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Firms' capital structure decisions: The role of top management characteristics

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ABSTRACT

Firms' capital structure greatly impacts their overall performance and value and the return and risk associated with shareholders. The upper echelons theory argues that CEOs' managerial role, mainly decision-making is largely affected by their functional and personal characteristics. This research aims to investigate the role of CEOs' demographic attributes in firms' capital structure decisions based on this theory. The analysis is based on a sample of 80 non-financial firms listed on the Amman Stock Exchange (ASE) for the period 2015 - 2022. The attributes examined include age, ownership, qualification, duality, experience, and tenure. We use the book-value-based debt ratio to measure capital structure. The analysis confirms a significant negative impact for ownership and experience on capital structure and a significant positive impact on duality and tenure. However, firms' capital structure is found to be unrelated to CEOs' age and qualifications. The results provide crucial insights for companies in appointing decision-makers and the need to align more closely with international governance standards, which can enhance firm performance and sustainability.

Contribution/Originality: This study contributes to the existing literature by providing evidence on the role of CEOs' demographic attributes in firms' capital structure decisions from service and manufacturing companies listed on ASE. The study will help investors, managers, policymakers, and researchers understand the importance of CEOs' demographic attributes in firms' capital structure decisions.

1. INTRODUCTION

Capital structure refers to the equity-debt financing mix (Javaid, Nazir, & Fatima, 2023) utilized to support the firm's operations. The decision regarding determining the appropriate equity-debt combination must be taken carefully since it has a significant effect on firms' different aspects such as acquisition and merger (Marks, 2009) and performance and survivorship (De Silva & Banda, 2022). Ooghe and De Prijcker (2008) argue that firms may end up bankrupt because they fail to decide the capital structure combination optimally. In addition, capital structure has a decisive influence on financial decision-making and corporate governance and a significant influence on the risk and return associated with equity ownership (Gaines-Ross, 2000).

Because of its importance, several research studies have investigated the factors that influence the choice of capital structure - be it the features of the firm or the features of its management. Borgia and Newman (2012) argue that the main question is whose traits are critical in determining the ideal capital structure, managers or shareholders? Malmendier, Tate, and Yan (2011) indicate that the choice of embracing financing whether internal or external is first settled by the CEOs who only give this affirmation.

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Chief executive officers (CEOs) are the company's most precious asset and a key factor influencing the firm's performance and share in the marketplace. Their role in capital structure decisions is vital in this regard. However, decisions regarding capital structure can widely vary among firms even within the same industry due to differences in management traits (Borgia & Newman, 2012). Prior studies such as Arasti, Zandi, and Talebi (2012) have shown that traits like age, gender, and experience can critically influence firms' outcomes including financial stability and performance. Baldwin, Dupuy, and Richard Gellatly (2000) supported these results. They found that the fall of many firms in the Canadian context was mainly due to the insufficient knowledge and experience of their management. Moreover, other than insufficient knowledge and experience, various demographic traits were found to impact the firm's performance, for example, insufficient knowledge related to the industry and imperious behavior.

Although several prior research studies have focused on analyzing how CEO traits influence the capital structure, several essential gaps remain unaddressed. Previous research has often focused on isolated traits such as education or experience, without considering the broader spectrum of demographic factors that may also influence capital structure decisions. For example, recently in the Jordanian context, Alghadi, Alzyadat, and Mugableh (2022) examined only the education and experience effect on Jordanian firm's capital structure. However, a major gap remains in the literature since their result is unclear and limited. This study aims to fill a significant gap by examining how various CEO demographic attributes such as age, ownership, qualification, duality, experience, and tenure affect the capital structure listed in Jordan from 2015 to 2022. Unlike previous research that often focused on one or two traits, this study comprehensively analyses six CEO characteristics in the context of Jordan, a developing market with unique dynamics.

A significant contribution to the literature will be provided by this study by addressing the under-researched link between executive characteristics and corporate financial strategies in developing markets, like Jordan. The results would provide a deeper understanding of how CEO traits influence capital structure decisions. The findings offer valuable insights for academics and practitioners aiding in the strategic appointment of CEOs and enhancing firm competitiveness and value. The study's results are also pertinent for policymakers and directors in developing markets, emphasizing the importance of aligning executive attributes with corporate governance standards to ensure long-term sustainability.

The rest of the paper is organized as follows: Section 2 reviews the literature and related theories. The research methodology is described in section 3; the findings are presented in section 4. The results are discussed in section 5. In the last section, the paper is concluded.

2. PRIOR LITERATURE AND RESEARCH HYPOTHESES

2.1. Related Theories

The discussion about the connection between the characteristics of CEOs and capital structure is built on several theoretical perspectives.

The concept of capital structure was initially introduced by Modigliani and Miller (1958) (hereafter MM) through their theory, known as capital structure irrelevance. Under their theory, they posited that firm value would not be affected by capital structure. They based their argument on restrictive assumptions associated with investors and capital market behavior: both firms and investors are borrowing and lending at the same interest rate and they have equal access to the financial market (no asymmetry of information), therefore, homemade leverage is permitted. As a result, a firm's market value remains unaffected by its level of leverage, and the capital structure is irrelevant to shareholders' wealth. MM also assumes that capital markets are perfect, there is no bankruptcy cost, or transaction cost, the economy is tax-free, the dividend payout ratio followed by the firms is 100%, and firms are operating in similar risk classes.

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However, in reality, the market is imperfect, levered firms' values are not the same as the unlevered firms' values, and the proposition that managers can freely select the combination of debt to equity without any concern for capital structure is unrealistic and restrictive. The above assumptions make this theory inapplicable and inconsistent with the real world. So, the irrelevancy theory assumptions needed a re-evaluation. In this regard, Modigliani and Miller (1963) included the tax and the cost of capital effects on firm value. The tax shield would increase the value of the levered firm by deducting debt interest from the firm's income. Therefore, using debt capital would add benefit through reducing the firm's cost of capital.

Based on previous insights, Myers (1977) proposed the trade-off theory and argued that firms should make a trade-off between costs and benefits when financing from debt or equity. Firms should use debt to the point where the tax advantages of further debt exactly offset the costs of potential financial distress, such as bankruptcy or agency costs. This theory helps explain why firms might opt for different capital structures, reflecting their unique assessments of these trade-offs.

Myers and Majluf (1984) propounded the pecking order theory. Under this theory, there is no desirable capital structure, and both managers and investors have asymmetric information. It proposes that there is a cost implication in financing sources, whether equity or debt, particularly information cost. Accordingly, managers should rely mainly on financing with the lowest cost source to finance their operations. This can be achieved by internal financing through retained earnings, but if more financing is needed, the preference will be to finance through debt because it is less expensive than equity.

