International Journal of Sustainable Development and Planning
Vol. 18, No. 5, May, 2023, pp. 1515-1521
Journal homepage: http://iieta.org/journals/ijsdp

Firm Value and Profitability of Saudi Arabian Companies Listed on Tadawul: Moderating Role of Capital Structure

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https://doi.org/10.18280/ijsdp.180522

Received: 13 January 2023
Accepted: 10 April 2023

Keywords:
ROA, ROE, moderation, firm value, capital structure

ABSTRACT

The impact of profitability on firm value was always been a matter of great interest for financial managers, because the objective of a company is to increase its value and on the other hand the investors expect higher returns on their investment. Therefore, the purpose of present research is to investigate the impact of profitability on firm value moderated with capital structure in different Saudi Arabian companies. The profitability is measured in terms of ROA (Return on Assets) and ROE (Return on Equity), firm value is calculated using Tobin's Q. Capital structure is measured with the debt-equity ratio. The study selects different companies listed on Tadawul as a sample and the study period starts in 2013 and ends in 2020. To analyze the data collected from the annual reports of listed companies, the study reports results by employing panel regression with FE and RE model, and panel GMM. The analyzed results report a positively significant impact of profitability on firm value and a negative and significant effect of capital structure on firm value in all the estimated models. Further, the capital structure interacts as a moderator between profitability and firm value, where the study finds a negatively significant effect of profitability on firm value after moderation. The results strengthen the moderation of capital structure between profitability and firm value.

1. INTRODUCTION

A firm's CS is a mix of debt and equity employed by a firm to finance its assets and operations for its growth in the future. A firm value is the market value a company holds when it is sold. A higher firm value brings in greater prosperity to the shareholders. A firm's ownership structure affects the extent to which capital structure (henceforth CS) influences a firm's performance. The firm value (henceforth FV) measures management's success in increasing the firm's integrity toward shareholder wealth. It is a technique for an investor to judge between the past and future growth of a firm. A firm should be careful about its financial decisions that impact its stock price, affecting firm value. A positive effect of the stock price on firm value brings in reasonable profits to the shareholders, hence increasing the welfare of shareholders (Setiadharma and Machali [1]). Several internal factors, such as liquidity, profitability, solvency, etc. and external economic factors, such as inflation, foreign exchange, interest rate, etc. affect firm value. There is a growth in firm value in terms of increased market share and competitive advantage by having an optimum capital structure. Therefore, capital structure has become a significant concern for every firm—the shareholder's welfare vis-a-vis the company owners vests with the firm growth. Therefore, Saleh et al. [2] suggest determinants that impact firm value, such as capital structure, asset proportion, growth, company size, and financial decisions. The shareholders are investing in a firm and hope to earn good returns on their investment. A firm's profitability is the earning ability of a company from various activities. The Return on Assets (ROA) and Return on Equity (ROE) are the ratios generally used in measuring the firms' profitability by using the company's net income. An increase in profit for a company indicates its current financial performance and prospects for future growth. The higher the firm's profits, the higher the investor's confidence in a company's financial decisions. Most researchers have reported a positive association between a firm's profitability and firm value, while there is inconsistency in reporting the association between CS and FV. Some authors report a positive impact, while some report a negative impact.

Moreover, there are different views globally regarding the moderation of CS between profitability and firm value. Several studies globally examine the impact of profitability and FV by moderating with different macroeconomic variables. However, very little research was carried out in Saudi Arabia, with no study taking capital structure as a moderator. Therefore, the main objective of the current study is to examine the impact of a firm's profitability on FV by considering CS as a moderator in Saudi Arabian companies.

2. LITERATURE REVIEW AND HYPOTHESIS

There was extensive research on the association between CS, firm value, and profitability, where different and inconsistent conclusions were drawn. Modigliani and Miller [3] were the pioneers in highlighting the significance of CS in organizations. Kochar [4] and Sander [5] confirmed that a firm with an optimal CS should influence the FV positively.

