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Capital Structure of Listed Firms: A Case of 20 Largest Firms in Saudi Stock Market

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Abstract

Firms require capital to finance their operations and investment projects. The common sources of capital include debt, preferred stock, and ordinary equity. The proportions of these sources is referred to as capital structure. This paper evaluated the capital structure decisions of 20 largest firms in the Saudi Stock Exchange (Tadawul). This is important since capital structure decisions affect the value of a firm. The research reviewed the extant literature on capital structure. The review showed that size, growth, risk, and profitability have a major influence on capital structure decisions.

The research used exploratory research design. It used regression model to determine the relationship between independent variables and the dependent variable. The dependent variable is leverage as indicated by the debt to total assets ratio, while the independent variables include growth, size, profitability, and risk. The research used the logarithm of net revenues for 2017 as the proxy for firm size. It used the logarithm of the sales growth rate for the last five years as representative of growth. The volatility of return on assets was taken as the risk while the return on assets represented profitability. The results indicated that only firm risk had a significant effect on capital structure. The other variables did not exhibit significance at α=0.05.In addition, the results indicated that

profitability, growth, and risk had a negative impact on leverage. The findings refute the argument that firms with high profitability and high growth rates are likely to use debt due to their lower risk. The research concludes that firm risk is the key determinant of capital structure decisions.

Keywords: Growth, Size, Profitability and risk.

1. Introduction

Firms require capital to finance their operations and investment projects. In most cases, they rely on debt, preferred stock, or ordinary equity, and their proportion is referred to as capital structure. The amount of capital derived from these sources depends on cost, management preferences, nature of industry, and age of the firm among other factors (Houston & Brigham, 2015). This paper examines the capital structure of 20 largest firms by market capitalization in the Saudi Stock Exchange.

Firms that use high level of debt expose their shareholders to agency risks. The interest on debt must be paid regardless of whether the company makes a profit. Failure to meet these interest obligations can prompt the debt holders to initiate winding up proceedings against the company, which lowers the firm's stock price. At the same time, debt carries lower cost compared to equity, thereby boosting its return on equity. This situation occurs due to the tax credits earned on interest payments (Houston & Brigham, 2015). The optimal capital structure balances these risks and returns to maximize the value of the firm.

Saudi Stock Exchange (also called Tadawul) is the sole securities exchange in Saudi

Arabia. It lists 190 stocks in 16 economic sectors. The market uses an electronic trading system to ensure efficient pricing of securities. Its benchmark index, the Tadawul All-Share Index (TASI), tracks the performance of all stocks listed in the market (Saudi Stock Market). In fact, TASI is recognized as the most prominent performance benchmark not only in Saudi Arabia but also across the region.

1.1 Importance of the Research

The capital structure decisions affect the value of a firm. Consequently, the determination of the various factors that influence the capital structure of listed firms will have major implications on investors, managers, creditors, and other stakeholders. In particular, important information on how to use leverage to boost the listed value of the firm will be provided for managers, while the creditors will use the information to determine the level of risk assumed by lending to firms. Lastly, the study will provide a basis for further research on the use of leverage among large capitalization firms in Saudi Arabia.

2. Literature Review

The concept of capital structure gained much attention following the seminal works of Modigliani and Miller (1958). The scientists demonstrated that the proportion of debt and equity is not related to the value of the firm under such conditions as s perfect capital market, no taxation, and no transaction cost. However, real world situations feature imperfect capital markets, taxes, and transactional costs. Subsequently, Modigliani and Miller (1963) updated their theory to include taxes noting that the value of levered firm is similar to that of an unlevered one plus tax credits on interest payments. These findings underscore the importance of capital structure in a firm's financing decisions.

The choice of financing used by a firm depends on both internal and external factors. Sibindi (2016) explains that firm-level determinants of capital structure include size, profitability, tangibility of assets, profitability, growth, debt tax shield, age, and dividend policy, and they presuppose that a firm has to adopt a particular capital structure based on the management assessment on their impact on firm's risk and return. Ying, Albaity, and Zainir (2016) cite macroeconomic variables as important determinants of capital structure, which include interest rate, inflation, economic growth, and the ratio of government debt to gross domestic product. However, only the combination of these factors determines the firm's capital structure.

