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The Nexus between Capital Structure and Firm Value by Profitability Moderation: Evidence from Saudi Arabia*

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Abstract

The current study examines the nexus between the capital structure (debt-equity) and firm value (Tobin's Q) by including profitability (alternatively Return on Assets (ROA) and Return on Equity (ROE)) as a moderator in the companies of Saudi Arabia. The study sample consists of 102 companies listed on Tadawul (the Saudi Arabian stock exchange) from different sectors of Saudi Arabia during the period 2013 to 2020. The study estimates pooled regression, panel regression with fixed and random effects, and dynamic panel regression models to report the results. The study results report that there is a negative and significant association between capital structure and firm value in model 1, while in models 2 and 3 there is a more negative and significant impact between the two study variables compared to model 1 after the inclusion of interaction variable, i.e. profitability in terms of ROA and ROE. The comparative result shows that the companies of Saudi Arabia hold more debt in their capital structure mix, hence evidencing a decrease in the firm value. The reported results also show that models 2 and 3 are better in explaining the impact of capital structure on firm value due to the interaction of profitability compared to model 1.

Keywords: Capital Structure, Firm Value, Return on Assets, Return on Equity, Moderation

JEL Classification Code: L25, L66, M40, M41

1. Introduction

Capital structure is still a puzzle among finance scholars. It is one of the most argumentative topics among scholars in finance. The decisions about firms' finance and capital structure occupy an important place in firms' management as it effects management decisions in using different finances that lead to firms' capital structure, which may have different influences on the performance of a firm (Pandey & Sahu, 2019). If there has been any area of finance theory that has attracted the greatest attention and caused the highest controversy, it is definitely the theory of capital structure and leverage and how they affect a firm's performance. The capital structure of the firm, as defined by Martin (2011), is the mixture of debt and equity that the firm employs to finance its productive assets, operations, and future growth. Brealey et al. (2017) define Capital structure as the mix of debt and equity financing. Optimal capital structure can affect the company's competitive advantage and market share which leads to firm value (Gill et al., 2011; Kumar et al., 2017).

Financial performance is a general term that describes the overall financial health of an organization. It is a particular measure of optimum utilization of resources to increase profitability. However, financial statements do not reveal all the information related to the financial operations of a firm, but they furnish some extremely useful information, which highlights two important factors profitability and financial soundness.

The firm value is the main key to the welfare of shareholders or company owners. By increasing the firm value, the welfare of the shareholders will increase. The firm

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value comprises book values of equity and debt. The potential investors favor a firm with an efficient firm value, while the opposite is true with a lower firm value. The factors, such as firms' capital structure (CS) and profitability influence firm value (Firm VA). This depends upon the effective utilization of available resources and market value added (MVA), which is the association between the inputs and outputs of firm production. At the beginning of its theory development, the capital structure was convinced to be irrelevant to the performance of corporations, as suggested by Modigliani and Miller (1958, 1963).

In the context of Saudi Arabia, three studies have been conducted that, surprisingly, show mixed results. Salameh (2012) and Suleiman (2013) report a negative association between capital structure and firm performance, whereas Twairesh (2014) found a significant and positive association. Most other empirical studies on the capital structure of the firm and profitability have been conducted on industrial firms in different countries. Therefore, the current study aims to conduct an empirical investigation of the Nexus between Capital Structure and Firm Value with Profitability as a Moderator. The current study contributes to the body of literature as the first to investigate the Nexus between Capital Structure and Firm Value with Profitability as a Moderator in Saudi Arabia.

2. Literature Review

The variety of theories encourages researchers to conduct empirical studies of both the dimensions and consequences of capital structure. The importance of incorporating capital structure decisions is first highlighted by the pioneering work of Modigliani and Miller (1958). According to MM, the debt-to-equity ratio has no impact on the total value of the firm. However, this claim was reversed later to state that a firm's value is maximized when debt is the only source of finance (Modigliani & Miller, 1963). The moderating effect of firm size confirms that size of the firm moderates the effect of selected determinants on the debt ratio of different categories of firms. Further Based on regression results, the study concluded that tangibility, tax rate, and cash flow as significant determinants of long-term borrowing for overall sample firms. On the other hand, tangibility, liquidity, and profitability are significant factors affecting the short-term borrowings of selected companies (Desai & Desai, 2020). On the contrary, ACT (Ross, 1977) supports the negative relationship between tangibility and debt ratio. Kakilliacaravci (2015) has validated the conclusion of ACT through statistical evidence.

