in-depth analysis that uncovers the intricacies of this relationship and sheds light on the optimal financial strategies for enhancing profitability within this specific context.

In this study, we aim to address this research gap by investigating the correlation between capital structure and profitability within Jordanian industrial companies listed on the Amman Stock Exchange (ASE). By specifically focusing on key financial indicators, such as Return on Assets (ROA) and Earnings per Share (EPS), we seek to uncover valuable insights into the impact of capital structure decisions on the financial performance of firms operating in the Jordanian industrial sector. Through a comprehensive analysis of available financial data, we strive to provide practical recommendations for companies seeking to optimize their financial strategies and achieve sustainable growth in this dynamic market environment.

Therefore, the problem of the study lies in attempting to answer the following main question:
Is there relationship between capital structure and profitability for industrial firms on ASE?
The aforementioned statement leads to the emergence of two sub-questions:
Does the use of capital structure ratio have an effect on ROA for industrial firms on ASE?

Does the use of capital structure ratio have an effect on EPS for industrial firms on ASE?

The contribution of this study stands out from previous research in several key aspects. Firstly, by conducting an in-depth analysis of financial reports, the study provides concrete empirical evidence that either supports or challenges existing theories and assumptions. This data-driven approach enhances the reliability and robustness of the findings, setting it apart from studies that rely solely on theoretical frameworks. Moreover, the study's specific focus on industrial companies listed in Jordan brings valuable insights into the unique characteristics and dynamics of this particular market. This context-specific analysis is of paramount importance for decision-makers and investors operating within the Jordanian industrial sector. It offers a nuanced understanding of how capital structure decisions influence the financial performance of companies in this specific market environment. Furthermore, the research carries significant implications for investors interested in the Jordanian industrial market. By unravelling the relationship between capital structure and profitability, investors can make more informed decisions while evaluating the financial health and potential returns of companies in their investment portfolio. This knowledge empowers investors to optimize their investment strategies and mitigate potential risks effectively.

Overall, the study's comprehensive analysis of the relationship between capital structure and profitability in Jordanian industrial companies makes it a valuable resource for both academics and practitioners in the finance and business domain. The empirical evidence and practical recommendations provided offer tangible benefits to decision-makers seeking to optimize their financial strategies and foster sustainable growth in this dynamic market landscape. As such, this research significantly advances our understanding of the intricate interplay between capital structure decisions and financial performance, making a noteworthy contribution to the field of finance and business studies.

2. Theoretical Background, Related Literatures, and Hypotheses Development

2.1 Profitability

An essential element of a business's operations and financial performance provides a comprehensive view of the state of the company's finances over a given period of time (Thakkar, 2023). It is worth is ascertained by looking at several financial measures, such as the equity ratio, liquidity, debt, solvency, and profitability. A company's financial performance measures not only how successfully it raises and spends money, but also how well it manages and controls its resources. By examining a company's total financial health over time and enabling comparisons with other companies in the same industry, this study achieves several objectives. Key to financial performance, profitability is influenced by a company's various policies and strategic decisions. Satoto (2023) asserts that the relationship between a business's income and the costs incurred during the use of its assets—which includes both fixed and ongoing production activities determines the profitability of the enterprise. To put it another way, a business's profitability is a crucial aspect of its financial performance and a crucial indicator of its success. Furthermore, a

company's financial decisions are frequently influenced by its capital structure, which is a crucial component of its financial performance. It speaks of the decision a business must make regarding debt vs equity financing in order to continue operating.

Usoro (2022) defines capital structure as the arrangement of shareholder capital, long-term debt, and preferred stock that makes up long-term financing. It explains the type of financial structure that a company use to finance continuous operations and steady expansion. An organization's capacity to pay off debt and prosper financially can be significantly impacted by a well-designed capital structure. Olusola et al. (2022), who characterise the capital structure as long-term financing made up of the company's debt and shares, emphasise the significance of the capital structure even further. In contrast to short-term finance, this explanation highlights the capital structure's permanent nature. The foundation of a company's financial stability, long-term debt and equity financing offers the resources required for growth and sustainability. In summary, financial performance is a wide term that encompasses a range of financial metrics. It shows how effectively a business manages its resources, which is essential to both its long-term performance and its capacity to rival in its sector. Profitability is a critical component of financial success that indicates how well a company's financial strategies are operating. Meanwhile, how a business raises the capital needed for its long-term operations depends greatly on its capital structure, which includes options for both debt and equity financing. Comprehending the intricacies of financial performance, profitability, and capital structure is imperative for enterprises to make knowledgeable financial choices and guarantee their expansion and well-being.

