“The connection between Capital structure and performance: Does firm size matter?”

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THE CONNECTION BETWEEN CAPITAL STRUCTURE AND PERFORMANCE: DOES FIRM SIZE MATTER?

Abstract

The purpose of this paper is to empirically investigate the impact of capital structure decisions on firm performance in Jordan (2010–2018), as well as the extent to which firm size matters in the capital structure-performance relationship. The dependent variable was market share. The main independent variables were the book value of total debt ratios, and firm-specific factors such as firm size, firm age, firm growth, and market-to-book value of equity served as control variables. This study used a quantitative research method using panel data analysis of 830 firm-year observations. Random effects model was employed to analyze the capital structure-performance nexus. To infer correctly, the main analysis was re-examined using the generalized method of moment estimator to overcome possible endogeneity concerns. After controlling for endogeneity and firm heterogeneity, this study finds that the book value of capital structure has a significantly positive relation to a firm's market share. Hence, every one unit increase in the book value of total debt ratios will increase market share by 4.77%. The firm size, sales growth, and market-to-book value of equity had a significantly positive association with market share. Hence, every one unit increase in firm size, growth and market-to-book equity ratio will increase a firm's market share by 8.84%, 2.06%, and 2.15%, respectively, but surprisingly, firm age did not meaningfully contribute to operating performance. Another important finding was that the strength of a positive relationship between the book value of total debt ratios and market share depends on the size of a firm and is mostly higher for larger-sized firms. Hence, every one unit increased in the book value of total debt ratios for large firms will increase market share by 10.58%.

Keywords capital structure, panel data, random effect, GMM, Jordan

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INTRODUCTION

Capital structure is considered to be one of the prime pillars of corporate financial decisions. It boosts investment opportunities, enhances corporate performance, and thus, insures a firms' survival (Attia et al., 2023). Thus, the financial judgment that made by a firm's management is quite decisive in deciding the optimal capital structure (Ibhagui & Olokoyo, 2018; Senan et al., 2021). Many theories on capital structure have emerged to identify optimal capital structure and explain this nexus (Mansour et al., 2022b; Stoiljković et al., 2022). From a theoretical viewpoint, the divergence in prior studies may be partly explained by competing theories. Modigliani and Miller's (MM) irrelevance theory suggests that capital structure is irrelevant to corporate value (Otekunrin et al., 2020) and has relied on assumptions that fit a perfect market but do not work in the real world. Instead, other theories like agency, trade-off, signaling, and pecking order, have been primarily based on de facto assumptions compatible with imperfect capital markets (Abdullah & Tursoy, 2019; Xin et al., 2023). Even though these

theories suggest unrelated arguments, capital structure is relevant to corporate value, profitability, and performance, but no single theory can fully make the connection between capital structure and FP clear. Indeed, Jensen and Meckling (1976) have long debated that the quantity of debt in a firm's capital structure influences agency conflicts between agents and principals by compelling or pushing agents/managers to undertake actions in the principals'/shareholders' interests, which means that the debt level in capital structure influences firm performance (FP). The relationship between debt ratio and FP has been a major theoretical and empirical debate (Attia et al., 2023). Practical evidence has recently produced contradictory findings and indicated that this relationship is related to specific circumstances. From the empirical viewpoint, one believable explanation for this ambiguity (Ibhagui & Olokoyo, 2018) may be the failure of existing empirical studies to model the contingent role that the size of a firm plays in the relationship between capital structure and firm performance (Attia et al., 2023; Danso et al., 2020).