Pyle (1977) illustrated that firm value increases as the degree of leverage increases. Therefore, managers attempt to use optimal debt level to positively affect firm value; this is true in case of no conflict of interest between principal and agent. This point of view is confirmed also by Kochhar (1997) and Sander (2003): an individual firm can construct its optimal capital structure by efficient mixing of fund resources, which will positively influence firm value. Ahmed et al. (2010) proposed that profitability is one of the main factors that influence capital structure decisions.

It is indicated that Profitability has a significantly positive influence on firm value. The greater the profitability of a firm, the more assignable profit there is, and the higher the value of the company (Chen & Chen, 2011; Hashed & Shaik, 2022). In contrast, Fama and French (1998), Simerly and Li (2000), and Nadaraja et al. (2012) found an inverse relationship between capital structure and profitability (Abata & Migiro, 2016). formulated two hypotheses and tested them using descriptive statistics and an econometric panel data technique to analyze the gathered data. An insignificantly negative correlation was found between financial leverage and ROA on one hand and there was a significantly negative relationship between debt/equity mix and ROE on the other hand. In addition (Harjeet S. Bhabra et al., 2008) found that Chinese firms use little long-term debt, which is positively (negatively) related to firm size and tangibility (profitability and growth options) (Margaritis & Psillaki, 2010). Thus, an optimal capital structure maximizes firm value by minimizing aggregate agency costs. Sudiyatno et al. (2021) aimed to test whether profitability acts as a moderating variable that is able to moderate the influence of the company growth and capital structure on the firm value. As a result, profitability does not moderate the effect of company growth and capital structure on the firm value, the interaction of company growth and capital structure with profitability has a negative impact on the firm value. Research related to asset growth, conducted by Hutabarat et al. (2018) found a negative effect of asset growth on firm value. This study is proxied by using asset growth as an indicator (AG). Meanwhile, the results of research from Data et al. (2017) found that asset growth has a positive effect on firm value.

Syaifulhaq et al. (2020) and Budhiharjo (2020) investigated the moderating effect of firm performance on debt-equity and the value of a firm using moderated regression. The researcher found no moderation effect on firm performance. Yusbardini (2020) investigated the effect of capital structure and firm size on firm value through profitability as an intervening variable using multiple regressions of panel data, path analysis, and the Sobel test. Results revealed that firm size and capital structure had a significant effect on profitability, while firm size, capital structure, and profitability had a significant effect on firm value. Nurhayati et al. (2021) confirm that firm performance acts as a moderating variable of accounting conservatism and capital structure in influencing firm value. Thus, "managerial ownership and institutional ownership do not function as control variables in controlling the effect of

accounting conservatism and capital structure on firm value. Whereas managerial and institutional ownership is expected to encourage managers to carry out policies that are oriented toward increasing the firm value".

As stated by Kontesa (2015), the management effectiveness ratio is based on returns generated from sales and investments. They found profitability as an efficient moderator for firm value and capital structure, while the capital structure is not an efficient moderator. Kamau's (2018) study analyzed descriptive statistics and inferential statistics. Moderation effects were estimated using hierarchical regression. The findings indicated that total debt, long-term debt, and short-term debt had a significant negative relationship with financial performance as measured by ROA and ROE. According to Santiago-Ayala (2019), empirical findings of panel data analysis provide strong evidence of an adverse relationship between capital structure and firm value. The findings confirm that the impact of the capital structure appears to be complicated to examine without controlling for the interaction of profitability as one of the major determinants. Alsultan (2021) examined the relationship between capital structure and firm performance and considers the moderating effect on this relationship of the issuance of International Financial Reporting Standards (IFRS) 16. Salameh et al. (2012) argued that developed market firms' performance is affected by leverage.