2.2 Capital Structure

In the realm of corporate finance, the complex relationship between a company's capital structure and profitability has long been the subject of interest. This association has sparked a great deal of curiosity and in-depth study in the field. Modigliani and Miller's 1958 seminal study laid out the fundamental ideas that underpin modern theories of capital structures. A plethora of literature examining the dynamics of capital structure has been inspired by their groundbreaking study, which acted as the foundation for further investigation (Chang et al. 2019). Profit maximisation is a company's ultimate goal. It must use caution when making choices that impact its total profitability if it is to meet this objective. The selection of funding sources is the most important of these crucial choices since it has a big impact on a company's profitability and financial stability. In this sense, capital structure is crucial since it outlines the internal and external financing sources that a business uses to fund its assets. In general, there are two primary funding sources that make up the capital structure: debt and equity. financial financing represents the money raised to support a business's operations and investments and include both short- and long-term financial commitments. Conversely, equity financing demonstrates internal sources of funding through the capital contributions and retained earnings of the owners (Toumi, 2020). The way these two financing choices interact and how much of each is used determines how a firm's capital structure is shaped. According to Al-Nsour and Al-Muhtadi (2019), a properly chosen mix of debt, equity,

and securities makes up the best capital structure. Several essential characteristics of this optimal capital structure contribute to the financial success of a company.

In order to optimise profitability, it first aims to reduce the cost of capital through a more effective and economical capital structure. Reduced financing costs allow a business to keep more of its income, which has a direct impact on profitability. Furthermore, the optimal capital structure is to raise the company's total value (Endri et al., 2021). This is accomplished by maintaining a balance between debt and equity and making sure the financial structure is optimised to raise the company's worth. The value of the company rises when its capital structure is in line with its financial and operational requirements. Added value benefits the company's prospects as well as its shareholders by enhancing its ability to raise capital, make expansion-related investments, and successfully handle financial difficulties. In conclusion, a major focus of corporate finance is the complex relationship that exists between a firm's capital structure and profitability (Oktrima & Sutrisno, 2023). Modigliani and Miller established the groundwork for contemporary capital structure theories in 1958, opening the door for a great deal of subsequent study in the area. A company's primary goal is to maximise profits, and selecting the appropriate sources of funding is one of the most crucial decisions it must make. The capital structure delineates the internal and external funding sources for the company's assets, encompassing both debt and equity finance. Reducing the cost of capital, increasing enterprise value, and eventually improving profitability might result from striking the correct balance between these sources to produce the perfect capital structure. Comprehending and refining the correlation between capital structure and profitability is a vital facet of corporate finance, which can profoundly influence an organization's sustained prosperity.

2.3 Related Literatures

Numerous studies examine the connection between capital structure and profitability in various contexts are covered in the literature review. The reviewed studies investigate the relationships between these two crucial financial features using a variety of approaches, datasets, and industry contexts. From 2013 to 2017, Rakesh and Souza (2018) investigate the connection between Nifty50 firms' capital structure and profitability. The authors find that capital structure has no bearing on a company's performance through panel data regression analysis. Profitability and capital structure are found to have a weakly negative association. The findings imply that capital structure might not be the primary factor influencing these companies' profitability. In their analysis of the relationship between capital structure and financial performance indicators, such as net profit, return on equity, return on assets, and interest coverage ratio, Chavali and Rosario concentrate on non-banking finance companies (NBFCs) in India from 2006 to 2016. This gives them insight into how capital structure affects NBFC profitability. Understanding the financial dynamics of this industry, particularly in India, would require knowledge of the unique results. Over a ten-year period, Jouda (2018) investigates the dynamic relationship between profitability, capital structure, and diversification among 412 French financial institutions. Panel vector autoregression (PVAR) is used in the study to reveal intricate relationships between these

variables. The findings highlight how crucial it is to consider both the endogeneity issue and the dynamics of these interactions. Profitability, leverage, and diversification have a bidirectional causal relationship that emphasises how complex the dynamics of the financial sector are. Chang et al. (2019) use a dataset spanning the years 2003 to 2016 to focus on the four Asian tiger economies and investigate the relationship between capital structure and profitability. The study's findings indicate a strong inverse link between profitability and leverage. Growth and leverage as well as size and leverage were found to be positively correlated, indicating the significance of contextual variables and regional economic conditions in influencing these dynamics.