2.1 Firm value moderated by the profitability

Abor [6] studied the association of profitability and CS in the firms listed on GSE index. He found a significantly positive association of the two. A study by Ahmed et al. [7] proposed profitability as a significant factor that impacts firms' CS. Salameh et al. [8] argued that developed market firms' performance is affected by leverage. Similarly, Almahadin and Oroud [9] observed the complicated nature of capital structure and suggested controlling the complication by introducing profitability as an interaction variable. Mubyarto [10] and Akhmadi et al. [11] studied FV, profitability, and CS in the companies listed on the ISE and found no significant positive association between CS and FV; however, they suggested that profitability can mediate and moderate the relationship between the two. Similarly, a study by Hirdinis [12], Alghifari et al. [13] reported a contrasting result where profitability has no mediation effect on CS and FV, while Natsir and Yusbardini [14] reported that profitability could mediate the effect of CS and firm size on FV. Aimomani et al. [15] examined the effect of financial leverage on FV by moderating profitability and firm size. They found no significant impact between the former two, while the latter two played a significant role in moderation.

2.2 Firm value moderated by the capital structure

Budhiharjo [16] studied the effect of profitability on the share price of the Food and Beverage industry moderating with capital structure. He found a significant positive impact between the two study variables but no moderating effect of capital structure. A similar study by Hasanudin et al. [17] introduced CS as a moderating variable between profitability and liquidity on FV. They reported that there is no moderation effect of capital structure which is in contrast to the previous research works. Chabachib et al. [18] studied the mediating role of CS between company growth and firm value in Indonesian manufacturing firms. Their study found that capital structure can only mediate firm size and value. Similarly, Chen and Chen [19] examined the mediating role of capital structure between profitability and FV and moderating role of firm size and industry. Their study results show that both effects influence profitability and firm value. Dewi and Fachrurozie [20] analyze the moderating role of firm size between profitability, liquidity, asset structure, and CS in Indonesian real estate firms. Their study found a moderating role of firm size on liquidity and CS only. Rahmawati et al. [21] reported a weak moderation of firm size on the effect of dividend policy on FV and no moderation in the effect of profitability and capital structure on FV.

2.3 Other moderation effects

A study was undertaken by Fajaria and Isnalita [22], where the dividend policy was included as a moderating variable. They reported that the dividend policy could not moderate the impact of growth on FV. Djashan [23] studied the mediating role of CS between firm size, profitability, and FV in Indonesian financial companies. He found a significant effect of firm size and profitability on firm value, while the capital structure could not play the mediation effect. Gunardi et al. [24] examined different factors that affect the CS moderating with firm size in Indonesian construction firms. They found that factors such as profitability, tangibility, GDP, etc., affect the capital structure after moderation. Similarly, Khafid et al. [25] introduced firm size as a moderating variable between factors affecting the capital structure. They reported that firm size could moderate between institutional ownership and capital structure. Hastuti and Carolina [26] introduced interest rate as a moderating variable between CS and profitability affecting FV. They reported no moderation effect of interest rate.In contrast, Hussain et al. [27] reported that firm size and interest rate are good moderators of capital structure. Kurniasih and Rustam [28] examined the influence of CS as a moderator between the cost of capital and FV in Indonesian companies. They found a quasi-role of capital structure as a moderator.

Many theories have been proposed, and empirical research was conducted to show the relationshipbetween a FV and its CS; substantial literature is available on capital structure determinants, but the outcomes are inconclusive and contradictory. Some studies report a moderation effect of profitability between CS and FV (Almahadin and Oroud [9]; Mubyarto [10]; Akhmadi et al. [11]), while some studies, such as (Hirdinis [12]; Alghifari et al. [13]) report a no moderation effect of profitability. Similarly, some studies, such as Chen and Chen [19] reported the moderation effects of CS, while the other studies, such as (Budhiharjo [16]; Hasanudin et al. [17]; Chabachib et al. [18]) found no moderation effect of CS. Moreover, there is no study examining the moderation effect of CS between profitability and firm value.Therefore, this paper attempts to fill this gap and add value to the existing pool of literature.

H_1: There exists a significant relationship between profitability and FV with CS as a moderator.

3. DATA AND METHODOLOGY

The study chooses 149 companies of Saudi Arabia from the existing population as a sample with a total of 392 observations. The selected study sample is based on the following criteria:

1. The companies selected are listed on Tadawul (Stock exchange of Saudi Arabia).
2. The data required for the study variables is complete.