Many theories have been proposed and empirical research was conducted for showing the relationship between a Firm's value and its Capital Structure substantial literature is available on capital structure determinants, but the outcomes are inconclusive and contradictory. Most of the studies have taken place in India, Pakistan, Bangladesh, Malaysia, Egypt, the United States, Nigeria, Kenya, etc. Besides, very limited research work is carried out in Saudi Arabia but no one has done a study as a moderator. Therefore, this paper attempts to fill this gap and add value to the existing pool of literature.

3. Data and Methods

The study examines the nexus between capital structure and firm value by considering profitability as a moderator in Saudi Arabian companies listed on Tadawul. The Tadawul is the largest stock exchange among the GCC nations (Shaik, 2021). The study chooses 102 companies from different industrial sectors starting in 2013 and ending in 2020 as a sample with a total of 816 observations. The main source of data is secondary, which is extracted from the company's annual reports available on argaam.com (a Saudi Arabian financial website).

3.1. Research Framework

There are previous studies that investigated the association between firm value and capital structure and studies examining the moderation of profitability between capital structure and firm value are less in number. Figure 1 explains the association between firm value (Tobin's Q) and capital structure (Debt-Equity) with profitability (ROA and ROE) as a moderating variable and firm size as a control variable.

The firm value which is a dependent variable is measured by Tobin's Q, while the independent variable capital structure is measured by debt-equity, and the moderating variable profitability is measured by Return on Assets (ROA) and Return on Equity (ROE) alternatively.

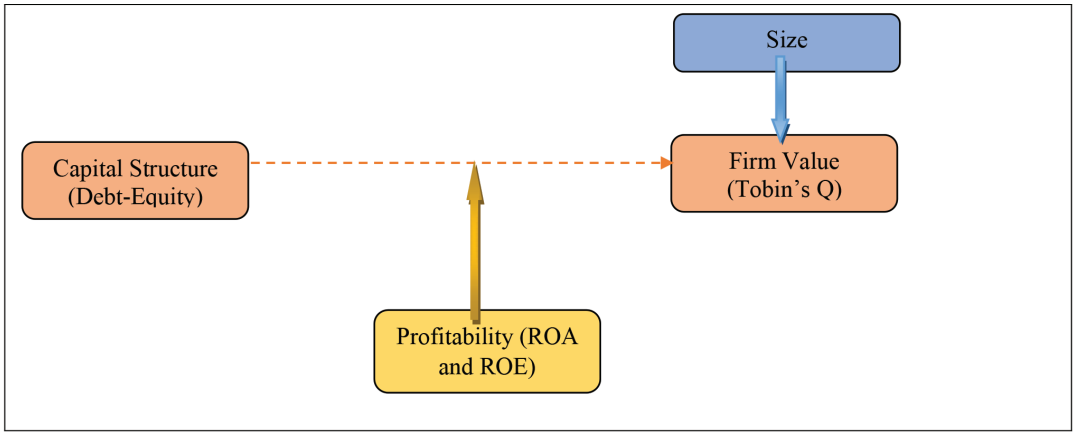

Figure 1: Research Framework

3.2. Empirical Model

The current study examines the nexus between capital structure and firm value with profitability as a moderating variable by employing a pooled regression model, panel regression with fixed and random effects, and dynamic panel regression. Further, the fitness of various empirical models is explained with the help of Adjusted-R^2 and F-statistics. The estimated models are as follows:

Pooled Regression

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 CS_{i,t} + \beta_2 SZ_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 CS_{i,t} + \beta_2 \mathrm{ROA}_{i,t} + \beta_3 (CS * \mathrm{ROA})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 CS_{i,t} + \beta_2 \mathrm{ROE}_{i,t} + \beta_3 (CS * \mathrm{ROE})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \varepsilon_{i,t} \quad (3)$$

Panel Fixed Effects (FE)

$$\mathrm{FV}_{i,t} = \alpha_i + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{SZ}_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$\mathrm{FV}_{i,t} = \alpha_i + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{ROA}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROA})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$\mathrm{FV}_{i,t} = \alpha_i + \beta_1 CS_{i,t} + \beta_2 \mathrm{ROE}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROE})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \varepsilon_{i,t} \quad (6)$$