Another theory related to capital structure and CEO traits was coined by Jensen and Meckling (1976) concerns the conflict of interest between agents (managers) who are the decision-makers, and the principals (shareholders), known as agency theory. Managers may pursue personal objectives that deviate from the goals of shareholders and lead to agency costs. These conflicts influence capital structure decisions, as managers may increase debt to consolidate their control (Harris & Raviv, 1990) or reduce debt to protect their job security (Jensen, 1986). The theory emphasizes the role of debt as a disciplining mechanism limiting managers' ability to divert resources for personal benefits. However, increased debt levels also heighten the risk of job loss and financial distress which might lead managers to favor lower debt levels.

Regarding the top management role in determining the capital structure, the presumption made by Hambrick and Mason (1984) through upper echelon theory (UET) suggests that CEOs have bounded rationality. Their decisions, strategic choices, actions, and performance are influenced by their cognitive foundation, possessed value, psychological and social factors, and to some extent, their demographic characteristics. This theory was adopted by several studies to explore the impact of CEOs' attributes on different aspects of decision-making including corporate social responsibility (Liu & Hooy, 2023) sustainable growth (Wang, Tian, Wang, & Peng, 2023) corporate environmental responsibility (Al-Shaer, Albitar, & Liu, 2023) conservatism (Atwa, Alsmadi, Kharabsheh, & Haddad, 2023) and corporate risk-taking (Bsoul, Atwa, Odat, Haddad, & Shakhatreh, 2022).

A collective and robust framework for examining how CEO traits affect capital structure decisions was provided by the previous theories. The foundational framework is provided by the irrelevance theory. However, its practical limitations have led to the development of the trade-off, pecking order, and agency theories, which are more applicable. For example, regarding agency theory, a CEO with significant ownership might align more closely with shareholders' interests, opting for higher leverage to maximize tax benefits. Wilist, under UET, a CEO with a background in finance might prefer more conservative debt levels to mitigate financial distress risks. Previous theoretical frameworks are critical to understanding the complex dynamics of capital structure decisions, especially when the markets are imperfect. This study builds on these theories to examine how CEOs' demographic traits influence capital structure decisions in Jordanian firms providing insights into the strategic behavior of top management in developing markets.

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2.2. CEOs' Demographic Characteristics and Firms' Capital Structure

2.2.1. CEO Age

Younger and older CEOs as found in the literature differ in decision-making. On one hand, it can be argued that compared with older CEOs, younger CEOs may tend to use lower debt levels since they have a risk-averse attitude and conservative propensity due to many reasons: they are more vulnerable to being scrutinized by the labor market, their number of achievements is still small, and their track record is short (Hirshleifer & Thakor, 1992). On the other hand, Serfling (2014) argued younger CEOs' financing decisions are bolder and riskier due to their expectations about the future despite their early existence in their position. Older CEOs are less risk-taking and tend to avoid debt financing due to their past experiences. However, previous research regarding the relationship between CEO age and the decisions regarding capital structure provides different results. A significant positive relationship in the Sri Lanka context was confirmed by De Silva and Banda (2022) using a sample-based analysis of 123 non-financial mainboard listed companies in the Colombo Stock Exchange for 2012 - 2019. The same result in the Chinese context was also obtained by Chao, Hu, Munir, and Li (2017) using data from 2009 - 2013 for 231 firms. Both studies show a significant positive relationship between CEOs' age and debt capital employed. Older CEOs take on more debt based on their results. A contradiction of this result was reached by Kaur and Singh (2021) in the Indian context by analyzing data for 307 non-financial firms listed in the Nifty 500 index. Similarly, Shan, Ab Razak, Nassir, and Yahya (2019) using data for the largest 100 Malaysian firms covering the years 2007 to 2017, provide evidence indicating the presence of a negative significant impact of CEOs' age on capital structure. Their findings put forward that a more conservative capital structure is desired by elder CEOs whereas younger CEOs attempt to take more risk (i.e., more debt). Finally, Chin (2022) conducted on 189 small and medium-sized Malaysian manufacturing firms negates the existence of any significant impact of CEOs' age on decisions regarding capital structure.

2.2.2. CEOs Ownership

The mitigation of the misalignment problem between managers and shareholders could be achieved by allowing managers to own firms' shares (Jensen & Meckling, 1976). Ownership interest will affect their financial incentives in a way that reduces their self-serving behaviors. Hence, when employing more debt financing, the incentives are to achieve certain goals such as the firm's value maximization, benefit from the tax shield, and consolidate their voting control (Stulz, 1988). This practice is similar to linking shareholder wealth maximization with the employee share option schemes as a type of financial incentive. In contrast, others argue that more agency costs may result from increasing the portion of managerial ownership. When CEOs hold a large portion of ownership, they will tend to employ more and more debt financing for their managerial actions track to be kept (Friend & Lang, 1988). As a result, the decision regarding capital structure may differ depending on the ownership percentage that management holds. This positive and significant relationship is supported by Javaid et al. (2023) who reveal a significant and positive impact of managerial ownership on the capital structure in their empirical study conducted on firms listed on the Pakistan Stock Exchange from 2004 to 2016. In addition, data for 180 public firms in the Jakarta Stock Exchange listed during (2012 – 2017) was examined by Lauson (2022) revealing the same significant positive result.

On the contrary, Friend and Hasbrouck (1988) indicate that when CEOs become entrenched and their ownership gets higher, they attempt to reduce debt levels to minimize the default risk. This claim is supported by Kaur and Singh (2021) when they revealed a significant and negative impact of CEO ownership on capital structure. The reason behind their result is justified by the increases in decision-making latitude when managerial ownership increases. Finally, De Silva and Banda (2022) negate the existence of any impact of CEO ownership and their decisions regarding capital structure.

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2.2.3. CEOs Qualification

The upper echelon theory supports the idea that CEOs' educational backgrounds cognitive bases and values impact businesses' strategic decisions in a way that enables making ideal decisions. As a result, this impact will be reflected in the firm's performance (Bsoul et al., 2022). Furthermore, Anderson, Reeb, Upadhyay, and Zhao (2011) argue that educational background diversity (e.g., the level of education) may add to the board's professional development, cognitive paradigms, perspectives, and distinct opinions. Empirical research supports the idea that highly educated CEOs are more adept at handling complex decisions, embracing new technologies, and pursuing innovative projects. For instance, Bsoul et al. (2022) and Li, Munir, and Abd Karim (2017) find that CEOs with advanced education levels are more open to new investment opportunities and changes, reflecting a higher risk tolerance and confidence in decision-making.