1. LITERATURE REVIEW

Numerous empirical studies such as Danso et al. (2020), El-Sayed Ebaid (2009), Fosu (2013) Otekunrin et al. (2020), and Senan et al. (2021) have explored the association between capital structure "corporate financial decisions" and FP in different countries, and stated that this association was imperative. Thus, capital structure management encompasses selecting debt and equity levels for maximizing shareholders' wealth. However, various theories have continued to evolve over the past sixty years in modern corporate finance to help unravel the capital structure puzzle (Ibhagui & Olokoyo, 2018). These theories postulate how a firm can build an optimal "capital structure," which advances FP by choosing the best debt financing and equity mixture (Ayaz et al., 2021). Debate on capital structure has been dynamic in the economic and finance literature since MM's (1958) seminal article on corporate, which suggested that capital structure is irrelevant in deciding FP. However, by relaxing or removing the underlying assumption of taxes, MM (1963) suggested that firms could use a maximum debt financing (gearing) in mixture of capital structure to gain additional advantages, including tax-deductible interest payments. However, when the theorem's restrictive assumptions related to taxes, asymmetric information, and agency costs are relaxed, capital structure (debt-equity) becomes significant in determining firm value and performance. Thus, a maximum debt level in the best capital structure mixture positively influences FP (Ibhagui & Olokoyo, 2018). Relying on the arguments, Berger and di Patti (2006) concluded the link between capital structure and FP in the US banking industry is positive and significant. Similarly, Fosu (2013) investigated the association between capital structure and FP in South African companies from 1998 to 2009 and found that capital structure has positive effects on ROA. This view is supported by KyereboahColeman, (2007), who emphasized that capital structure increased firm outcomes and boosted FP and efficiency by decreasing agency costs. In a similar setting, Gill et al. (2011) found that capital structure measures and the return on equity were positively associated using data from 272 American-listed firms from 2005 to 2007. Also, Margaritis and Psillaki (2010) found that the correlation was significant and positive between capital structure and French FP using data from 2002 to 2005. Margaritis and Psillaki (2007) reported similar findings in New Zealand. The signaling theory states that debt level must be positively correlated to FP when asymmetric information is present. Thus, consistent with signaling theory, Ibhagui and Olokoyo (2018) found that the influence of leverage level on market performance (Tobin's Q) is positive for non-financial sector of Nigeria. Conversely, Yazdanfar and Öhman (2015) examined the connections between several measures of capital structure and FP of Swedish firms and conclude a negative correlation among them. Similarly, Fosu et al. (2016) investigated the determinants of firm value employing a large sample of UK companies, and the results suggested that capital structure affected firm value inversely. Also, Nassar (2016) empirically investigated the association between capital structure and FP of industrial firms listed on the ISE. He found a significant and adverse association between all accounting indicators of FP and debt ratio. Abor (2005) applied regression analyses and correlations to a panel dataset for GSE-listed firms. He found that the association between capital structure metrics and ROE was significant and positive. In addition, Ayaz et al. (2021) explored the association

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between capital structure and FP in Malaysia, reporting an adverse relationship between all capital structure measures and all FP indicators.