Panel Random Effects (RE)

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{SZ}_{i,t} + \mu_i + \varepsilon_{i,t} \quad (7)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{ROA}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROA})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \mu_i + \varepsilon_{i,t} \quad (8)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{ROE}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROE})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \mu_i + \varepsilon_{i,t} \quad (9)$$

Panel GMM

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{SZ}_{i,t} + \lambda \mathrm{FV}_{i,t-1} + \varepsilon_{i,t} \quad (10)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{ROA}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROA})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \lambda \mathrm{FV}_{i,t-1} + \varepsilon_{i,t} \quad (11)$$

$$\mathrm{FV}_{i,t} = \alpha + \beta_1 \mathrm{CS}_{i,t} + \beta_2 \mathrm{ROE}_{i,t} + \beta_3 (\mathrm{CS} * \mathrm{ROE})_{i,t} + \beta_4 \mathrm{SZ}_{i,t} + \lambda \mathrm{FV}_{i,t-1} + \varepsilon_{i,t} \quad (12)$$

where FV is the dependent variable measured in terms of Tobin's Q, α is the constant, β_1 so β_4 are the coefficients of independent and control variables, μ is the residual term for random effects, and λ is the coefficient of lagged firm value.

4. Results

The current section reports the results through descriptive statistics, correlation analysis, and empirical results through panel data models. Table 1 reports the descriptive result statistics.

The results of descriptive statistics show that the mean firm value measured in Tobin's Q is 0.57 and its standard deviation is 0.26. The positive value of enterprise value shows that the Saudi Arabian companies don't have zero debt. The mean capital structure is positive shows a good sign for Saudi Arabian companies. The profitability which is a moderating variable is positive (both the alternate variables) which shows that the companies are successful in their businesses. Further, the mean firm size is 6.32.

Table 2 reports the correlation analysis of different study variables. The correlation results show that the explanatory

Table 1: Descriptive Statistics

Variables	Obs	Mean	SD	Min	Max
FV	816	0.574	0.256	–2.214	1.568
CS	816	1.147	1.578	–1.452	14.69
ROA	816	0.038	0.224	–5.815	0.587
ROE	816	0.039	0.441	–10.09	1.645
SIZE	816	6.318	0.983	0	8.686
(CS * ROA)	816	0.001	0.254	–4.275	1.057
(CS * ROE)	816	–0.173	2.434	–51.59	2.964

Table 2: Analysis of Correlation

Variables	FV	CS	ROA	ROE	SIZE	(CS * ROA)	(CS * ROE)
FV	1.000						
CS	–0.620	1.000					
ROA	0.106	–0.122	1.000				
ROE	0.139	–0.314	0.912	1.000			
SIZE	–0.055	0.238	0.106	0.106	1.000		
(CS * ROA)	0.156	–0.438	0.708	0.935	0.087	1.000	
(CS * ROE)	0.162	–0.566	0.205	0.557	0.032	0.784	1.000

Table 3: Results of Pooled Regression

Model-1: FV (Dependent Variable)				
	α	β	***t*-statistic**	***p*-value**
CS		–0.104	–22.88***	0.000
SZ		0.254	3.48***	0.001
Constant	0.533		11.63***	0.000
Adjusted-R^2	0.392			
F-statistic	263.77***			0.000
Model-2: FV (Dependent Variable)				
CS		–0.129	–25.05***	0.000
ROA		0.321	7.27***	0.000
(CS*ROA)		–0.406	–9.34***	0.000
SZ		0.036	5.08***	0.000
Constant	0.482		10.89***	0.000
Adjusted-R^2	0.450			
F-statistic	167.69***			0.000
Model-3: FV (Dependent Variable)				
CS		–0.135	–25.32***	0.000
ROE		0.030	1.69*	0.092
(CS * ROE)		–0.036	–9.54***	0.000
SZ		0.038	5.44***	0.000
Constant	0.478		10.88***	0.000
Adjusted-R^2	0.458			
F-statistic	173.00***			0.000

Note: *p-value < 0.1; **p-value < 0.05; ***p-value < 0.001.

variable CS is negatively related to the firm value, while the moderating variables, such as (CS * ROA) and (CS * ROE) are positively related. Table 3 reports the results of pooled regression with and without moderating variables.