The main source of data is secondary extracted from the company's annual reports available on argaam.com (a Saudi Arabian financial website). The period for the current study starts in 2013 and ends in 2020.

3.1 Estimated model

The current study uses the estimates the model following Ghozali [29] and Hasanuddin [17] where regression with moderating variables was employed. The study reports the results using descriptive statistics, correlation analysis, and the panel regression models.

Panel Fixed Effects (FE)

$$FV_{i,t} = \alpha_i + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROACS_{i,t} + \beta_4 SZ_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROECS_{i,t} + \beta_4 SZ_{i,t} + \varepsilon_{i,t} \quad (4)$$

Random Effects (RE)

$$FV_{i,t} = \alpha_i + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \mu_i + \varepsilon_{i,t} \quad (5)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROACS_{i,t} + \beta_4 SZ_{i,t} + \mu_i + \varepsilon_{i,t} \quad (6)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \mu_i + \varepsilon_{i,t} \quad (7)$$

$$FV_{i,t} = \alpha_i + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROECS_{i,t} + \beta_4 SZ_{i,t} + \mu_i + \varepsilon_{i,t} \quad (8)$$

Panel GMM

$$FV_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \gamma FV_{i,t-1} + \varepsilon_{i,t} \quad (9)$$

$$FV_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROACS_{i,t} + \beta_4 SZ_{i,t} + \gamma FV_{i,t-1} + \varepsilon_{i,t} \quad (10)$$

$$FV_{i,t} = \alpha + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 SZ_{i,t} + \gamma FV_{i,t-1} + \varepsilon_{i,t} \quad (11)$$

$$FV_{i,t} = \alpha + \beta_1 ROE_{i,t} + \beta_2 CS_{i,t} + \beta_3 ROECS_{i,t} + \beta_4 SZ_{i,t} + \gamma FV_{i,t-1} + \varepsilon_{i,t} \quad (12)$$

where, FV is the dependent variable measured in terms of Tobin's Q, α is the constant, β_1 to 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 regression models. Table 1 reports the descriptive result statistics.

The results of descriptive statistics show that the FV measured in Tobin's Q has an average of 0.57 and a standard deviation of 0.24. The average and standard deviation of profitability variables, such as ROA and ROE, range from 0.002 to 0.02 and 0.31 to 0.59. The moderating variables, such as ROACS and ROECS, have an average and standard deviation ranging from -0.35 to -0.02 and 0.33 to 3.38. Further, the firm size has an average of 6.07. A positive FV shows that the Saudi Arabian firms earn a good return on investment. Similarly, a positive ROA and ROE shows an average financial performance of Saudi Arabian firms. The negative sign of moderating variables might be due the interaction of CS.

Table 2 reports the correlation analysis of different study variables. The correlation results show that the explanatory variables ROA and ROE (alternatively) are positively related to the FV, and CS is related negatively. In contrast, the moderating variables, such as (ROACS) and (ROECS) are also positively related.

Table 3 reports panel regression results (FE and RE) with and without moderation in four models. The results under model 1 report that the profitability (measured as ROA) is positive but insignificant. The capital structure is significant negative at less than a 1 percent significance level. In contrast, the model 2 results report profitability to be significant positive at less than 1 percent significance level, capital structure is significant negative at less than 1 percent significance level, and the moderation variable (ROACS) is significant negative at less than 1 percent significance level. Similarly, model 3 results show that ROE is insignificant negative. The capital structure is significant negative at less than a 1 percent significance level.

In contrast, model 4 shows that the profitability variable is significant positive at the 1 percent level of significance and the capital structure and moderation variable (ROECS) is negative and significant at less than 1 percent significance. The firm size is significant positive at less than a 1 percent significance level in all the models. The R^2 of all the models ranges from 0.22 to 0.45under fixed effects and 0.31 to 0.59 under random effects, and F-statistic is significant at less than 1 percent significance for fixed effects. In comparison, the Wald chi2 is significant at less than a 1 percent significance level for random effects. The significance of the Hausman test shows that the FE model is preferred over the RE model in explaining the relationships under models 2 and 4, while it is vice-versa for models 1 and 3.