Studies on the size of the firm suggest mixed assessment of its impact on capital structure. Business entities become more profitable as they grow as well as accumulate more tangible assets that can be used as collateral. Consequently, Sibidi presupposes that older firms tend to have more cash flows and become more reliant on internally generated funds . In contrast, Frank and Goyal (2009) explain that large firms exploit the information asymmetry in markets, which enables them to borrow at low cost. Indeed, empirical evidence by Bartoloni (2013) as well as Lemma and Negash (2015) supports the positive relationship between firm size and the reliance on leverage. Nonetheless, in their earlier studies, Titman and Wessels (1988) established an inverse relationship between the size of firms and their use of leverage. These discrepancies illustrate the varied nature of capital structure decisions in firms.

Research on different regions reveals major differences in capital structure decisions

across countries. Alkhamis, Noreen, Ghonaim, Salih, Ibrahim, Aturki, & Abdullah (2017) suggest that size of the firm is the most significant determinant of capital structure. Sakatan (2010) identified profitability as the most significant. Al Ajmi, Hussein, and Al-Saleh (2014) established profitability, size, growth, and institutional ownership as the most significant influencers of capital structure. These findings underscore the varied nature of capital structure decisions adopted by various firms.

The nature of capital markets determines the ease with which firms raise capital from external sources. Indeed, efficient markets have lower issue cost and competitive lending rates. Apart from that, it determines the nature of securities available in the market such as common equity, bonds, and short-term notes. Therefore, Sakatan (2010) observes that most firms in developing countries often use higher levels of equity due to underdevelopment of the debt markets. Thus, location considerations have a significant impact on the capital structure decisions.

Studies by Antoniou, Guney, and Paudyal (2008) identify risk as a major consideration in setting the capital structure. Risk or the volatility of returns affects the firm's ability to service maturing financial obligations. In this light, Frank and Goyal (2009) observed that firms with volatile cash flows experience higher cost of financial distress and are less likely to use more debt. Apart from that, Sibindi suggests that volatile earnings and cash flows reduce the chances of utilizing the debt tax shield and imply higher agency costs. In such cases, firms rely mostly on retained earnings, as these carry lower risks and zero cost of issuance. Therefore, the volatility of returns influences the capital structure choices of most companies.

The extant literature reveals that size, growth, risk, and profitability have a major influence on capital structure decisions. In his research, Alzomaia (2014) uses the logarithm of sales as the proxy for firm size as well as return on assets, and standard deviation of returns on assets as the proxies for profitability and risk. Apart from that, the logarithm of sales increase was used as the proxy for growth, and the debt to assets ratio as the indicator of leverage. These proxies were adapted in the given study to fit a regression model.

3. Methodology

An exploratory research design was utilized in the study. It used quantitative data from the Saudi Stock Market to determine the factors influencing the capital structure of the leading 20 firms by market capitalization. A regression model detailing the relationship between independent variables and the dependent variable was developed. The dependent variable is leverage as indicated by the debt to total assets ratio, while the independent variables include growth, size, profitability, and risk.

3.1 Sampling and Data Collection

The research sampled 20 largest firms by market capitalization. The data on market capitalization was taken at the close of the market on 03 January 2019 as published in the Tadawul website. In addition, the data on profitability, growth, risk, and size was taken from the financial statements published in the last 5 years. The data was copied into excel to facilitate regression analysis.

3.2 Research Question and Hypotheses

The research seeks to determine the impact of four factors, which include size, growth, risk, and profitability, on capital structure of largest firms listed in Tadawul Stock Market. The overarching research question is; does firm size, rate of growth, risk, and profitability affect its capital structure? To this end, four hypotheses have been formulated.