The pooled regression results report that the capital structure is negative and significant at the 1 percent level of significance in all the models. The profitability variables, such as ROA and ROE are positive and significant at the 1

percent and 10 percent levels of significance. The moderating variables in models 2(CS * ROA) and 3 (CS * ROE) are negative and significant at the 1 percent level of significance. The firm size is positive and significant at the 1 percent level of significance. The adjusted R^2 of all the models ranges from 0.39 to 0.46 and *F*-statistic is significant at the 1 percent level of significance. This shows that the given models are fit in explaining the relationships between the variables. Table 4 reports the results of panel regression with and without moderating variables.

The panel regression results under fixed effects and random effects report that the capital structure is negative and significant at the 1 percent level of significance with and without the inclusion of profitability as a moderating variable. The profitability variables, such as ROA and ROE are positive and significant at the 1 percent level of

Table 4: Results of Panel Regression

Model-1: FV (Dependent Variable)								
	Fixed Effects				**Random Effects**			
	α	***β***	***t*-statistic**	***p*-value**	***α***	***β***	***z*-statistic**	***p*-value**
CS		–0.047	–8.71***	0.000		–0.069	–13.84***	0.000
SZ		0.084	10.25***	0.000		0.062	7.94***	0.000
Constant	0.098		1.93**	0.054	0.262		5.25***	0.000
R^2	0.183				0.333			
F-statistic	77.14***			0.000				
Wald chi2					219.53***			0.000
Hausman	217.41*** (0.000)							
Model-2: FV (Dependent Variable)								
CS		–0.056	–7.68***	0.000		–0.094	–15.15***	0.000
ROA		0.041	2.70***	0.007		0.216	5.22***	0.000
(CS * ROA)		–0.086	–1.98**	0.049		–0.243	–5.73***	0.000
SZ		0.086	10.43***	0.000		0.066	8.45***	0.000
Constant	0.087		1.69*	0.091	0.258		5.26***	0.000
R^2	0.224				0.41			
F-statistic	40.70***			0.000				
Wald chi2					279.33***			0.000
Hausman	198.18*** (0.000)							
Model-3: FV (Dependent Variable)								
CS		–0.071	–9.44***	0.000		–0.103	–15.85***	0.000
ROE		0.044	2.90***	0.004		0.041	2.62***	0.009
(CS*ROE)		–0.018	–5.17***	0.000		–0.027	–7.80***	0.000
SZ		0.091	11.10***	0.000		0.072	9.34***	0.000
Constant	0.076		1.49	0.136	0.232		4.78***	0.000
R^2	0.277				0.414			
F-statistic	46.77***			0.000				
Wald chi2					301.61***			0.000
Hausman	144.18*** (0.000)							

Note: *p-value < 0.1; **p-value < 0.05; ***p-value < 0.001.

significance. The moderating variables in models 2(CS * ROA) and 3 (CS * ROE) are negative and significant at the 1 percent and 5 percent levels of significance. The firm size is positive and significant at the 1 percent level of significance. The R^2 of all the models ranges from 0.18 to 0.27 under fixed effects and 0.33 to 0.41 under random effects and *F*-statistic is significant at the 1 percent level of significance for fixed effects, while the Wald chi2 is significant at the 1 percent level of significance for random effects. The significance of the Hausman test shows that the fixed effects model is preferred over the random effects in explaining the relationships. Therefore, the current study considers the panel fixed effects for interpretation of results. Table 5 reports the results of dynamic panel regression with and without moderating variables.

The GMM panel regression results report that the capital structure is negative and significant at the 1 percent level of significance with and without the inclusion of profitability as a moderating variable. The profitability variables, such as ROA are negative and insignificant while ROE is positive and significant at the 1 percent level of significance. The moderating variables in models 2(CS * ROA) and 3 (CS * ROE) are negative and significant at the 5 percent and 1 percent levels of significance. The firm size is positive and significant at the 1 percent level of significance. The Wald chi2 is significant at the 1 percent level of significance for all the models.