In the context of Vietnam, Dang et al. (2019) investigate the effects of profitability, capital structure, growth, and firm size on firm value. The findings demonstrate intricate relationships between business value and size, profitability, and capital structure, with the former favourably influencing the latter. This demonstrates how several factors affect enterprise value and how selecting a valuation measure can have varying effects. Al-Nsour and Al-Muhtadi (2019) concentrate on manufacturing companies that are listed for five years on the Amman Stock Exchange. The effect of profitability and capital structure on business value is investigated in this study. Depending on whether market value or Tobin's Q is used as the company value measure, the findings differ, underscoring the significance of the valuation metric selected. According to the study, there are context-dependent differences in the relationships between capital structure, profitability, and enterprise value. The relationship between capital structure and the trade-off between liquidity and profitability in Nigeria is examined by Omoregie et al. (2019). This research sheds light on how capital structure affects financial performance. The results cast doubt on the conventional wisdom regarding a trade-off between profitability and liquidity and indicate that a number of variables, including the economy's cyclicity, may influence the relationship. This study emphasises how crucial it is to comprehend the larger economic environment when making financial decisions. Toumi (2020) focuses on how the capital structure and profitability of Islamic banks (IBs) and conventional banks (CBs) differ in the Middle East. Using binary logistic regression, the study determines that profitability and capital structure are reliable indicators of the difference between IBs and CBs. Specifically, a bank's likelihood of being Islamic is increased by larger net margins and capital ratios, and it is more likely to be Islamic when its return on assets (ROA) is lower. Understanding the financial features of Islamic banks in contrast to regular banks especially in the Middle East is made easier with the help of this research. Hajisaaid (2020) investigates the connection between profitability and capital structure in Saudi Arabia's basic materials industry. Numerous statistical methods are used in the study, such as regression analysis, random effects models, and fixed effects models. According to the findings, there is a negative correlation between short-term and long-term debt as well as a positive correlation between total and short-term debt and profitability. These findings shed light on the particular dynamics of Saudi Arabia's basic materials industry.

Endri et al. (2021) look on the relationship between the capital structure and performance of mining companies in Indonesia. In addition to three performance metrics (ROE, ROA, and EPS), the study examines other capital structure measurements (leverage, gearing, etc.) using panel data analysis. The findings show that depending on the parameter used, different capital structures have different effects on profitability. This study highlights how important it is to use a comprehensive methodology to look into how a firm's capital structure influences its performance. The information shows that there is a negative association between short-term and long-term debt and a positive correlation between profitability and total and short-term debt. The distinct characteristics of the Saudi basic materials sector are clarified by these results. Endri et al. (2021) look at the financial structure and performance of mining companies in Indonesia. The study uses panel data analysis to take into account three performance indicators (ROE, ROA, and EPS) as well as other capital structure measurements (leverage, gearing, etc.). The results show that the impact of capital structure on profitability varies depending on which statistic is used. This study emphasises how crucial it is to approach the topic of how capital structure affects a firm's performance intelligently. Suhartono (2022) examines the concurrent effects of capital structure components, such as development prospects, firm size, fixed assets, liquidity, and business risk, on the leverage ratio (DER) of Indonesian general insurance companies. The results show how these variables impact DER, an important component of a business's capital structure. The analysis also emphasises the relationship between capital structure and financial performance and examines the relationship between profitability and DER.