Jordan represents a unique example for two reasons. First, even though Jordan has proceeded down the pathway towards a free-market economy, old-school government support of economic entities might quietly control managerial decision-making, which possibly will help clarify the high debt level in the capital structure of many Jordanian firms. This mainly encompassed public sector firms later partially or wholly owned by the owned private sector due to the privatization processes (Alabdullah, 2018) that the government in Jordan adopted in the mid-19th century (Mansour et al., 2021). Second, the Jordanian financial market is incomplete and less efficient and suffers from higher informational asymmetry than the markets in more advanced nations (Mansour et al., 2022a). Furthermore, the capital market in Jordan (ASE) is still an equity (Share) market (Mansour et al., 2022b), so the structure of the debt (bond) market is still immature. Thus, this capital market environment might lead to imperfect corporate financing decisions subject to large irregularities. Hence, it is essential to investigate the validity of capital structure decisions in the Jordanian setting, given its unique economic institutional characteristics, in light of the dominance of banks in lending to the industrial and services sectors. There are relatively few historical studies in the area of capital structure and FP in the Jordanian framework. Zeitun and Tian (2014) examined the influence of capital structure on FP in Jordan's environment by employing market and accounting measures. The results found an important inverse association between them for all metrics. Likewise, Soumadi and Hayajneh (2012) conclude that the association between capital structure and FP of ASE-listed Jordanian public companies from 2001 to 2006 is a statistically significant and negative correlation. Their findings might be imputed to Jordanian companies' heavy dependence on financing their borrowing operations, which might increase bankruptcy risk. In the same vein, Shubita and Alsawalhah (2012) extended Abor's (2005) and Gill et al.'s (2011) inferences regarding the impacts of capital structure on firm profitability when examining the effect of capital structure on the profitability of industrial sector firms listed on ASE from 2004 to 2009. They found a significant and quite negative association between debt level and firms' profitability in the industrial sector. This view is supported by Khraiwesh and Khrawish (2010) who examined the impact of capital structure on the profitability of ASE-listed industrial firms from 2001 to 2005. They found a significant negative association between the financial leverage ratio and industrial firm profitability. Nonetheless, some researchers, like Cuong and Canh (2012), reported no association between capital structure and FP; they examined the consequence of an optimal capital structure on Vietnam FP and concluded that the relationship among optimal financial leverage and FP was nonlinear. Likewise, El-Sayed Ebaid (2009) examined the impact of capital structure choices on the FP in the Egyptian context from 1997 to 2005, employing the measures of ROA, ROE, and gross profit margin. The findings indicated that capital structure decision choices had little to no effect on the Egyptian listed FP. The substantial differences in the earlier results might be ascribed to the variations in the econometric techniques, performance metrics employed, the period covered, the performance metrics employed, sample size, or the sector. Consequently, the impact of leverage level on FP needs more examinations. To sum up, previous empirical studies about the association amongst corporate capital structure and FP have produced mixed and conflicting evidence (Otekunrin et al., 2020). Furthermore, scant studies have empirically examined this relationship in a less developed nation (Hamouri et al., 2018). Thus, the purpose of this study is to discover the relationship between capital structure and operating performance of 83 non-financial listed firms in the Jordanian financial market (2010–2019).

Thus, no agreement has been reached on this nexus. If firm size impacts FP and the relationship between capital structure and FP continues a subject of discussion, then firm size should provide some explanation for the ambiguous relationship between capital structure and FP. Yet, significantly, only a few studies have investigated this nexus in the Jordanian context.

Thus, the purpose of this study is to empirically investigate the impact of capital structure on FP, and also the extent to which firm size matters in the capital structure-performance nexus by using Jordanian data.

2. METHODOLOGY

2.1. Sample selection and data collection

Because the Jordanian financial market is small, this study used all publicly traded ASE-listed firms from 2010 to 2018 as a sample, and information was obtained from the Securities Depository Center. This database agency houses market data and financial statements of all Jordanian-listed firms, subject to Jordan Securities Commission regulations. Listed firms were screened for two factors. The financial sector firms were excluded because their regulatory framework differs significantly from non-financial sector firms, and their capital structure is dissimilar to non-financial firms. Only non-financial sector firms with financial data for the test period from 2010 to 2019 were included. This screening yielded a final sample of 83 firms. Following Ayaz et al. (2021) and Danso et al. (2020), to overcome the impact of outliers, this study winsorized (5th and 95th percentiles) each variable has an extreme value on either tail.

2.2. Measurement of variables

2.2.1. *Firm performance*

The relevant literature contains various FP metrics (Al-Naimi et al.,2021; Al-quraan et al., 2021). Among these metrics are accounting-based measures susceptible to accounting revenue method variations, often subject to accounting manipulations (Alabdullah, 2018; Mansour et al., 2022a). In addition, developing countries such as Jordan are usually inefficient (Mansour et al., 2022a). Therefore, conclusions derived from market measures might be open to doubt at best. Consequently, this study employed a novel conceptualization of operation performance, market share, as Alabdullah (2018) and Mansour et al. (2022a) recommended estimating financial FP in its association with the capital structure in the Jordan setting. No previous study has done this.

2.2.2. *Capital structure*

Like previous research (Iyoha et al., 2022; Mansour et al., 2022b; Senan et al., 2021), capital structure as a key explanatory variable was measured using a ratio of "total debt to total assets" (book value of capital structure), which has a retrospective look at which of them were used primarily. Additionally, the study follows Ayaz et al. (2021) by using the market value of capital structure, which is forward-looking and used in the robustness test.