Several studies show a positive relationship between CEOs' qualifications and debt level. The more educated the CEOs are the higher their confidence level and tolerance for ambiguity. As a result, their attitude toward risk propensity would increase. In addition, they would have adequate knowledge of the different financing sources (Chin, 2022; Chua, Ab Razak, Nassir, & Yahya, 2022). Similarly, Alghadi et al. (2022) examine 783 observations for firms listed on the Amman Stock Exchange (ASE) for 2011 – 2019. A significant and positive impact of CEOs' education on capital structure is documented. They attribute this result to CEOs having a higher level of confidence.

In a broader geographic context, Javaid et al. (2023) examined publicly listed firms on the Pakistan Stock Exchange between 2004 and 2016. Their study revealed a significant and positive impact of CEOs' education on capital structure decisions indicating that higher educational qualifications enhance CEOs' capacity to leverage debt effectively.

However, not all research supports a clear-cut relationship between CEO education and capital structure. For example, according to Chao et al. (2017) the impact of CEO education is unclear. Although they find a significant role for the educational background of the CEO, the coefficient sign on education differs when using a market and book value-based leverage as a proxy for capital structure. Finally, the result of De Silva and Banda (2022) shows insignificant relationships.

2.2.4. CEOs Duality

The concept of decision management introduced by Fama and Jensen (1983) suggests that any new proposal for the firm's expenditures must be initiated (ratified) and implemented (controlled) by a different person. In other words, decisions and control authority are different duties. It should not be allowed for an insider manager to perform both duties. This separation of duties prevents opportunistic behavior by managers because a set of control procedures is imposed. As a result, agency problems will be diminished. A rational extension of Fama and Jensen (1983) concept of decision management is the two-tier leadership structure. The two roles are separated, ensuring that decision and control are independently overseen under the two-tier leadership structure. Research suggests that such separation leads to more optimal debt ratios. Conversely, CEO duality can negatively impact the efficiency of capital structure decisions (Fosberg, 2004).

Empirical research provides mixed insights into the CEO duality effect on firms' capital structure. For example, examining 28 chemical industrial companies listed during 2013 – 2019 on the Pakistan Stock Exchange, Ullah, Shaikh, Rashdi, and Khan (2021) find that duality affects the level of debt positively and significantly. CEOs depend more on debt to meet the firms' assets and equity requirements. This result is also documented by Alabdullah and Mohamed (2023) utilizing a sample consisting of 12 machinery industrial firms for 2022. Pakistani studies conducted by Javaid et al. (2023) and Abor and Biekpe (2009) show the same significant positive result. On the other hand, Pascal Ndaki1, Atle Beisland, and Mersland (2018) did not find any evidence of a significant impact of

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CEOs' duality on firms' capital structure using a panel dataset collected during the period 1996 - 2011 from 453 microfinance institutions placed in 76 different countries. De Silva and Banda (2022) also find the same result.

2.2.5. CEOs Experience

Zhang and Rajagopalan (2010) claim that experienced CEOs have additional skills that enable them to make their decisions from a broad perspective. Their past experiences play a significant role in determining their skills, knowledge, and values, and are a valid illustration of their strategic decisions and activities. Bsoul et al. (2022) argue that as CEOs gain more experience, their propensity toward risk decreases. This reduced risk tendency is often associated with a preference for lower debt financing. Therefore, it is plausible that experienced CEOs may adopt a more conservative management approach, avoiding risks linked to debt as they become more entrenched in traditional management practices. On the contrary, others argue that as CEOs become more experienced they become more open-minded, prefer challenges, and encourage innovation (Orens & Reheul, 2013). Therefore, they will be more willing to increase debt ratios since they view debt as a tool to fuel growth and innovation. As a result, CEOs become less debt-resistant. Empirical evidence from various studies provides insights into these contrasting views. These studies include Chua et al. (2022) and Lauson (2022) in Indonesia, Alghadi et al. (2022) in Jordan, and Chin (2022) in Malaysia.

Conversely, Kuo, Wang, and Lin (2015) conducted in the United States find that as CEOs' experience increases, debt level tends to decrease. The study was applied to 729 US companies listed in ExecuComp from 2001 to 2010. Finally, Nilmawati, Untoro, Hadinugroho, and Atmaji (2021) negate any relationship between CEOs' functional experience and debt levels for 283 non-financial firms listed on the Indonesia Stock Exchange by using their panel data from 2010 and 2017.

2.2.6. CEOs Tenure

Tenure refers to the number of years that CEOs hold this position within the same firm. Different views regarding CEOs' tenure impact on capital structure were pointed out in previous literature. In this regard, two conflicting views were proposed by theorists that attribute better firms' performance to tenure. The perspectives of the upper echelon support that more successful outcomes are achieved when a CEO's organizational tenure is short because they can manage the firm more efficiently especially in the presence of uncertainty and in the cases of acquisition. As a result, they will not have the propensity to choose alternatives associated with more risk, and thus, the debt level will be reduced (Bergh, 2001). This argument is supported by an Indonesian study by Setiawan and Adelisa (2020) using 250 observations for manufacturing firms listed during 2013 – 2017 on the Indonesia Stock Exchange. The findings show a positive relationship between CEOs' tenure and debt level. The reason is related to creditor confidence in long-tenured CEOs and their prone to provide their firms' loans. As a result, long-term tenured CEOs have more ability to finance through debt compared with short-term tenured. Other support for this argument is provided by Kaur and Singh (2021); Pascal Ndaki1 et al. (2018) and Chao et al. (2017).

On the other hand, the recourse–based view (RBV) proposes that more effective outcomes will be achieved if the CEO's tenure is longer since they will gain sufficient organizational knowledge enabling the achievement of successful outcomes (Bergh, 2001). The RBV is supported by empirical evidence which shows a negative relationship between CEO tenure and leverage. Wang, Kuo, and Lin (2014) explain the negative relationship as longer-tenured CEOs are well equipped and have more understanding and knowledge of the firms' operation and market, and this reduces their tendency toward debt. However, De Silva and Banda (2022) and Abor and Biekpe (2009) do not find any significant impact of the CEOs' tenure on capital structures.

There is substantial literature examining the impact of CEOs' demographic characteristics on capital structure while findings remain mixed and often context-dependent. Several studies indicate a positive relationship between CEO traits and debt levels while others suggest a negative or no significant relationship. This inconsistency

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underscores the importance of considering contextual factors such as industry, firm size, and market conditions when analyzing the impact of CEO characteristics on capital structure. Furthermore, demographic traits such as cultural factors and economic environments have been less explored in certain regions, particularly in emerging markets. This gap provides a unique opportunity for this study to contribute new insights into the strategic behavior of top management in developing markets.