The relationship between Iranian enterprises' size, profitability, and capital structure is examined by Ahmed et al. (2023). The research, which makes use of an econometric panel technique, indicates that capital structure decisions have an adverse effect on profitability, whereas firm size has a beneficial effect. The analysis supports the trade-off theory by showing how the relationship between capital structure and profitability is moderated by business size. Oktrima and Sutrisno (2023) use metrics like return on assets (ROA) and the leverage ratio (DER) to examine how capital structure and profitability affect business value. The study highlights the significance of taking profitability and capital structure into account simultaneously, as well as how each influence organisational value. The relationship between capital structure, profitability, and enterprise value is fully understood with the help of this strategy. Based on the first primary component, Tran et al. (2023) provide a novel approach to creating an integrated indicator of population quality of life. In order to assess the relative relevance of the various components in the integrated indicator, the study incorporates weighting coefficients into the principal component. This approach, which centres on migration data, offers a more impartial means of evaluating the standard of living of the populace. Nguyen et al. (2023) investigate the effect of capital structure on company profitability with a focus on Vietnam. The findings indicate that while long-term debt has a negative impact on maximising profits, liquidity and short-term debt have a favourable relationship with profitability. By emphasising the significance of leverage in raising a firm's profitability in the Vietnamese environment, this research defies several earlier findings.

Huong (2023) examines how capital structure affects the profitability of companies that are listed on the Vietnam Stock Exchange and deal in plastics and packaging. The study sheds light on the financial dynamics of this particular Vietnamese industry and emphasises the significance of the interaction between short- and long-term debt on profitability. Siregar et al. (2023) look at how profitability, capital structure, and dividend policy affect a company's value over a ten-year period in the consumer products industry on the stock market. The analysis underlines the moderating influence of company size in these interactions and highlights the combined effects of dividend policy, profitability, and firm size on firm value. With a focus on Indonesia's telecommunications industry, Sari and Anwar (2023) compare capital structure and profitability during the COVID-19 pandemic. The findings indicate that capital structure has a detrimental effect on profitability, providing important information about how businesses are doing financially in challenging times.

2.4 Hypotheses Development

Researchers have examined and debated a wide range of hypotheses on business capital structure decisions. The roots of this discussion may be found in the groundbreaking research conducted in 1958 by Franco Modigliani and Merton Miller (MM). This research was expanded upon in 1963 to incorporate the tax component also known as the "tax shield" in debt utilisation, as noted by Nenu et al. (2018). Nearly all of a company's capital structure is made up of debt, according to the original MM hypothesis put forth by Nenu et al. Pecking order theory and trade-off theory are two more significant capital structure theories that have evolved in addition to the MM theory. According to Myers (2001), the trade-off hypothesis suggests that an organisation should strive for a debt ceiling where the tax advantages (also known as "tax shields") that come with taking on more debt are nearly cancelled out by the expenses related to going bankrupt.

On the other hand, the pecking order theory highlights a distinct strategy. It is assumed that businesses give internal equity financing which is typically provided by retained earnings priority over external equity financing obtained through initiatives like the issuance of new shares. This idea holds that a company's decision to issue debt indicates that it is optimistic about its future, whereas the decision to issue new equity is viewed as a last resort that is mainly intended to distribute risk among shareholders rather than serve as a main source of capital.

Leverage and profitability have a considerable negative relationship, according to Chang et al. (2019), underscoring the significance of regional economic conditions in determining this dynamic. According to Hajisaaid (2020), there is a negative correlation between short-term and long-term debt as well as a positive correlation between overall debt and profitability.

According to Ayalew's (2021) research, profitability measurements like return on equity and net interest margin are positively correlated with larger levels of both total and short-term debt. This information sheds light on the financial dynamics of Ethiopia's private banks. Sari and Anwar

(2023) demonstrate how capital structure has a detrimental impact on profitability, providing insightful information on how businesses are doing financially in challenging times.

Huong (2023) sheds light on the financial dynamics of this particular business in Vietnam and emphasises the significance of the interaction between short- and long-term debt on profitability. Nguyen et al. (2023) challenge previous research by highlighting the significance of debt in boosting a firm's profitability in the Vietnamese context. They note that short-term and liquidity debt are positively related to profitability, while long-term debt has a negative impact on profit maximisation. According to Ahmed et al. (2023), decisions about capital structure have a negative impact on profitability, whereas firm size has a beneficial impact. Against this theoretical background, the following hypotheses were developed in this study:

H1: There is a significant relationship between capital structure and profitability

3. Research Approach

3.1. Data and a Sample

The primary objective of the study was to analyze the financial performance of industrial companies listed on (ASE). The researcher collected relevant data from the financial statements of these listed companies, covering the period from 2012 to 2022. Initially, the study included a total of 33 companies in its sample. However, one company was excluded from the analysis due to incomplete financial statements that spanned several years. This exclusion was a result of the company undergoing significant changes, including a transformation and merger in another sector. As a result, the final sample size for the study consisted of 32 industrial companies listed on the ASE.