2.2.3. *Control variable*

Past studies have indicated that standard covariate variables, for instance, firm age (Mansour et al., 2022a), growth (Fosu et al., 2016), size (Abdullah & Tursoy, 2019), and market-to-book value of equity (Mansour et al., 2022b), in addition to year and industry dummy variable (Yazdanfar & Öhman, 2015), can influence FP (Saleh et al., 2021). Thus, they were included in the models.

Table 1. Variable definitions

Variable	Symbol	Definition
Explanatory variables		
Book value of capital structure	BLev	Book value of (total debt / total assets)
Market value of capital structure	MLev	Total debt / (total common equity plus total debt)
Response Variable		
Market Share	Mshare	(Net sales of firm / total sales of the industry sector)
Control variables		
Firm size	Size	Natural logarithm of total assets.
Firm age	Fage	Total number of years since (IPOs) inception to the date of observation, then converted to natural logarithm
Firm sales growth	Grow	Measured as the ratio average annual sales growth
Market-to-book equity ratio	MtB	Market value of equity/book value of equity
Dummy years	YEAR	Dummies to examine the effect of time 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, and .2018

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2.3. Model

The following regression model investigated the relationship between corporate capital structure and the operational performance of Jordanian listed firms:

$$MShare = \beta_0 + \beta_1 BLev + \beta_2 Size + \\ + \beta_3 Fage + \beta_4 Grow + \beta_5 MtB + \\ + \beta_6 Year + \beta_7 Industry + \varepsilon_{i,t}, \quad (1)$$

where i denotes non-financial firms (1-83), t is a study period (2010–2019). Table 1 lists the definitions of all these variables.

3. RESULTS

3.1. Descriptive statistics

Table 2 mainly provides the descriptive analysis of the variables in this study for the 83 firms as a part of industrial and services sector ASE-listed firms by number of observations, mean value, standard deviation, minimum, and maximum value of variable. It also provides statistics regarding skewness and kurtosis values, showing that the study sample had normal deviation or normal distribution.

Table 2 provides statistics for operational performance measures, including market share as novel FP metric for the period studied (2010–2018). Table 2 displays the summary statistics for market share ranged from 0 to 70.1%, with mean value (Std. Dev.) of 18.31% (.188). Also, Table 2 offers summary statistics for BLev, which is a key independent variable. BLev ranged between 4.9% and 94.9%, with a (Std. Dev.) of .211, and the mean BLev value was 33.6%. The results of this study show that some study sample firms still greatly depend on equity rather than debt, likely due to the lack of the debt market in Jordan.

3.2. Bivariate correlations

The Pearson correlation matrix is an econometric tool that inspects the relationships between variables. It is employed to investigate the association's strength, direction, and significance among variables. Furthermore, a Pearson correlation matrix indicates the absence or presence of multicollinearity. Pearson's correlations were used to acquire an initial view of the bivariate links between selected variables before an official empirical examination was conducted. A cross-correlation analysis also assists in objectively determining how much similarity exists among selected variables to guarantee that suitable variables are included in a regression model.

Table 3 presents correlation analysis of continuous explanatory variables. No correlations among explanatory variables had coefficients above 0.700; thus, multicollinearity was not a significant concern in the regression examination.

Table 3 indicates a positive correlation was found between BLev and performance indicator (Mshare), with a value of 0.21, at the 1% level, signifying that FP benefits from BLev. In addition, all control variables were significantly and positively correlated with Mshare at the 5% level or better. Multicollinearity was tested employing the tolerance and variance inflation factor (VIF) ratio for all explanatory variables. Accordingly, it was shown that from Table 3, all VIF ratios were less than 10, and tolerance values were more than 0.1. Thus, multicollinearity problem was not an issue.