2.3. Research Hypothesis

This study aims to investigate the effect of CEOs' demographic traits (age, ownership, qualification, duality, experience, and tenure) on firms' capital structure. To achieve this purpose, the following six hypotheses were developed based on the theoretical explanations discussed above and the empirical findings of previous research.

H_1: Firms' capital structure is significantly related to CEOs' age.

H_2: Firms' capital structure is significantly related to CEOs' ownership.

H_3: Firms' capital structure is significantly related to CEOs' qualifications.

H_4: Firms' capital structure is significantly related to CEOs' duality.

H_5: Firms' capital structure is significantly related to CEOs' experience.

H_6: Firms' capital structure is significantly related to CEOs' tenure.

3. METHODOLOGY

3.1. Sample and Data Collection

Data related to the capital structure, CEO attributes, and firm-specific variables is collected from the websites of Jordanian securities depository center (SDC) and Amman Stock Exchange (ASE) as well as the firms' annual reports. The sample selected includes all non-financial firms (i.e., manufacturing and service firms) listed on ASE during the period 2015-2022. Insurance, investment, banking, finance, and any financial firms are excluded since they must comply with compulsory capital requirements which may affect the results. Some companies are also excluded because the full data relating to the variables of interest is not available. A total of 640 firm-year observations for 80 companies make up the final sample.

3.2. Study Variable

3.2.1. Dependent Variable

The dependent variable is the capital structure which refers to the choice between equity and debt financing mix (Javaid et al., 2023). This variable can be determined using different techniques, either market-value-based or book-value-based. Even though each one has its advantages and disadvantages, both are used interchangeably in previous research (Chao et al., 2017; Li et al., 2017; Thijssen, 2017). In this study, we use the book-value-based measure based on the trade-off theory which rationalizes the target level of debt by trading off the benefits and costs of debt financing. In addition, the literature on debt financing proves that tax saving is the main advantage of utilizing debt financing measured by book value. Another reason for using the book-value-based technique is that it is under the firm's direct control and is reported annually in the financial statements. Thus, it is not affected by outside factors including stock price fluctuations (Frank & Goyal, 2009). Graham and Harvey (2001) suggest that in the process of making financial decisions, managers give more attention to the book-value-based rather than the market-value-based measure. In addition, better guidance regarding capital structure is provided by book value since it is less volatile.

The book-value-based measure of capital structure can be established using several different approaches. It may be proxied by the ratio of total debt to total assets (TD/TA) or total debt to total equity (TD/TE), the ratio of long-term debt to total assets (or equity) or the ratio of short-term debt to total assets (or equity) (Chua, Ab Razak,

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Nassir, & Yahya, 2020). Following Alghadi et al. (2022); De Silva and Banda (2022); Lauson (2022); Pascal Ndaki1 et al. (2018) and Wang et al. (2014) the capital structure (debt ratio) in this study is proxied by the TD/TA.

3.2.2. Independent Variables

The independent variables examined are CEO age, ownership, qualification, duality, experience, and tenure. The CEO age is calculated as the difference between the CEO's year of birth and the observation year (De Silva & Banda, 2022; Wang et al., 2014). De Silva and Banda (2022) express CEO ownership as the proportion of total shares owned by the CEO to the firm's total number of shares. Following Chao et al. (2017) CEO qualification is measured on a four-point scale. A score of 3 was given if the CEO had a Ph.D. degree, 2 if he had a master's degree, 1 for a bachelor's degree and 0 otherwise. CEO duality is used as a dummy variable, with "1" for combined and "0" for separate CEO and the chairman of the board positions (De Silva & Banda, 2022; Javaid et al., 2023). CEO experience is represented by the total number of working years that the CEO held this position even if in different companies (Chua et al., 2022) while the CEO tenure reflects the number of years that the CEO has held his position within the company (De Silva & Banda, 2022).

3.2.3. Control Variables

Theories and previous research have provided insight into other factors that directly influence the decision of firms' capital structure, including profitability, liquidity, firm size, dividend payout ratio, firm growth, and firm industry. These factors are included as control variables in our study. Profitability is measured by ROA and calculated as the ratio of profit before interest and tax to total assets. The pecking order theory suggests that the priority of financing sources is to retained earnings, then debt, and finally, equity depending on their associated cost. However, the trade-off theory and agency theory give the same prediction that higher profitable firms need to increase the debt level to benefit from tax shield. Firms' liquidity is proxied by the current ratio determined by dividing current assets over current liability. Changes in the firm's liquidity indicate the extent of management efforts in reducing the problems of underinvestment and agency conflict (Marlina & Dahlia, 2020). In addition, the natural logarithm of total assets which represents the firm's size is widely used in previous research which provides contradicting evidence regarding its impact on the firm's capital structure choice (De Silva & Banda, 2022; Lauson, 2022). The dividend payout ratio is also controlled for in our model as an indicator of companies' response to transaction costs. Fischer, Heinkel, and Zechner (1989) indicate that transaction costs are in the firm's capital structure choice, based on this cost, the firm will rebalance its debt ratio. Finally, the market-to-book value is used to proxy for investment growth opportunity. It controls the variation in future investment alternatives and is utilized by investors in the process of assessing the company's value. The relationship between capital structure and growth opportunity was documented by Myers (1984). Finally, a dummy variable for the industry- effect is added where "1" represents industrial firms and "0" for service. An insight concerning the relationship between the firms' capital structure and the type of the firms' production is provided widely in the literature which proved a significant effect of industry on debt ratios (Li et al., 2017).

3.3. Regression Model

The following regression model has been developed to examine the relation between firms' capital structure and CEOs' traits:

$$DR_{i,t} = \alpha + \beta_1 CEOAGE_{i,t} + \beta_2 CEOOWN_{i,t} + \beta_3 CEOQUAL_{i,t} + \beta_4 CEODUAL_{i,t} + \beta_5 CEOEXP_{i,t} + \beta_6 CEOTENR_{i,t} + \beta_7 ROA_{i,t} + \beta_8 LIQ_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} DPR_{i,t} + \beta_{11} MBV_{i,t} + \beta_{12} SEC_{i,t} + \varepsilon$$

Where

DR	:	Firm $_i$ debt ratio in year $_t$.
CEOAGE	:	Firm $_i$ CEO Age in year $_t$.
CEOOWN	:	Firm $_i$ CEOs share of ownership in year $_t$.

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CEOQUAL : Firm $_i$ CEOs qualification in year $_t$.
CEODUAL : Firm $_i$ CEO duality in year $_t$.
CEOEXP : Firm $_i$ CEO experience in year $_t$.
CEOTENR : Firm $_i$ CEO tenure in year $_t$.
ROA : Firm $_i$ return on assets ratio in year $_t$.
LIQ. : Firm $_i$ Current ratio in year $_t$.
SIZE : Firm $_i$ size in year $_t$.
DPR : Firm $_i$ leverage ratio in year $_t$.
MBV : Firm $_i$ market-to-book ratio in year $_t$.
SEC : Firm $_i$ sector.
ε : Error term.