5. Discussion

The current study examining the nexus between the capital structure and firm value by including profitability as a moderating variable report a negative and significant association of capital structure with the firm value. This result supports the past research of Fama and French (1998), Nadaraja et al. (2012), Migiro (2016), etc. Generally, a positive relationship between capital structure and firm value shows an optimum mix of debt and equity mix in most conditions, whereas a negative association between the two denotes a debt-equity mix with high risk. Further, the moderating variables, such as Return on Assets (ROA) and Return on Equity (ROE) are negative and significant with the firm value.

Table 5: Results of Dynamic Panel Regression

Model-1: FV (Dependent Variable)				
	α	***β***	***t*-statistic**	***p*-value**
CS		–0.041	–5.47***	0.000
SZ		0.123	10.18***	0.000
Constant	–0.014		–1.87*	0.062
Wald chi2	120.04***			0.000
Model-2: FV (Dependent Variable)				
CS		–0.026	–2.59***	0.010
ROA		–0.043	–0.95	0.344
(CS * ROA)		0.102	1.99**	0.047
SZ		0.114	9.54***	0.000
Constant	–0.052		–0.66	0.506
Wald chi2	124.10***			0.000
Model-3: FV (Dependent Variable)				
CS		–0.060	–5.60***	0.000
ROE		0.041	2.73***	0.006
(CS * ROE)		–0.013	–3.07***	0.002
SZ		0.121	10.22***	0.000
Constant	–0.048		–0.62	0.533
Wald chi2	136.22***			0.000

Note: **p*-value < 0.1; ***p*-value < 0.05; ****p*-value < 0.001.

Based on the results of Models 1, 2, and 3 under pooled regression, panel fixed effects, and panel GMM, the study found a highly negative coefficient on capital structure when the moderating variable was included. This shows that model 2 and 3 better explains the association of capital structure and firm value after moderating with profitability. The results after moderation explain an adverse effect on the firm value, that the more the companies use debt in their debt-equity mix, the more the firm value reduces. Past research has linked this aspect to the trade-off theory explained by Modigliani and Miller (1958). This theory says that the firm value can be enhanced by reducing the WACC, and this can be achieved by having an optimal capital structure. Further, the firm size is positively related to the firm value before and after the moderation. The moderating results of the current study are in line with the previous studies of Kontesa (2015), Santiago-Ayala (2019), and Islam and Iqbal (2022) and in contrast to the previous studies of Hirdinis (2019) and Budhiharjo (2020).

6. Conclusion

The capital structure of a company consists of a mix of debt and equity. Debt financing alternatively known as leverage brings in tax benefits to the corporate sector while increasing the risk of insolvency. But some of them argue that having more debt in the capital structure leads to a high cost of capital, hence might impact the firm value. The current study examined the relationship between the capital structure and firm value independently, and in another way by including profitability as a moderating variable. In this regard, the study considered a sample of 102 Saudi Arabian firms from different sectors listed on Tadawul during the period starting 2013 and ending 2020 with a total of 816 observations.

The data were analyzed in three different models by employing pooled regression, panel regression, and panel GMM. The result of the current study found that profitability (alternatively ROA and ROE), which is a moderating variable can capture the effect of synergy. The study found a negative and significant association at the 1 percent level of significance between capital structure (D/E) and firm value (Tobin's Q), and the association was still negative and significant at the 1 percent level of significance with a higher value of coefficient after moderation. This shows that profitability as a moderator with capital structure inversely affects the firm value because the increase of debt in the capital structure of a firm decreases the firm value. Therefore, Saudi Arabian firms should adopt an optimal capital structure that can reduce the WACC and increase the firm value. The positive and significant effect of firm size on the firm value denotes that Saudi Arabian firms are positively motivated by the increase in profitability. This sends positive signals of stock to prospective investors. Therefore, the results of models 2 and 3 where profitability is the moderating variable are better compared to the first model.

The study findings might be helpful to the financial managers to prepare an optimum capital structure policy since this is a critical concern for every company. Further, the findings are also helpful to the investors in reviewing the financial performance of the companies by looking into the existing capital structure.