3.2. Measure of Variables

The investigation employed a methodology known as panel data analysis, which integrates the characteristics of both time-series and cross-sectional data. This analytical approach enables the examination of individual factors and time effects simultaneously. To conduct the statistical analysis, the researchers gathered primary data from the financial reports of industrial companies listed on the ASE from 2012 to 2022. These valuable datasets are conveniently accessible on the ASE website, providing a reliable foundation for the study's statistical exploration.

3.2.1. Independent Variables

Table (1): Independent Variables.

| Ratio | Effect | Symbol | Measure | Study |
|----------------------|----------|--------|--|----------------------------|
| Debt Ratio | Negative | DAR | Determines how much of a company's assets are covered by total debt. | Ross, et al. (2021) |
| Debt to Equity Ratio | Negative | DER | compares a company's total debt to its shareholders' equity | Al-Slehat, Z. A. F. (2020) |

| | | | | |
|--------------------|----------|-----|--|--|
| Short Term Debt | Negative | STD | The ratio of book value of short-term debt to book value of working capital | Alnori and Alqahtani, (2019), Ezeani et al. (2022), and Vo et al. (2022) |
| Firm Size | Positive | FZ | Natural logarithm of total sales | Ahmad and Etudaiye-Muhtar (2017), Buvanendra et al. (2017), and Drobetz and Wanzenried (2006) |
| Sales Growth | Positive | SGr | The ratio of market to book value of the company's assets | Banerjee et al. (2004), Drobetz and Wanzenried (2006) Haron et al. (2013b), and Mukherjee and Mahakud (2010) |
| Return on Assets | ----- | ROA | measures the amount of profit a company generates per dollar of assets it owns | Al-Shattarat,H(2022), Budiharjo, 2019, |
| Earnings Per Share | ----- | EPS | subtracting any preferred dividends from a company's net income and dividing that amount by the number of shares outstanding | Yildiz (2018), Alnori and Alqahtani (2019), Ezeani et al. (2022), and Vo et al. (2022) |

3.2.2. Dependent Variables

The Profitability (P) measured by ROA and EPS of industrial companies listed in ASE.

3.3. Empirical models

To investigate the relationship between capital structure and profitability, the study employs the Generalized Least Square (GLS) panel data regression analysis methodology. This approach is chosen as it takes into account the dynamic nature of the variables under study. Building upon the preceding discussion, the author has developed the following models:

$$ROA = \beta_0 + \beta_1 DAR + \beta_2 DER + \beta_3 STD + \beta_4 FZ + \beta_5 SGr + \text{error}$$

$$EPS = \beta_0 + \beta_1 DAR + \beta_2 DER + \beta_3 STD + \beta_4 FZ + \beta_5 SGr + \text{error}.$$

Where:

DAR: Debt Ratio, **DER:** Debt to Equity Ratio, **STD:** Short Term Debt, **FZ:** Firm Size, **SGr:** Sales Growth

ROA: Return on Assets, **EPS:** Earnings per Share.

The model also includes a constant term (β_0) and error term. The coefficients ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$) of the independent variables indicate the strength and direction of their impact on the dependent variable (P).