4. DATA ANALYSIS

4.1. Descriptive Statistics

Statistics for the study variables are shown in Table 1. Regarding the capital structure (DR), the dependent variable, the average debt capital for the sampled firms is around 40 % during the eight years. This suggests that total debt accounts for 40% of total assets while equity capital makes up 60%. The standard deviation is 31.183%. In addition, 8.2% (124%) is the minimum (maximum) value. This result shows variation in the sampled firms regarding their attitude to depend on debt financing.

Table 1. Descriptive statistics.

Variables	Mean	S. dev.	Min.	Max.
DR	0.3982	0.268	0.082	1.24
CEOAGE	55.95	11.388	28	87
CEOOWN	0.0103	0.0238	0.00000	0.091
CEOQUAL	1.33	0.682	0	3
CEODUAL	0.071	0.256	0	1
CEOEXP	10.94	10.743	1	59
CEOTENR	7.769	9.009	1	59
ROA	0.01514	0.0871	-1.996	1.482
LIQ.	2.0145	1.8682	0.0208	7.795
SIZE	7.428	0.6863	5.5053	9.316
DPR	0.3300	0.4313	0.0000	1.240
MBV	1.1567	0.9527	0.24	3.97
SEC	0.548	0.498	0	1

CEOs are on average 56 years old; some are in their third decade of age whereas others are in their eighties. This variation suggests that shareholders agree that a person after the age of 80 still has a functioning ability. This result is in line with Bsoul et al. (2022) which reported that the average CEO age in Jordanian firms is around 56 years. On average, CEOs own 1.03 % of their firms' outstanding shares. A significant variation exists between the sampled firms with a range between 0 to 9 % and 2.38 % standard deviations. Our finding is slightly smaller than the 3.4% of CEOs' ownership reported by Qawasmeh and Azzam (2020) in the Jordanian context. In addition, Jordanian firm's CEOs, on average, hold a post-graduate qualification. Concerning duality, it appears that 93% of the sampled firms' CEOs role is separated from the board chairman; the mean and standard deviation for duality is 7% and 25.6 % respectively. This is an indication of corporate governance merit applied in Jordanian firms. The CEO experience average was around 11 years whereas the tenure average was nearly 8 years compared with tenure. This indicates that some CEOs have previous experience in this position before being in the current firm. The mean and standard deviation for experience are 10.74 and 10.743 while it is 7.769 and 9.009 for tenure. CEOs' years of experience and tenure range from 1 to 59 years. This indicates that for some CEOs, it is the first year of holding such a position in their current firm.

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Regarding the control variables, ROA which represents the return earned by Jordanian non-financial firms on their total assets has an average of 1.514%, it ranges from a loss of 199.6% to a profit of 148.2%. This gap represents a wide variety in the sampled firm's profitability with a standard deviation of 8.71 %. Firms' liquidity is on average 201.45 % with lower and higher values ranging from 2.08% to 779.5%. Higher liquidity indicates an increase in firms' ability to finance their short-term obligations internally. Firm size, as measured by the log of total assets has a mean value of 7.428 with a 0.6863 standard deviation. 33 % and 43.13% are the average and the standard deviation for the dividend payout ratio. Concerning the market-book value ratio, 115.67% and 95.27% are the mean and the standard deviation respectively. Finally, about 55% of the sampled firms are manufacturing.

The descriptive statistics for the dataset provide a comprehensive overview of the firms and CEO characteristics examined in this study. On average, Jordanian firms rely on debt for about 40% of their capital structure highlighting significant variations in financing strategies among the sampled firms. CEO demographics show a wide age range and relatively low ownership stakes with many holding advanced degrees. Most firms maintain the separation between the roles of CEO and board chairman. Control variables like ROA and liquidity indicate substantial variability in financial health and operational capacity among the firms. These statistics set the stage for understanding how these variables might influence capital structure decisions.

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Table 2. Pearson correlation matrix.

Variables	*DR*	*CEO* AGE	*CEO* OWN	*CEO* QUAL	*CEO* DUAL	*CEO* EXP	*CEO* TENR	*ROA*	*LIQ.*	*SIZE*	*DPR*	*MBV*	*SEC*
DR	1												
CEOAge	-0.008	1											
CEOOWN	-0.169	0.139	1										
CEOQUAL	0.051	0.077	-0.200	1									
CEODUAL	0.093	0.014	0.177	-0.051	1								
CEOEXP	-0.069	0.460	-0.085	0.072	-0.047	1							
CEOTENR	-0.071	0.422	-0.051	0.027	-0.002	0.814	1						
ROA	-0.296	0.203	-0.000	0.149	-0.020	0.089	0.062	1					
LIQ.	-0.489	0.070	0.093	-0.109	0.099	0.153	0.256	0.264	1				
SIZE	0.189	0.281	-0.187	0.207	-0.083	0.060	0.050	0.394	-0.082	1			
DPR	-0.230	0.240	-0.088	0.126	-0.048	0.137	0.108	0.491	0.239	0.320	1		
MBV	0.131	0.013	0.101	0.026	0.082	-0.072	-0.092	0.117	0.126	0.013	0.179	1	
SEC	0.075	-0.035	-0.070	0.029	0.126	0.043	0.125	-0.145	0.207	-0.235	-0.212	-0.051	1

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4.2. Correlation Analysis

The Pearson correlation coefficients among the study variables are presented in Table 2. All other CEOs' traits examined have a negative relationship with the dependent variable DR except for CEOs' qualifications and duality. As for the positive correlation between duality and DR, in the presence of duality CEOs will gain extra power in making decisions and this will encourage them to engage in opportunistic behavior. Consequently, they may rely more on debt financing. This is also true for more qualified CEOs where propensity toward risk will be positively affected since they have a higher level of confidence, gained from higher qualifications. Table 2 shows that the correlation coefficients among the variables are less than 0.70 suggesting that no multicollinearity problem exists, except for the correlation between experience and tenure which is 0.814 which is logical since those two variables represent interrelated periods. We compute the variance inflation factor (VIF) in Table 5 which proves the non-existence of multicollinearity since all VIFs are less than 10 to verify that the analysis is not affected by multicollinearity in any way (Gujarati, 2003).