Table 1. Descriptive statistics

Variables	Obs	Mean	SD	Min	Max
FV	392	0.574	0.237	0	0.987
CS	392	1.216	1.796	0	14.69
ROA	392	0.018	0.308	-5.815	0.351
ROE	392	0.002	0.594	-10.09	0.603
SIZE	392	6.075	0.954	0	7.869
ROACS	392	-0.017	0.330	-4.275	0.395
ROECS	392	-0.345	3.383	-51.59	1.681

Table 2. Correlation analysis

Variables	FV	CS	ROA	ROE	SIZE	ROACS	ROECS
FV	1.000						
CS	-0.684	1.000					
ROA	0.050	-0.074	1.000				
ROE	0.128	-0.326	0.925	1.000			
SIZE	-0.034	0.244	0.140	0.123	1.000		
ROACS	0.183	-0.516	0.733	0.936	0.091	1.000	
ROECS	0.225	-0.664	0.183	0.529	0.013	0.781	1.000

Table 3. Results of panel regression with fixed and random effects

Model-1: FV (Dependent Variable)								
	Fixed Effects				Random Effects			
	α	β	t-statistic	p-value	α	β	z-statistic	p-value
ROA		0.028	1.80	0.073		0.022	1.28	0.199
CS		-0.043	-10.87	0.000		-0.052	-12.58	0.000
SZ		0.099	14.17	0.000		0.088	12.10	0.000
Constant	0.024		0.55	0.579	0.097		2.04	0.042
R^2	0.216				0.306			
F-statistic	99.95			0.000				
Wald chi2					278.99			0.000
Hausman				-139.02				
Model-2: FV (Dependent Variable)								
	Fixed Effects				Random Effects			
	α	β	t-statistic	p-value	α	β	z-statistic	p-value
ROA		0.272	8.62	0.000		0.314	9.88	0.000
CS		-0.092	-13.77	0.000		-0.107	-16.71	0.000
ROACS		-0.339	-8.68	0.000		-0.405	-10.47	0.000
SZ		0.111	17.13	0.000		0.104	15.68	0.000
Constant	-0.0001		-0.00	0.996	0.058		1.38	0.168
R^2	0.457				0.529			
F-statistic	110.15			0.000				
Wald chi2					466.97			0.000
Hausman				40.06 (0.000)				
Model-3: FV (Dependent Variable)								
	Fixed Effects				Random Effects			
	α	β	t-statistic	p-value	α	β	z-statistic	p-value
ROE		0.001	0.06	0.954		-0.001	-0.91	0.361
CS		-0.044	-10.14	0.000		-0.055	-12.20	0.000
SZ		0.099	14.11	0.000		0.088	11.98	0.000
Constant	0.023		0.54	0.586	0.100		2.09	0.037
R^2	0.223				0.328			
F-statistic	97.95			0.000				
Wald chi2					274.78			0.000
Hausman				-186.54				
Model-4: FV (Dependent Variable)								
	Fixed Effects				Random Effects			
	α	β	t-statistic	p-value	α	β	z-statistic	p-value
ROE		0.027	3.10	0.002		0.025	2.75	0.006
CS		-0.087	-13.95	0.000		-0.099	-16.45	0.000
ROECS		-0.021	-8.85	0.000		-0.025	-10.10	0.000
SZ		0.109	16.92	0.000		0.102	15.48	0.000
Constant	0.008		0.21	0.833	0.064		1.50	0.135
R^2	0.429				0.497			
F-statistic	109.77			0.000				
Wald chi2					455.67			0.000
Hausman				66.28 (0.000)				

Table 4. Results of panel GMM

Model-1: FV (Dependent Variable)				
	α	β	z-statistic	p-value
ROA		0.040	3.57	0.000
CS		-0.032	-7.83	0.000
SZ		0.131	20.21	0.000
Constant	-0.406		-6.57	0.000
Wald chi2	544.92			0.000
Model-2: FV (Dependent Variable)				
	α	β	z-statistic	p-value
ROA		0.176	5.97	0.000
CS		-0.062	-8.63	0.000
ROACS		-0.190	-4.94	0.000
SZ		0.134	21.57	0.000
Constant	-0.362		-6.06	0.000
Wald chi2	626.69			0.000
Model-3: FV (Dependent Variable)				
	α	β	z-statistic	p-value