3.3. Descriptive Statistics

Table (2) Descriptive Statistics of Jordanian industrial companies

| | ROA | EPS | DAR | DER | LOG(FZ) | SGr | STD |
|--------------|---------|------------|--------|--------|---------|--------------|-------|
| Mean | 1.818 | 0.130 | 33.168 | 66.831 | 17.063 | -1.453 | 0.273 |
| Median | 2.407 | 0.048 | 30.330 | 69.670 | 16.850 | 0.000 | 0.254 |
| Maximum | 38.397 | 4.060 | 99.829 | 98.116 | 21.132 | 1.000 | 0.998 |
| Minimum | -85.716 | - 1.077 | 1.884 | 0.171 | 12.917 | - 414.899 | 0.016 |
| Std. Dev. | 10.212 | 0.480 | 19.295 | 19.295 | 1.422 | 22.183 | 0.156 |
| Observations | 352 | 352 | 352 | 352 | 352 | 352 | 352 |

The descriptive statistics of Jordanian industrial businesses are shown in Table 2. The average ROA of 1.818 indicates that industrial enterprises in Jordan make a profit on their assets on a yearly basis. This suggests that they are efficiently turning a profit from their assets. But the large range of ROA values, from -85.716 to 38.397, shows that the profitability of these businesses varies significantly. It suggests that although some businesses may be operating incredibly well, others may be finding it difficult to turn a profit on their assets. And on another scale, Jordanian industrial enterprises are producing positive earnings per share with a mean EPS of 0.130. This demonstrates that individual shareholder profitability exists. The range of EPS numbers, however, points to a considerable degree of variation in the profitability of various businesses. While some businesses may have lower EPS, which indicates losses, others may have higher EPS, which indicates more profitability. This demonstrates how different Jordanian industrial enterprises' financial results are from one another. In contrast, the average DAR for industrial enterprises in Jordan is 33.168%, which points to a moderate amount of debt financing compared to their total assets. This shows that these businesses utilize borrowed money to finance some of their operations and investments. The range of DAR values, from 1.884% to 99.829%, indicates that the amount of debt financing used by different firms varies greatly. Due to increasing reliance on debt, high DAR levels may imply higher financial risk, whilst low DAR values may indicate a more conservative capital structure.

As opposed to that, the average debt-to-equity ratio for Jordanian industrial enterprises is 66.831%, which is a pretty high ratio. This implies that a sizeable amount of the funding for these businesses comes from loan sources. A company may have a low degree of debt compared to equity, while another may have a high level of leverage, according to the range of DER values. As more of the

company's finance is dependent on borrowed money, higher DER levels could be an indication of higher financial risk.

The range of STD values, from 0.016 to 0.998, indicates that various businesses have varied amounts of short-term debt. This might be a sign of a more cautious financial strategy. On the other hand, businesses with higher STD values may get a larger share of their funding in the form of short-term debt, which may point to a stronger need for short-term liquidity or a higher degree of financial risk. The mean Log(FZ) value of 17.063, with a range of 12.917 to 21.132, indicates that there are probably several variables that have an impact on the variable and may have an effect on the financial success of these organizations. And finally the average growth rate for Jordanian industrial enterprises is estimated to be negative at -1.453 in terms of sales growth. This suggests that these businesses could have trouble maintaining or growing their revenue, profits, and dividends without relying on outside funding. It suggests that growth projects would require outside finance. Given the large range of SGr values, which is indicated by the standard deviation of 22.183, it is likely that different firms would have different rates of development, with some perhaps attaining positive growth while others finding it difficult to sustain growth.

Table (3) Correlations analysis

| | ROA | EPS | DAR | DER | LOG(FZ) | SGr | STD |
|-------------|-------|-------|-------|-------|-------------|-----------|-----|
| ROA | 1 | | | | | | |
| EPS | 0.56 | 1 | | | | | |
| DAR | -0.33 | -0.26 | 1 | | | | |
| DER | 0.33 | 0.26 | -0.66 | 1 | | | |
| LOG(FZ) | 0.29 | 0.47 | 0.07 | -0.07 | 1 | | |
| SGr | 0.09 | 0.05 | -0.11 | 0.11 | 0.08 | 1 | |
| STD | -0.35 | -0.30 | 0.75 | -0.79 | -0.09 | - 0.11 | 1 |

The table appears to be a correlation matrix, showing the correlation coefficients between various financial metrics for Jordanian industrial companies.

Debt-to-Asset Ratio and ROA have a slight negative linear connection, according to the negative correlation coefficient between them of -0.33. As a result, it follows that the return on assets incline to slightly decline as the debt asset ratio rises. This negative connection shows that increased debt financing ratios in comparison to assets may have a somewhat negative impact on the profitability of Jordanian industrial enterprises.