1. Hypothesis 1: Firm size does not affect firms' capital structure.
2. Hypothesis 2: Growth rate does not affect firms' capital structure.
3. Hypothesis 3: Risk does not affect firms' capital structure.
4. Hypothesis 4: Profitability does not affect firms' capital structure.

The proxy for firm size is taken as the logarithm of net revenues reported in 2017. In addition, the growth rate is taken as the logarithm of the sales growth rate for the last five years. The firm's risk was taken as the volatility of return on assets over a similar period, while the profitability was taken as the return on assets for the latest reporting year (Alzomaia, 2014). This data was analyzed using excel regression model and results were used to test the hypothesis.

4. Results

The first regression model tested the combined effect of the four variables on the capital structure. The resulting output is presented in Table 1.

Table 1. Regression model for all variables

SUMMARY OUTPUT

Regression Statistics
Multiple R

	0.67
R Square	0.45
Adjusted R Square	0.31
Standard Error	0.20
Observations	20.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4.00	0.47	0.12	3.10	0.05
Residual	15.00	0.57	0.04		
Total	19.00	1.04			

	Coefficients	*tandard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.91	0.50	1.81	0.09	(0.16)	1.99
Return on assets	(0.97)	0.75	(1.29)	0.22	(2.56)	0.63
Stdev on Return on						

assets	(4.52)	1.94	(2.33)	0.03	(8.65)	(0.39)
Ln Sales	(0.00)	0.03	(0.00)	1.00	(0.07)	0.07
Ln (Growth in sales)	0.06	0.04	1.35	0.20	(0.03)	0.15

The model is *Leverage = 0.91-0.91 return on assets-4.52 stdev of return on assets-0.00ln sales + ln growth in sales*. This model explains 31% of leverage in firms (adjusted r square). While the model is significant at p=0.05, only the standard deviation of returns is significant when taken individually. Therefore, the main determinant of capital structure decision among the largest firms in Tadawul Stock Market is risk.

4.1 Hypothesis Testing

The p value for variables in the data reflects the level of significance exhibited by each variable. The threshold alpha value is 5%. Therefore, variables that have a p value exceeding 5% are insignificant. Consequently, the following are the outcomes of hypothesis test.

1. P value for Ln Sales is 1.00. Hence, firm size does not affect firms' capital structure
2. P value for Ln growth in sales is 0.20. Hence, growth rate does not affect firms' capital structure
3. P value for standard deviation on return on assets is 0.03. Therefore, the level of risk has a significant effect on the firms' capital structure
4. P value for Return on assets is 0.22. Consequently, profitability does not affect firms' capital structure.

5. Discussion

The study investigated the impact of firm size, growth, risk, and profitability on the growth. It established that only firm risk had a significant influence on the choice of capital structure. However, the combined effect of the four variables explains only 31% of the variation of capital structure. It leaves 69% of the variation unexplained. Apart from that, profitability, growth, and risk had a negative impact on leverage. These findings coincide with Alzomaia's (2014) as well as Frank and Goyal (2009) research. Nonetheless, the findings refute the argument that firms with high profitability and high growth rates are likely to use debt due to their lower risk.

6. Implication to Research and Practice

The research implies that risk is the main consideration when making capital structure decisions. Therefore, managers are more concerned about the volatility of returns as opposed to growth and other considerations. Consequently, firms are less likely to use leverage when it would result in volatility of returns.

7. Conclusion

This research proved that profitability and growth are the leading determinants of capital structure decisions for the largest listed firms in Saudi Stock Market. This research had two main limitations. To begin with, it included a large number of banks and financial firms in the sample, which often employ higher leverage due to the nature of their business. In addition, the study used market capitalization as the criteria for selection, which is subject to change irrespective of the capital structure adopted by the sampled firm. The findings are an important basis for further research on the preference for low

leverage and aversion to risk among Saudi firms.

8. Future Research

This research focused on firms from different industries. It remains unclear if industry specific factors affect the level of leverage used by firms. Therefore, future research should analyse the industry specific factors that affect leverage.

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