4.3. Regression Analysis

The relationship between CEOs' traits and the non-financial Jordanian firms' capital structure was examined based on panel data regression analysis. Panel data regression has two methods: fixed and random. We perform the Hausman specification test to decide the appropriate model for our analysis. According to Table 3, the Hausman specification test indicates that the fixed effect model is more relevant than the random effect model for analyzing the impact of CEO traits on capital structure. This decision is based on a chi-square statistic of 54.042819 with a p-value of 0.0000. We accept the Hausman test alternative hypothesis and reject the null hypothesis and therefore the fixed effect regression model is appropriate for our regression analysis based on this result.

Table 3. Hausman test results.

Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
Cross-section random	54.042	11	0.000

Table 4 displays the results of testing the classical regression assumptions. The likelihood ratio (LR) test was performed to detect the presence of heteroscedasticity. Pesaran CD test assessed cross-sectional dependence in the panel data analysis. The Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) test was used to examine the hypothesis of auto-correlated errors in the regression model.

Issues of heteroscedasticity, cross-sectional dependence, and serial correlation are observed. The prob. of LR, Pesaran CD and LM tests notably appear to be highly significant and less than 5%.

Table 4. The classical regression assumptions testing.

Test statistics	Heteroskedasticity LR test	Cross-section dependence Pesaran CD test	Serial correlation LM test
F-statistics	626.232	1.973	342.167
Prob.	0000	0.049	000

The results necessitate the use of the panel data estimated generalized least squares (EGLS) to correct these problems, ensuring reliable regression results. EGLS regression results are shown in Table 5. The regression model demonstrates strong explanatory power. The model R^2 value is 0. 7085. Therefore, variations in capital structure can be explained by nearly 71% of the variables included in the model. The f-statistic value of 126.5932 ($p < 0.05$) proves the statistical significance of the model.

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Table 5. EGLS regression results.

Variables	Coefficient	*t-stat*	*p-value*	*Std. err*	VIF
CEO Age	0.000	0.176	0.861	0.000	1.545
CEO OWN	-1.043	-5.433***	0.000	0.192	1.242
CEO QUAL	-0.002	-0.210	0.834	0.007	1.123
CEO DUAL	0.091	4.683***	0.000	0.019	1.065
CEO EXP	-0.002	-2.447**	0.015	0.001	3.261
CEO TENR	0.002	2.607***	0.009	0.001	3.265
ROA	-0.542	-8.830***	0.000	0.061	1.563
LIQ.	-0.061	-26.134***	0.000	0.002	1.389
SIZE	0.121	12.890***	0.000	0.009	1.479
DPR	-0.053	-5.271***	0.000	0.010	1.531
MBV	0.066	12.927***	0.000	0.005	1.080
SEC	0.086	9.159***	0.000	0.009	1.236
F: 126.593					
Sig. = 000					
R^2 = 0.709					

Note: *** The result is significant at 0.01 level ($p \leq 0.01$), ** The result is significant at 0.05 level ($p \leq 0.05$), * The result is significant at 0.10 level ($p \leq 0.10$).

CEO age was found to have a very small and positive coefficient (0.000) with p-value = 0.860 indicating no significant relationship between CEO age and capital structure, accordingly, hypothesis 1 is rejected. This suggests that CEO age has a significant role in determining the debt levels of Jordanian firms. This result contrasts with previous research such as De Silva and Banda (2022) who found a positive relationship between CEO age and firms' debt levels in Sri Lankan firms, suggesting that older CEOs tend to prefer more debt due to their risk aversion and greater focus on tax benefits. Similarly, Chao et al. (2017) found a positive relationship between CEO age and leverage in China. However, other studies such as Kaur and Singh (2021) and Shan et al. (2019) found that younger CEOs are more inclined to take on debt due to their higher risk tolerance and desire for growth. Our findings suggest that CEO age may not significantly influence capital structure decisions in Jordan due to different risk preferences and contextual factors in the Jordanian market.

The analysis shows that CEO ownership has a significant and negative impact on capital structure. The coefficient is -1.043 and the p-value is 0.000. As a result, hypothesis 2 is accepted. This implies that higher CEO ownership is associated with lower levels of debt indicating that CEOs with larger ownership stakes in their firms are less likely to use debt financing, potentially due to concerns about losing control or exposure to financial risk. This result aligns with the findings of Kaur and Singh (2021) who also reported that CEO ownership is negatively related to leverage, suggesting that CEOs with higher ownership stakes may avoid debt to protect their control over the firm and minimize financial risks. Additionally, this is consistent with the entrenchment hypothesis as discussed by Friend and Hasbrouck (1988) which argues that CEOs with large ownership may have less incentive to take on debt. In contrast, Jensen and Meckling (1976) proposed that higher ownership could encourage the use of debt to align the interests of managers and shareholders, though this effect does not seem to hold in the Jordanian context.

CEO qualification as measured by educational level was found to have a very small and negative coefficient of -0.002 (p-value = 0.834) suggesting no significant impact on the capital structure decisions in Jordanian firms, so hypothesis 3 is rejected. This result implies that a CEO's level of education does not appear to influence their decisions regarding the use of debt financing. This finding contrasts with the results from several studies that found a positive relationship between CEO qualification and leverage. For instance, Bsoul et al. (2022) and Alghadi et al. (2022) indicate that more educated CEOs are more likely to use debt due to their confidence in managing financial risks. Additionally, education may increase CEOs' ability to understand the benefits of leverage, leading them to opt for higher debt levels. However, in our study, no such significant relationship was found possibly due to the unique

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characteristics of the Jordanian market where other factors may outweigh the role of education in capital structure decisions.

CEO duality where the CEO also serves as the chairman of the board was found to have a significant and positive impact on capital structure. The coefficient is 0.0909 and the p-value is 0.000. Accordingly, hypothesis 4 is accepted. This suggests that firms with CEOs who hold dual roles are more likely to use debt because such CEOs can exercise more control over the firm's financing decisions, including leveraging capital structure. This finding is consistent with Ullah et al. (2021) and Alabdullah and Mohamed (2023) who found a positive relationship between CEO duality and debt suggesting that CEOs with dual roles may prefer higher debt levels as they have more authority to make such decisions without needing board approval. CEO duality can lead to a more centralized decision-making process facilitating the use of debt to support firm growth or operations. However, this result contradicts some studies such as Pascal Ndaki1 et al. (2018) which found no significant relationship between CEO duality and capital structure. This suggests that the effect of duality may vary across different institutional contexts.