Table 2. Descriptive statistics and normality tests

Variables	Obs.	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Mshare	830	0.1831	0.188	0	0.701	1.675	3.10
BLev	830	0.336	0.211	.0049	.949	0.878	3.251
Size	830	17.30	1.44	13.06	21.3	.278	3.94
Fage	830	2.95	0.69	.693	4.382	–0.2	2.632
Grow	830	.014	0.2	–.428	0.409	–.12	2.95
MtB	830	–.0129	0.703	–2.017	2.519	.2028	3.231

Table 3. Correlation analysis and multicollinearity test

Variable	Mshare	BLev.	Size	Fage	Grow	MtB
Mshare	1.000					
BLev.	0.21*	1.000				
	(0.000)					
Size	0.59*	0.361*	1.0000			
	(0.000)	(0.000)				
Fage	0.132**	0.10**	0.26*	1.000		
	(0.0013)	(0.014)	(0.0000)			
Grow	0.082**	0.036	0.092**	–0.061	1.000	
	(0.045)	(0.39)	(0.027)	(0.14)		
MtB	0.1126*	0.1189*	0.1780*	0.1659*	0.0444	1.000
	(0.0063)	(0.0039)	(0.000)	(0.0001)	(0.283)	
VIFs	–	1.151	1.243	1.092	1.121	1.064
Tolerance	–	0.866	0.809	0.915	0.896	0.961

Note: *** p < 0.1, ** p < 0.05, and * p < 0.01 (2-tailed).

3.3. Multivariate regression analysis

Multivariate regression analysis (MRA) for longitudinal data was employed to examine the direction and strength of the association between independent and dependent variables. MRA helps tell whether independent variables significantly affect a dependent variable, and suggests that the portion of a change in the explained variables is attributable to the explanatory variables. Random effects models were created to test the key hypotheses: FP (expressed by Mshare) was the major dependent variable, and the book value of capital structure (expressed by BLev) was the main independent variable. All control variables were included to rule out other possible explanations that the literature has used: a firm's size and age, sales growth, the market-to-book ratio of equity, and Year Dummy (denoted by Size, Fage, Grow, MtB, and YEAR, respectively).

Table 4. Coefficient estimates for the association between capital structure and market share

Variables	Coefficients (Std. Err.)	z
Constant	–1.453*(.1335)	–10.88
BLev.	.0477 * (.0126)	3.78
Fsize	.0884* (.0074)	11.98
Fage	.0223† (.0157)	1.43
Growth	.0206*** (.0107)	1.93
MtB	.0215** (.0093)	2.31
Year Dummies	Yes	
Wald chi² (11)	14.26	
Prob > chi²	0.0000	
R² (overall)	0.345	
Breusch & Pagan test	294.03 *	
Hausman results	0.3348 †	
Obs.	830	
Number of firms	83	

Note: *** p < 0.1, ** p < 0.05, and * p < 0.01. † p insignificant.

Table 4 shows that the GLS regression results for the association between BLev and market share had important explanatory power. The coefficient of determination of the model was 34.5%. In addition, the Wald chi² test value of 14.26 is important at the 1% level or better. These findings show that the model was statistically valid. The model's R^2 (overall) demonstrated that independent variables explained 34.5% of the variation in FP. The results of this investigation found that the coefficient estimate of BLev level positively and differs significantly from the market share ($z = 3.78$, $p < 0.01$ or better). The result shows that BLev has a positive effect on the operating performance of non-financial listed firms in ASE. The result indicates that every one-unit change (increase or decrease) in a firms' capital structure peroxided by BLev keeping other things that remain constant have a consequential change of 4.77 cents on the market share in the same direction (increase or decrease). Turning the attention to the control variables, this study finds that Fsize, Growth, and MtB had a significantly positive association with market share as indicated by coefficients in Table 4. From this it can be understood that every one-unit change (increase or decrease) in Fsize keeping other things that remain constant, leads to a consequential change of 8.84 cents on the market share in the same direction (in-

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crease or decrease). Similarly, the result also indicates that every one-unit change (increase or decrease) in Growth, MtB keeping other things that remain constant, leads to a consequential change of (2.06), 2.15 cents on the market share in the same direction (increase or decrease). The results also found no effect of Fage on market share.