ROE		0.018	2.75	0.006
CS		-0.028	-6.69	0.000
SZ		0.131	19.95	0.000
Constant	-0.410		-6.54	0.000
Wald chi2	527.31			0.000
Model-4: FV (Dependent Variable)				
	α	β	z-statistic	p-value
ROE		0.031	5.00	0.000
CS		-0.066	-10.34	0.000
ROECS		-0.014	-6.98	0.000
SZ		0.133	22.26	0.000
Constant	-0.330		-5.69	0.000
Wald chi2	694.50			0.000

Table 4 reports the results of dynamic panel regression with and without moderation. The results of models 1 and 2 reports that the profitability (measured as ROA) is significant positive at less than a 1 percent level of significance. At the same time, the capital structure is negative and significant, and the moderating variable (ROACS) is significant negative at less than a 1 percent level of significance. Similarly, modes 2 and 3 reports positive and significant profitability (measured as ROE) at less than a 1 percent significance level. The capital structure and the moderating variable (ROECS) are significant negative at less than a 1 percent significance level. The firm size is significant positive at less than a 1 percent significance level in all the models. The Wald chi2 is significant at less than a 1 percent significance level for all the models.

5. RESULT DISCUSSION

The present study investigates the impact of profitability on FV by including CS as an interaction variable. The study results report a significant positive impact of profitability on FV, while the association becomes negative and significant when moderated with the firm's CS. A positive impact of profitability and FV shows that positive information is passed to the investors as per the signalling theory, hence influencing the financial decisions and, in turn, increasing the FV of Saudi Arabian companies. The results are in accordance with the previous research works of (Chen and Chen [19], Budhirajo [16], and Hasanuddin et al. [17]). Moreover, the study reports capital structure's significant negative impact on FV. A negative impact of capital structure on firm value shows a capital structure mix with high risk. Hirdinis [12] stated that a company with higher debt-equity is related to greater risk. The results are in accordance with the previous research works of Chen and Chen [19] and Faidah [30] and contrast to the studies of Rahman [31], Suffah and Riduwan [32].

Further, the impact of profitability and FV after the moderation of capital structure is negative and significant. The negative impact of profitability on FV is due to the negative effect of CS. Nevertheless, profitability has a positive impact on FV. This is because the level of risk attached to the capital structure shall cancel the positive effect of profitability on FV. Moreover, a firm's profitability cannot mitigate the effect of CS on FV (Alghifari [13]). The results of moderating the effect of profitability on firm value with the capital structure are in accordance with the previous research works of Chen and Chen [19] and Alghifari [13].

6. CONCLUSION

The current study examined the effect of profitability on FV moderated by CS. Past studies have reported that a firm's profitability positively impacts FV, relating this aspect to the signalling theory. At the same time, the results could have been more consistent in reporting the impact of a firm's CS on FV. The results of the current study report a significant positive impact of profitability on FV and a significant negative impact on the CS on FV. In addition, the results show that positive information is passed to the shareholders of Saudi Arabian companies that influence the financial decisions, enhancing the firm value.

In contrast, the negative impact of the CS shows that the companies are at higher risk due to a higher debt-equity ratio. On the other hand, the negative impact of CS can increase profitability if the debt is used optimally, increasing the FV. Further, the study has introduced CS as a moderator between profitability and firm value and reported a significant negative impact of profitability on FV after moderation. Therefore, the negative impact might be due to the negative effect of CS on FV; nevertheless, profitability positively impacts FV. The study results are helpful to financial managers in making financial decisions, where an optimum capital structure policy can be introduced as per the trade-off theory in Saudi Arabian companies. Further, the results are helpful to the academicians in documenting their suggestions, policymakers, and investors. The scope of current study is limited to the Saudi Arabian industries. Further studies can enhance their scope by including industries of different GCC nations, and also make a comparative study with other emerging nations. Moreover, future research might include other micro and macroeconomic variables to examine the effect of CS and FV.

ACKNOWLEDGEMENT

This research is sponsored by Prince Sattam Bin Abdulaziz University under project number PSAU/2023/R/1444.

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