Debt-to-equity ratio the link between DER and ROA is weakly positive linear, according to the positive correlation coefficient of 0.26 between the two variables. It appears from this that the return on assets tends to rise somewhat along with the debt equity ratio. According to this, the

profitability of Jordanian industrial enterprises may be marginally impacted positively by a larger ratio of debt to equity.

A mild negative linear link between STD and ROA is indicated by the two variables' negative correlation value of -0.35. This suggests that the return on assets tends to modestly decline as the amount of short-term debt rises. It implies that the profitability of Jordanian industrial enterprises may be marginally harmed by a greater reliance on short-term financing.

The positive correlation coefficient between Log(FZ) and ROA, which is 0.29, points to a shaky positive linear link between these two variables. It shows that the return on assets tends to rise modestly along with the logarithm of FZ.

The association between SGr and ROA is weakly positive linear, according to the positive correlation coefficient of 0.09. This shows that the return on assets tends to rise somewhat along with the sustainable growth rate.

Table (4) Levin, Lin & Chu t Test

| | level | |
|------------------|--------------|----------------|
| Variables | t | results |
| ROA | -28.619 | I(0) |
| EPS | -8.215 | I(0) |
| DAR | -6.640 | I(0) |
| DER | -6.639 | I(0) |
| STD | -9.975 | I(0) |
| Log(FZ) | -2.207 | I(0) |
| SGr | -32.650 | I(0) |

The variables in the table are as follows: the t-statistics provide evidence of statistically significant relationships between the variables (ROA, EPS, DAR, DER, STD, Log(FZ), SGr) and the dependent variable "level" in the context of the analysis. The "I(0)" designation for each variable indicates that they are stationary and not trending.

Table (5) Kao Residual Cointegration Test

| | t-Statistic | Prob. |
|-------------------|--------------------|--------------|
| ADF | -1.806269 | 0.0354 |
| Residual variance | 87.34697 | |
| HAC variance | 32.16699 | |

After conducting the Kao Residual Cointegration Test, the ADF statistic of -1.8 indicated that the variables ROA, DAR, DER, STD, Log (FZ), and SGr are integrated. This finding allows us to estimate the equation using the Panel Dynamic Least Squares (DOLS) method.

3.4 Empirical results and analysis

This study specifically targets Jordanian industrial firms that are listed on the ASE from 2012 to 2022. The data for the study have been collected from the annual reports of these firms. The main objective of the study is to assess the impact of capital structure on profitability. To achieve this, the study employs E-Views analysis to test all the derived hypotheses from the main hypothesis, which proposes that "There is no effect of capital structure on profitability". Through this analysis, the study aims to provide valuable insights and contribute to the existing understanding of the relationship between capital structure and profitability within the context of Jordanian industrial firms listed on the ASE.

3.4.1 Test of capital structure on ROA.

Table (6) the first hypothesis examines

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|--------------------|-------------|--------|
| DAR | -0.354958 | 0.062559 | -5.673966 | 0.0000 |
| DER | -0.235361 | 0.054864 | -4.289876 | 0.0000 |
| LOG(FZ) | 1.912488 | 0.319922 | 5.977978 | 0.0000 |
| SGr | 0.018290 | 0.037819 | 0.483620 | 0.0290 |
| STD | -11.72169 | 2.544544 | -4.606596 | 0.0000 |
| R-squared | 0.216625 | Mean dependent var | 1.818080 | |
| Adjusted R-squared | 0.207595 | S.D. dependent var | 10.21271 | |
| S.E. of regression | 9.091064 | Sum squared resid | 28678.66 | |
| Long-run variance | 134.3589 | | | |

Based on the coefficients and t-statistics, we observe significant relationships between these variables and ROA. Higher levels of debt (DAR and DER) and STD are associated with lower ROA, while larger firm size (Log(FZ)) and higher sales growth (SGr) are associated with higher ROA. These relationships provide insights into the potential impact of these variables on a company's profitability. Based on these results, the (H0.1) is rejected, and the (Ha.1) is upheld, which states that "There is relationship between the capital structure and ROA of industrial firms on ASE".