3.4. Additional analysis

Two different procedures, alternative measures of the main independent variable and alternative estimations, were run to check the strength of the main outcomes. First, to determine the primary empirical model's robustness, this paper employed an alternative measure of capital structure such as Ayaz et al. (2021), and Le and Phan (2017). Thus, Market Lev was used as a proxy for capital structure instead of the Book Lev as defined in Table 1.

Table 5 shows the outcomes. Again, the results point out positive and statistically significant coefficients between the MLev and the market share. The outcomes repeat using the market Lev as an alternative measure of capital structure. The coefficient of determination of the model was 34.5%. In addition, the Wald chi² test value of 14.26 is important at the 1% level or better. These findings show that the model was statistically valid. The model's R^2 (overall) demonstrated that independent variables explained about 36% of the variation in FP. The results of this investigation found that the coefficient estimate MLev level positively and has a significant difference on the market share ($z = 3.13$, $p < 0.01$ or better). This result specifies that every one-unit change (increase or decrease) in a firms' capital structure peroxided by MLev, keeping other things that remain constant, has a consequential change of 4.67 cents on the operating performance as measured by market share metric in the same direction (increase or decrease). Regarding the control variables, as same as the baseline model presented above, this model also finds that Fsize, Growth, and MtB had a significantly positive association with market share as indicated by coefficients in Table 5. From this one can understand that every one-unit change (increase or decrease) in Fsize, keeping other things that remain constant, has a consequential change of 9.96 cents on the market share in the same direction (increase or decrease). Similarly, the result also indicates that every one-unit change (increase or decrease) in (Growth), MtB keeping other things that remain constant has a consequential change of (4.379), 51.05 cents on the market share in the same direction (increase or decrease). The results also found no impact of Fage on market share.

Table 5. Relationship between Market Lev and operating performance

Variables	Coefficients (Std. Err.)	z
Constant	–1.36* (.4775)	–2.81
MLev.*	.0467* (.4845)	3.13
Size	.0996* (.02023)	4.93
Fage	.02975† (.01711)	1.74
Grow	.04379** (.0179)	2.45
MtB	.51052* (.06151)	8.30
Year Dummies	Included	
Wald chi²	101.18	
Prob > chi²	0.0000	
R^2 (overall)	0.3597	
Breusch & Pagan test	1462.64*	
Hausman Test results	0.7767†	
Observations	830	
Number of groups	83	

Note: *(Market Lev. = Total debt / (total common equity plus total debt)). *** p < 0.1, ** p < 0.05, and * p < 0.01. † p insignificant.

Second, by considering potential endogeneity problems such as "reverse causality, time-invariant endogenous variables, and measurement errors," the 2-step GMM estimator is employed to develop dynamic models of a firm's capital structure levels (Xin et al., 2023). It is widely known that 2-step GMM can deal with most endogeneity problems likely to plague results in econometric models, which makes the relationships biased and unreliable. In this respect, an area of capital structure and FP has been examined in-depth, and so far, minimal works have applied GMM estimators to relieve endogeneity fears. Thus, to locate these endogeneity concerns and infer accurately, this study employed a 2-step GMM system "second-order transformation" as a supplementary test to acquire the generalizability and robustness of the key results reported in Table 4. The command "xtabond2" in Stata 14 was run to obtain estimates of 2-step System GMM. The 2-step system GMM models were robust against autocorrelation and heteroscedasticity (Mansour et al., 2022a).

Table 6. Impact of capital structure on performance: Two-step GMM estimation

Variables	Coefficients (Std. Err.)	p>t
Constant	–.3177* (.01975)	0.000
Market Share (t–1)*	.84455* (.01006)	0.000
BLev.	.04487* (.00619)	0.000
Fsize	.02022* (.00118)	0.000
Fage	–.00765* (.00081)	0.000
GROWTH	.00192** (.000733)	0.011
M/B	.00764* (.001)	0.000
Year Dummy	Yes	
F	7144.52	
Prob > f	0.000	
Hansen J.	0.478	
AR(1)	0.029	
AR(2)	0.344	
Obs	747	
Group	83	
No. of Instrument	61	

Note: * M. Share (t-1) is the past explained variable (lagged of market share). *** p < 0.1, ** p < 0.05, and * p < 0.01. † p insignificant.