The coefficient for CEO experience was found to be -0.0016 with a p-value of 0.015. This indicates a significant and negative relationship between CEO experience and capital structure. As a result, hypothesis 5 is accepted. This suggests that more experienced CEOs tend to prefer lower debt levels due to their greater risk aversion and a more conservative approach to financing. This result aligns with Bsoul et al. (2022) who argued that more experienced CEOs are typically more risk-averse and prefer conservative capital structures with lower leverage. Additionally, the result supports the view that experienced CEOs may better understand the potential risks associated with high debt and, therefore, opt for lower leverage. In contrast, studies like Chua et al. (2022) and Alghadi et al. (2022) found that experienced CEOs are more comfortable with debt, believing their experience can help them manage the risks associated with higher leverage.

Finally, hypothesis 6 is accepted since CEO tenure has a significant and positive relationship with capital structure. The coefficient is 0.002 with a p-value of 0.0094. This suggests that CEOs with longer tenure are willing to use more debt, potentially due to the stronger relationships they have built with creditors and their familiarity with financing options. This is consistent with Setiawan and Adelisa (2020) who found that longer-tenured CEOs are more likely to secure debt due to their established reputation and connections with financial institutions. Additionally, longer-tenured CEOs are more confident in their decision-making and more willing to use debt as a tool for firm expansion. However, this result contrasts with studies like Wang et al. (2014) who argued that longer CEO tenure may lead to more conservative behavior, with CEOs opting for lower debt to avoid financial risk.

Regarding the control variables, all variables appear to significantly affect DR, but in different directions. While ROA, LIQ, and DPR negatively affect DR, the firm's SIZE, MBV and industry positively affect DR.

5. DISCUSSION

The findings above provide a noteworthy observation that the positive and negative coefficients between CEOs' age and qualification with the firm capital structure are insignificant. This means that those two traits are irrelevant to the decision regarding the combination of the capital structure chosen at least in non-financial Jordanian firms. Regarding CEOs' age, our result is in line with Chin (2022) in the Malaysian context where capital structure is measured as a dummy variable. It documents that whether CEOs are younger or older, they will not affect financing via debt as an initiative in raising capital. In the sense of CEOs' qualifications, our result is also documented by Hall (2020) when capital structure is proxied by the ratios of (TD/TE). Our findings are consistent with RBV. In the Jordanian context, the more skilled and innovative in exploiting an exceptional profit-generating situation are those who hold strong managerial skills and knowledge generated from holding a CEO position in their firms which provides them with sufficient skills and capabilities that enable them to affect financing decision direction easily.

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Regarding CEOs' ownership, the result presents a significant and negative relationship at a 1% level between ownership and decisions concerning the capital structure. Indeed, when CEOs' ownership increases, their preference will be to reduce financing through debt sources. The reason is justified as that in the presence of ownership, CEOs are hesitant to employ the firm's ideal level of debt financing to avoid the increased risk associated with the increased debt level since they have the motivation to preserve their substantial personal portion of their wealth invested in the ordinary share they are holding. This inverse relation puts forward that strict oversight over CEOs should be exercised to make sure that they behave in the best interests of the shareholders, as their propensity would be toward risk-seeking behavior when determining the optimum capital structure. Our result is consistent with Kaur and Singh (2021) who detected the same significant effect. On the contrary, Javaid et al. (2023) and Lauson (2022) report a significant and positive relationship between CEO ownership capital structure as measured by DR. Nevertheless, De Silva and Banda (2022) did not find any significant relationship.

In addition, the results indicate that firms' capital structure is positively and significantly affected by CEOs' duality at a 1% level. When CEOs hold two positions (CEO and board chairman), the power of decision-making will be doubled and concentrated and this will cause top management monitoring effectiveness by the board to be reduced and the board will find it difficult to respond to failure by the top management team, and the agency problems tend to be higher. Moreover, CEOs might increase their ability to take chances and rely on financing via debt. It is worth noting that duties segregation and conflict elimination in a two-tier system enable the CEOs to depend on the board's advice in implementing an effective strategy for making debt financing decisions. Our outcome provides empirical support to Alabdullah and Mohamed (2023); Javaid et al. (2023); Ullah et al. (2021) and Abor and Biekpe (2009) results who use different measures of capital structure. The opposite finding was argued by De Silva and Banda (2022) where a positive and significant result was proved. Finally, Pascal Ndaki1 et al. (2018) did not prove any relationship.

CEOs' experience impacts capital structure negatively and significantly. More experienced CEOs have less willingness toward financing via debt. As the CEOs' experience increases, they become more committed to the status quo and maybe more conservative regarding financing via debt and they tend to improve firm performance and reduce firm risks such as the risk associated with financing via debt (Wiseman & Gomez-Mejia, 1998). Long-experienced CEOs have conservative and rigid managerial thinking tendencies and their long experiences can be detrimental to new strategies innovation and creation and discourage riskier debt financing, even if profitability is negatively affected (Kuo et al., 2015). In this context, it is plausible that CEOs tend to adopt a conservative leadership approach because when they become more experienced, they become more traditional in their firms' management and avoid the risks associated with debt. Our result is consistent with Kuo et al. (2015) who show that in the United States, firms' usage of debt decreases when the CEO experience increases. However, our result is contrary to the results of Lauson (2022) and Alghadi et al. (2022) who find a significant and positive relationship between CEOs' experience and debt level. Finally, Nilmawati et al. (2021) also found the same as our result. No significant relationship between CEOs' experience and capital structure proxied by (TD/TA) ratio.

The result regarding CEOs' tenure indicates that it has a positive and significant relationship with capital structure at a 1% level. When tenure becomes longer, CEOs will be able to adopt and support riskier alternatives such as financing through debt. The rational justification for this result is inherent in their capabilities resulting from the acquired skills of their long-tenured period which enables them to make decisions with less constraint since they construct strong alliances and networks with important shareholders. Another reason may be related to the tendency of CEOs to extend their position in the firm by mitigating agency costs through financing via debt. This result follows several previous studies that show the same relation when they use our measure of capital structure (e.g., (Kaur & Singh, 2021; Pascal Ndaki1 et al., 2018; Setiawan & Adelisa, 2020)). Chao et al. (2017) reveal the same result using both book-value-based and market-value-based proxy for capital structure. However, De Silva

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and Banda (2022) and Abor and Biekpe (2009) did not prove any significant associations. Their conclusion negates any connection between CEOs' tenure and capital structure.

All the selected control variables appear to impact capital structure significantly at a 1% level with different directions. Therefore, they are important determinants of the firm's choice regarding capital structure. It seems that ROA, LIQ, and DPO impact capital structure negatively, whereas SIZE, MBV, and SEC have a positive effect on capital structure. Our result regarding profitability as measured by ROA gives support to the pecking order theory suggestion that profitability affects debt level inversely. Hence, firms with high profits prefer the costlier financing source. Accordingly, they depend on financing through retained earnings instead of borrowing externally from the market. Our result is in line with Javaid et al. (2023); Alghadi et al. (2022); Lauson (2022) and De Silva and Banda (2022) which confirm a negative and significant influence of ROA on capital structure decisions when proxied by (TD/TA). Our liquidity result demonstrates that the level of debt will be decreased as liquidity increases. This result supports the pecking order theory in that when firms' liquidity level is low, taking on debt is encouraged because it could be less expensive compared with internal resources financing. This outcome supports Marlina and Dahlia's (2020) result.