3.4.2 Test of capital structure on EPS.

Table (7) the second hypothesis examines.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|--------------------|-------------|----------|
| DAR | -0.010339 | 0.001298 | -7.964844 | 0.0000 |
| DER | -0.006362 | 0.000957 | -6.648846 | 0.0000 |
| LOG(FZ) | 0.056425 | 0.005695 | 9.908282 | 0.0000 |
| SGr | 0.038795 | 0.003228 | 12.01819 | 0.0000 |
| STD | -0.343674 | 0.080965 | -4.244736 | 0.0000 |
| R-squared | 0.124099 | Mean dependent var | | 0.077070 |
| Adjusted R-squared | 0.108528 | S.D. dependent var | | 0.327211 |
| S.E. of regression | 0.308945 | Sum squared resid | | 21.47563 |
| Long-run variance | 0.011704 | | | |

Based on the coefficients and t-statistics, we observe significant relationships between these variables and EPS. Higher levels of debt (DAR and DER) and STD are associated with lower ROA, while larger firm size (Log(FZ)) and higher sales growth (SGr) are associated with higher ROA. These relationships provide insights into the potential impact of these variables on a company's profitability. Based on these results, the (H0.2) is rejected, and the (Ha.2) is upheld, which states that "There is relationship between the capital structure and EPS of industrial firms on ASE".

4. Discussion & Conclusions

According to the analysis of the relationship between the variables (DAR, DER, Log(FZ), SGr, STD) and the dependent variable (ROA) based on the provided coefficients and t-statistics:

Debt to Assets Ratio (DAR):

The negative coefficient of -0.010 suggests that a higher Debt to Assets Ratio is associated with a decrease in ROA. This indicates that as the proportion of debt relative to assets increases, the company's profitability, as measured by ROA, tends to decrease. A possible explanation for this relationship is that higher debt levels can result in increased interest expenses, which negatively impact net income and, consequently, ROA. The statistically significant t-statistic (-7.964) further confirms the significance of this relationship.

Debt to Equity Ratio (DER):

The negative coefficient of -0.006 indicates that a higher Debt to Equity Ratio is associated with a decrease in ROA. This suggests that as the proportion of debt relative to equity increases, the company's profitability, as measured by ROA, tends to decrease. Higher debt levels can lead to increased interest expenses, which negatively affect net income and, subsequently, ROA. The statistically significant t-statistic (-6.648) reinforces the significance of this relationship.

Log of Firm Size (Log(FZ)):

The positive coefficient of 0.056 suggests that an increase in the logarithm of firm size is associated with an increase in ROA. This implies that larger firms tend to have higher profitability, as measured by ROA. Larger firms often benefit from economies of scale, greater market power, and access to resources, which can contribute to improved operational efficiency and higher profitability. The statistically significant t-statistic (9.908) confirms the significance of this relationship.

Sales Growth (SGr):

The positive coefficient of 0.038 indicates that higher sales growth is associated with an increase in ROA. This implies that companies experiencing higher sales growth tend to have higher profitability, as measured by ROA. Higher sales growth can result in increased revenue, which, if accompanied by efficient cost management and improved profitability, can contribute to higher ROA. The statistically significant t-statistic (12.018) further confirms the significance of this relationship.

Short Term Debt (STD):

The negative coefficient of -0.343 suggests that an increase in the Short Term Debt is associated with a decrease in ROA. The interpretation of the Short Term Debt is dependent on its specific definition in the analysis. However, based on the provided coefficient, a higher value of the Short Term Debt is associated with lower ROA. The statistically significant t-statistic (-4.244) indicates the significance of this relationship.

5. Recommendation, Limitation and future research

This study comes with certain limitations that warrant recognition. The research primarily concentrated on a restricted set of financial ratios to evaluate their influence on the quality of financial statement information. Nevertheless, there exists a multitude of other variables that could potentially exert an impact, either positive or negative, on the quality of financial statement information. Hence, it is advisable that forthcoming researchers contemplate the incorporation of supplementary variables in their investigations, including metrics such as return on investment (ROI), gross profit margin, net profit margin, and return on capital employed (ROCE). This approach will provide a more comprehensive and nuanced comprehension of the myriad factors that underpin the quality of financial statement information.

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