Table 6 summarized the Hansen and Arellano–Bond tests results; they showed that the 2-step GMM estimation was valid. Table 6 also demonstrates that the 2-step GMM estimation produces the same findings shaped by random-effects regression, except for Fage. Accordingly, endogeneity concerns were unlikely to confound the results. Consequently, the nexus between a firms' capital structure level and performance is not untrue because of endogeneity in sample firms in the Jordanian context. 2-step GMM findings reported in Table 6 and the conclusions in Table 4 were qualitatively alike. Overall, the signs of the estimated coefficients stay in the same direction. The coefficient of book Lev, as reported in the first column of Table 6, is mostly positive and significant at the 5% level or better. This indicates that every one-unit change (increase or decrease) in BLev keeping other things that remain constant has a consequential change almost of 4.49 cents on the market share in the same direction (increase or decrease). This finding aligns with earlier results determining that higher gearing of leverage produced higher FP.

3.5. Sensitivity analysis

Following studies such as Abdullah and Tursoy (2019), Ibhagui and Olokoyo (2018), and Danso et al. (2020), this study determined whether the association between capital structure level and FP in the non-financial sector was related to firm size. Thus, the sample was split based on the mean value of firm size, which was 17.30: those firms with a size below the mean value were considered smaller firms, and the firms with a size more than the mean value were considered larger. Table 7 sets out the results.

Table 7. Regression results (capital structure-performance) relying on firm size effects

Variables	Small Firms	Large Firms
	Coefficients (z-statistics)	Coefficients (z-statistics)
Constant	–.9246* (–4.55)	–2.215* (–10.06)
BLev.	.0229† (0.62)	.1058* (2.66)
Size	.02536 (2.15)	.1357* (10.85)
Age	.01176† (1.55)	.0698* (12.29)
GROW	.02248*** (1.72)	.0223* (7.98)
MtB	.00732*** (1.80)	.01296* (8.34)
Year Dummies	YES	YES
Wald chi^2	64.14	194.36
Prob > chi^2	0.000	0.000
R^2 (overall)	0.2124	0.3201
Obs.	390	440
Number of groups	39	44

Note: *** p < 0.1, ** p < 0.05, and * p < 0.01. † p insignificant.

Thus, the outcomes support this study's main findings that the capital structure level and FP were positively associated with larger firms. As Table 7 shows the magnitude of the influence grows with firm size. This implies that firm size has a significant marginal effect. This interesting finding is the evidence that the strength of the positive association depends on a firm's size and is mostly higher for larger-sized companies. This specifies that every one-unit change (increase or decrease) in the BLev for large firms keeping other things that remain constant has a consequential change of 10.58 cents on the market share in the same direction (increase or decrease). This may imply that Jordan's non-financial firms rely heavily on debt to grow. That is, large-sized firms in Jordan are better able to earn the benefits of financial leverage than their smaller ones. Thus, the large-sized firms in Jordan's non-financial sectors are better able to position themselves and utilize economies of scale to their advantage (Ibhagui & Olokoyo, 2018; Mansour et al., 2022b). In addition, the expectation is that large firms would be more profitable due to their ability to acquire less expensive funding and would be able to spread their business risks because of greater diversification.