In addition, our finding suggests a positive link between firm size when measured by the natural logarithm of total assets and the firms' capital structure. Hence, the firms are taking on more debt as they get larger. Debt is an inherent risk for both borrowers (firms) and creditors while creditors need the protection of their interest; firms' assets provide them with the required collateral, especially when it is large. Larger firms have lower bankruptcy risk probabilities; they have more access to the financial market; transaction costs are lower; so they can borrow more at a competitive rate. This will encourage them to finance through debt and use the debt to benefit from investment opportunities. Additionally, large firms can afford more risks. They are more diversified, engage in more opportunities and operate multi-nationally. Ultimately, this explains why despite the multiple models used by researchers, size is still the most prevalent variable. Our result supports the results of Alabdullah and Mohamed (2023) and Lauson (2022).

DPR also negatively impacts capital structure; dividends paid to shareholders are decreased with debt financing. Overall, increased dividends signal higher future earnings and can improve market perceptions, reduce perceived risk, align interests, and enhance access to capital, all of which contribute to a lower cost of equity capital for the company. Antoniou, Guney, and Paudyal (2008) rationalize the inverse relationship from the perspective of agency theory, in that, when paying increased dividends, the firms are prone to financing through equity rather than debt since it is less expensive. Increased dividends are a signal that future expected income will be high, which results in lowering equity charges by aligning interests, improving monitoring and discipline, enhancing transparency, and signaling value creation to the market. These mechanisms help mitigate agency costs and improve investor confidence resulting in a lower rate of return required by investors and a lower cost of equity capital for the company. As a result, firms are encouraged to depend more on funding from equity. This explanation justifies the reason why debt-level financing is reduced when dividends paid are enhanced. Debt is a negative factor for dividends; also they are interrelated, if anyone is affected by any issue, the others will be also affected (Chaplinsky & Niehaus, 1993). However, when firms suffer from debt, their preference is to settle debt instead of dividend distribution and, as a result, the financial risk associated with debt may reduce the dividend level (Patra, Poshakwale, & Ow-Yong, 2012). Our result is in line with Asif, Rasool, and Kamal (2011) which confirms a significant negative effect of DPR on capital structure.

MBV is a growth opportunity proxy; the coefficient regarding MBV is positive which indicates that when MBV increases, the dependence on debt financing also increases. This finding supports the pecking order theory prediction which suggests that holding that profitability is fixed, firms with growth opportunities (i.e., the availability of investment alternatives) should increase debt (Frank & Goyal, 2009). In more detail, CEOs' tendency when the industry is enjoying considerable growth should be to maintain their market share and sustain their

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competitive advantage. To keep on track, they are prone to overleveraging their firms since their cash flow is incapable of meeting the capital requirements needed (Li & Islam, 2019). This outcome is on the same track as Thijssen (2017) and Lauson (2022) who report the same negative significant relation. Finally, the results show that industrial firms depend on financing through debt more than service firms which is consistent with Li et al. (2017).

6. CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

This study investigates whether CEO attributes such as age, ownership, qualification, duality, experience, and tenure impact a firm's capital structure. It attempts to bridge the gap in previous research by analyzing CEOs' attributes are crucial to understanding a firm's capital structure. The sample comprises 80 ASE-listed services and manufacturing firms from 2015 to 2022. The empirical findings confirm that CEOs' ownership and experience have a significant and negative impact on Jordanian firms' capital structure while duality and tenure effects are positive and significant. However, no significant relationship was observed between the firm's capital structure choice and the CEO's age and qualifications. On the other hand, all tested control variables significantly affect the capital structure. Profitability, liquidity, and dividend payout ratio negatively impact debt levels while firm size, market-to-book value, and industry sector positively influence it.

The findings pointed out that when the CEO ownership and experience increase, their willingness is toward deleveraging, while when they are entrenched whether through duality or longer-tenure, their willingness is toward increasing financing via debt. Based on these findings, when appointing a CEO, more attention to these traits should be paid since they will cause capital structure deviations from the optimal, whether more or less than shareholders' ideal one, as a result, distorting (defecting) the firm's overall value. Additionally, the board of directors should be cautious when CEOs become longer and longer-tenured, because they may override corporate governance, so the dependence on corporate governance merits will be reduced and they will have enough courage and confidence to change their tendency toward debt-level decisions, whatever the risk associated and surrounding shareholders.

Generalization of the study results should be done cautiously since the scope of the study encompasses only 80 firms with complete data, a larger sample could provide more robust insight. Similarly, the analysis is confined to non-financial firms, which limits the application of findings across all sectors, particularly those with unique financial structures like banking and insurance. In addition, only a subset of CEO characteristics was examined. Future studies could explore additional traits such as compensation, integrity, risk appetite, political connections, and overconfidence to provide a more comprehensive understanding of the factors impacting capital structure. Moreover, caution should be taken in generalizing the results because of the lack of previous Jordanian-related studies and a few particular traits that were examined in the literature.

Industry players should utilize insights from this study to shape strategic decisions and optimize capital structure based on our results. Understanding how CEO attributes influence financing can guide more effective management practices. Regulators also may benefit from our results to control the mechanisms of capital structure formulation in non-financial Jordanian firms listed. Regulators should strengthen enforcement of corporate governance principles to prevent excessive risk-taking and ensure that CEO behavior aligns with shareholder interests, regularly review and update regulations to address evolving governance challenges maintain robust oversight of capital structure formulation, and consider setting limits on CEO ownership and dual roles to mitigate potential conflicts of interest and reduce the likelihood of agency problems. They also should be vigilant when CEOs have long tenures or hold dual roles, as this can weaken governance and shift their approach toward more aggressive debt financing. The board of directors is recommended to understand the effects of the CEO attribute carefully, since it may increase the CEO's likelihood to invest in risky activities that could expose the company to bankruptcy probabilities, especially when investment is financed through debt.

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Future researchers are recommended to expand research to include a more diverse and larger firms sample of Jordanian firms, including those in the banking and insurance sectors. They also are recommended to investigate other CEO attributes not covered in this study, such as compensations, integrity, risk appetite and political connections to gain a wider picture of their impact on capital structure. Finally, they are recommended to perform cross-sectors and cross-country analysis to validate and contrast the findings from the Jordanian context.

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