References

Ahmed, N., Ahmed, Z., & Ahmed, I. (2010). Determinants of Capital structure: A case of life insurance sector of Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, *24*(24), 7–12. https://doi.org/10.22495/rcgv6i4c1art13

Abata, M. A., & Migiro, S. O. (2016). Capital structure and firm performance in Nigerian-listed companies. *Journal of Economics and Behavioral Studies*, *8*(3(J)), 54–74, https://doi.org/10.22610/jebs.v8i3(J).1289

Alsultan, R. F. (2021). Capital structure and firm performance: Evidence from Saudi non-financial firms under IFRS 16. *Alexandria Journal of accounting research*, *5*(3), 1–22. https://aljalexu.journals.ekb.eg/

Brealey, R., Myers, S., & Marcus, A. (2017). *Fundamentals of corporate finance* (10th ed). NY: McGraw-Hill.

Budhiharjo, R. (2020). The effect of Capital structure on firm value with profitability as a moderating variable. *IOSR Journal of Business and Management*, *22*(4), 27–33.

Data, A., Alhabsji, T., Rahayu, S. M., & Handayani, S. R. (2017). Effect of growth, liquidity, business risk, and asset usage activity, toward Capital structure, financial performance, and corporate value (study at manufacturing companies listed on Indonesia stock exchange in 2010–2015). *European Journal of Business and Management*, *9*(24), 9–25.

Desai, R., & Desai, J. (2020). Moderating effect of firm size on capital structure determinants evidence from Indian food processing Industry. *Copernican Journal of Finance and Accounting*, *9*(3), 61–81. http://doi.org/10.12775/CJFA.2020.012

Fama, E. F., & French, K. R. (1998). Taxes, financing decisions, and firm value. *Journal of Finance*, *53*(3), 819–843. https://doi.org/10.1111/0022-1082.00036

Gill, A., Biger, N., & Mathur, N. (2011). The effect of Capital structure on profitability: Evidence from the United States. *International Journal of Management*, *28*(4), 3–15.

Bhabra, H. S., Liu, T., & Tirtiroglu, D. (2008). Capital structure choice in a nascent market: Evidence from listed firms in China. *Financial Management*, *37*(2), 341–364. https://doi.org/10.1111/j.1755-053X.2008.00015.x

Hashed, A. W. A., & Shaik, A. R. (2022). The Nexus between inventory management and firm performance: A Saudi Arabian perspective. *Journal of Asian Finance, Economics, and Business*, *9*(6), 297–302. https://doi.org/10.13106/jafeb.2022.vol9.no6.0297

Hirdinis, M. (2019). Capital Structure and Firm Size on Firm Value Moderated by Profitability. *International Journal of Economics & Business Administration, 01*(1), 174–191.

Hutabarat, S. H., Fitrawaty, & Nugrahadi, E. W. (2018). An analysis of asset growth profitability and Capital structure effect through risk on price to book value (PBV) in banking companies, Indonesia. *International Journal of Business and Management,6*(2), 29–44.

Islam, Z., & Iqbal, M. M. (2022). The relationship between Capital structure and firm performance: New evidence from Pakistan. *Journal of Asian Finance, Economics, and Business*, *9*(2), 0081–0092. https://doi.org/10.13106/jafeb.2022.vol9.no2.0081

Kakilliacaravci, S. (2015). The determinants of Capital structure: Evidence from the Turkish manufacturing sector. *International Journal of Economics and Financial Issues*, *5*(1), 158–171.

Kamau, J. K. (2018). *An Assessment of the Moderating Role of Firm Growth Rate on Debt Financing and Financial Performance of Listed Petroleum Firms in Kenya*. http://library.kisiiuniversity.ac.ke/. Kisii University.

Kochhar, R. (1997). Strategic assets, capital structure, and firm performance. *Journal of Financial and Strategic Decisions*, *10*(3), 23–36.

Kontesa, M. (2015). Capital structure, profitability, and firm value. What's new? *Research Journal of Finance and Accounting*, *6*(20), 185–192.