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4. DISCUSSION

To discuss the results, this study will discuss the results according to the conducted analyses. The primary analysis informed that there is a positive and significant relationship between the book value of capital structure and the market share of non-financial Jordanian listed firms. A positive association between capital structure level and FP aligns with assumptions of agency theory, which posits that firms might utilize (high gearing) higher debt levels to reduce agency issues among agents and principals, increasing FP. Furthermore, a positive relationship was also in line with predictions of the signaling theory, which postulates that debt must be positively linked to FP in the attending of asymmetric information. The rationale for this debate is that profitable firms may signal by high gearing, causing in a positive link among capital structure level and FP. Many researchers (e.g., Ibhagui & Olokoyo. 2018) contend that gains from the capital structure level are significant, and debt utilization magnifies FP due to the earnings produced are much greater than the average interest expense incurred at the capital structure level. Moreover, the current research findings are consistent with Fosu (2013), Ibhagui and Olokoyo (2018), and Ayaz et al. (2021). Alternatively, a positive association between capital structure level and the FP of Jordanian non-financial sectors as a developing nation is incongruous with MM (1958) debt irrelevance theorem. However, the theory is based on restrictive assumptions, which do not apply to real-world situations. In the Jordanian setting, the present study's outcomes are compatible with Almajali et al. (2012) regarding insurance firms and Taani (2014) regarding Jordanian banks. Table 4 shows regression results for the combination of control variables, namely: Size, Grow, and MtB had a positive association with market share for non-financial listed firms. These results align with fresh evidence (e.g., Alabdullah, 2018: Mansour et al., 2022a). The existing study also found no impact of the Age on market share; however, unlike the earlier research (Mansour et al., 2022b; Zeitun & Tian, 2014), this study unexpectedly found that age did not meaningfully contribute to FP. Then, this study performed additional analysis by employing an alternative measure of capital structure like prior studies. Thus, Market Lev. was used as a proxy for capital structure instead of Book Lev. Again, the results from Table 5 point out positive and statistically significant coefficients between the market debt ratio and the market share. Also, this study uses a 2-step GMM system and produces the same findings shaped by random-effects regression. Finally, this study conducted a sensitivity analysis relying on the firms-size effects, and concludes that the strength of the positive relationship between total debt ratios and market share depends on the size of a firm due to a significant marginal effect. This result is consistent with the empirical evidence from Abdullah and Tursoy (2019), Ibhagui and Olokoyo (2018), and Danso et al. (2020).

CONCLUSION

This paper aimed to examine the relationship between capital structure and FP using market share as a powerful technique for operational performance, as well as to determine whether the relationship between capital structure level and FP in the non-financial sector was related to the size of firms. To do this, the study uses both static models, random-effect regression method, and a two-step GMM estimator. The main finding shows that the total debt ratio has a significant and positive relationship to the operating performance of non-financial Jordanian firms. Hence, in economic terms, a one-unit increase in the Blev will increase firm performance by up to 4.77%. This confirms the predictions of agency theory, and is in accordance with most studies conducted in developed countries. These findings prove that the benefits of debt from tax saving may be less than financial distress cost in Jordan. Another important finding was that the strength of the positive relationship between total debt ratios and market share depends on the size of a firm, which indicates that larger non-financial firms can benefit more from economies of scale and acquiring less expensive funding. These findings are novel and remain vigorous to endogeneity forms and alternative measures of capital structure. As far as control variables are concerned, firm size, firm growth, and market-to-book value of equity are positively related to corporate performance, whereas firm age did not meaningfully contribute to FP. This paper contributes

to the literature on corporate financial decisions in several ways. First, it enlarges knowledge of financing of non-financial firms in Jordan, which, although a vital component of the ASE, has not received due attention compared to financial sectors. Second, this study offers further insights into the objectivity of contradictory performance measures. This study contributes to capital structure literature by exploring the capital structure and FP nexus in the Jordanian settings depending on market share as a novel measure of operating performance. Third, unlike prior studies in developing countries and especially in Jordan, this study explicitly deals with endogeneity problems posed by the association between capital structure and FP to conclude correctly. Last, this paper offers significant policy implications for financial managers, investors, and lenders. For instance, empirical outcomes designate that investors must deliberate a firm's debt level prior to making investment decisions, and lenders must carefully impose debt agreements because of their effects on FP. Last, financial managers must deliberate capital structure influences on FP before changing the debt levels.

AUTHOR CONTRIBUTIONS

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