Kumar, S., Colombage, S., & Rao, P. (2017). Research on Capital structure determinants: A review and future directions. *International Journal of Managerial Finance*, *13*(2), 106–132, https://doi.org/10.1108/IJMF-09-2014-0135

Chen, L. J., & Chen, S. Y. (2011). The influence of profitability on firm value with Capital structure as the mediator and firm Size and Industry as moderators. *Investment Management and Financial Innovations*, *8*(3), 121–129. https://doi.org/10.1201/b11108-9

Martin, H. K. (2011). *Capital structure and corporate financing decisions: Theory, evidence, and practice*. NJ: John Wiley & Sons. https://doi.org/10.1002/9781118266250.

Modigliani, F., & Miller, F. M. (1963). Corporate income taxes and the cost of Capital: A correction. *American Economic Review*, *53*(3), 433–443.

Modigliani, F., & Miller, M. H. (1958). The cost of Capital, corporation finance, and the theory of investment. *American Economic Review*, *48*(3), 261–297.

Nadaraja, P., Zulkafli, A. H., & Masron, T. A. (2012). Family ownership, Firm's financial characteristics and Capital structure: Evidence from public listed companies in Malaysia. https://www.researchgate.net/publication/227490094 (pp. 142–155).

Margaritis, D. M., & Psillaki, M. (2010). Capital structure, equity ownership, and firm performance. *Journal of Banking and Finance*, *34*(3), 621–632. https://doi.org/10.1016/j.jbankfin.2009.08.023

Pyle, H. E. (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance*, *32*(2), 371–387. https://doi.org/10.2307/2326770

Simerly, R. L., & Li, M. (2000). Environmental dynamism, Capital structure, and performance: A theoretical integration and an empirical test. *Strategic Management Journal*, *21*(1), 31–49, https://doi.org/10.1002/(SICI)1097-0266(200001)21:1<31::AID-SMJ76>3.0.CO;2-T

Pandey, K. D., & Sahu, T. N. (2019). Debt financing, agency cost and firm performance: Evidence from India. *Vision: the Journal of Business Perspective*, *23*(3), 267–274. https://doi.org/10.1177/0972262919859203

Salameh, H. M., Al-Zubi, K. A. et al. (2012). Capital Structure Determinants and Financial Performance Analytical Study in Saudi Arabia Market 2004-2009. Zubi, B. *International Journal of Economic Perspectives*, *6*(4), 18–33. http://www.econ-society.org

Sander, P. (2003). Capital structure choice in Estonian companies: A survey. *Management of Organizations: Systematic Research*, *27*, 123–135. https://scholar.google.com/

Santiago-Ayala, O. E.-M. (2019). Capital structure-firm value Nexus: The moderating role of profitability. *Revista Finanzas y Política Económica*, *11*(2), 375–386. https://doi.org/10.14718/revfinanzpolitecon.2019.11.2.9

Shaik, A. R. (2021). Covid-19 pandemic and the reaction of Asian stock markets: Empirical evidence from Saudi Arabia. *Journal of Asian Finance, Economics, and Business*, *8*(12), 1–7. https://doi.org/10.13106/jafeb.2021.vol8.no12.0001

Ross, S. A. (1977). The determination of financial structure: The incentive-signaling approach. *Bell Journal of Economics*, *8*(1), 23–40. https://doi.org/10.2307/3003485

Sudiyatno, B., Puspitasari, E., Nurhayati, I., & Rijanti, T. (2021). The relationship between profitability and firm value: Evidence from manufacturing Industry in Indonesia. *International Journal of Financial Research*, *12*(3), 466–476, https://doi.org/10.5430/ijfr.v12n3p466

Twairesh, A. E. (2014). The impact of Capital structure on a Firm's performance evidence from Saudi Arabia. *Journal of Applied Finance and Banking*, *4*(2), 183–193.

Yusbardini, K. N. (2020). The effect of Capital structure and firm Size on firm value through profitability as an intervening variable. *Advances in Economics, Business and Management Research*, *145*, 218–224. https://lintar.untar.ac.id/repository/penelitian/buktipenelitian_10189056_3A060321090112.pdf