International Journal of Innovation, Creativity and Change. www.ijicc.net
Volume 10, Issue 12, 2020

Capital Structure, Firm Growth and Firm Performance: Evidence from Jordan

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This study aims to investigate the impact of capital structure and firm growth on firm performance. The research is quantitative in nature, based on a cross-sectional time-series analysis of 35 industrial companies listed on the Amman Stock Exchange for 15 years from 2001 to 2015 and comprises 525 observations. Capital structure was measured using four indicators (debt ratio, debt to equity, equity to assets and asset turnover rate) and the firm growth was measured using sales growth. As for the performance of firms, this was measured using four indicators: operational, which is return on assets and the other three are financial which include return on investment and return on sales and market performance which is price to book value. The findings from these empirical results show that capital structure and firm growth positively affect some of the firm performance.

Keywords: *Capital structure, Firm growth, Firm performance, Amman Stock Exchange.*

Introduction

The modern theory of capital structure began with Modigliani and Miller in 1958 which paved the way for the development of other theories such as the asymmetric information theory and agency cost theory, among others (Joshi, 2010). It is a framework for which equity and debt are used for financing firm operations. However, the capital structure of debt and equity is the process of maximising firm values when targeting capital structures between the risk and returns of the firm. Therefore, a balance between the risks and returns in firms is the purpose of capital structure. The owner/s of the firm are equity holders who have a long-term obligation to the firm, to grow it in the future. The debt holder is the creditor of the firm, with a long-term obligation to the firm in consideration with interest and principal amount repayments at regular intervals (Dada & Ghazali, 2016).

Firm growth is very important for business owners, managers and investors alike as it provides a reasonably accurate projection of the performance of the business; sales revenue is the main business through which a firm's asset and growth opportunities are converted into cash (Hand, 2005). Sales can variously be referred to as turnover, sales revenue or simply sales. According to Fitzsimmons et.al, (2005). Many studies often use sales growth as the measure of firm growth and assert that a high growth rate indicates a better performance of firms. Robson and Bennett (2000) examined the growth of British firms and found a positive relationship between profitability and sales growth. Heshmati (2001) studied small firms in Sweden and measured the growth in three different ways. He used the number of employees, sales, and assets as the measures of growth. Growth that is profitable in sales and revenue, adjusted for risk and in a way that rewards the existing owners, is the objective (Kennon, 2017).

This study aims to examine empirically the relationship between capital structure and firm growth on the firm performance over the period of 2001–2015. Altogether, this study provides evidence which indicates that firm performance is positively or even negatively related to capital structure and firm growth. In practice, it found that capital structure is usually rewarded by the minimising of a firm's cost of finance and maximising the firm's returns (Zietun & Tain, 2007).

To achieve the study objectives and to address problems in a scientific way, we organize the remaining sections as follows: Section two, reviews the relevant literature and develops research hypotheses. Section three, develops a methodology through identifying a study sample, developing a study model, and measuring study variables. Section four, shows a descriptive study and the empirical study. The final section presents study findings, recommendations and areas for future research as well as study limitations.

Literature Review

Capital Structure

There are many previous studies related to this work, including research into the determinants of capital structure; the relationship between capital structure and ownership structure; capital structure and corporate governance, and collection studies research; the impact of capital structure on firm performance; ownership structure, capital structure, and performance; the relationship between capital structure and performance; Agency Theory, capital structure, and firm performance; interest on equity and capital structure; capital structure and size; family ownership, control, and corporate capital structure; and capital structure and firm characteristics, among many other topics.

According to the results of Thomsen and Pedersen (2000), Gedajlovic et al. (2005), Sánchez and García (2007,) and Al-Najjar and Taylor (2008), Jordanian firms follow the same determinants of capital structure as those which occur in developed markets, namely: profitability, firm size, growth rate, market-to-book ratio, asset structure and liquidity. However, Aluchna and Kaminski (2017), on the Warsaw Stock Exchange, identified a negative correlation between ownership concentration by the majority shareholder and ROA. Rossi and Cebula (2016) examined Italian-listed companies and their results provide evidence of a positive relationship between debt and ownership concentration on the one hand, and a negative relationship between debt and institutional investors on the other. Mishra and Kapil (2017) studied Indian Economy Banks and financial companies and their findings showed there is a significant positive association between ownership and firm performance. It is also indicated that the relationship between ownership and firm performance is different at different levels of ownership. Furthermore, board size is found to be positively related to ROA.

According to the work of Chakrabarti and Chakrabarti (2019), firm age, asset turnover ratio, liquidity and firm size are significant determinants of capital structure for Indian energy companies. Meanwhile, profitability, debt service capacity, sales growth, non-debt tax shield and tangibility ratio are insignificant determinants. Naseem et al. (2019), explored the role of capital structure in the relationship between CEO characteristics and firm performance. It was found that the debt and equity ratio partially mediated the link between CEO characteristics and firm performance in Pakistani companies from 2009–2015. In a study by Li et al. (2019), the results found that in low credit risk in European small and medium-sized enterprises from Austria, Belgium, Finland, France, Germany, Italy, Portugal, Spain, Sweden and the UK, the debt ratio is negatively related to firm performance. Thus, it is indicated that small and medium-sized enterprise credit risk moderates the relationship between capital structure and firm performance.

There are many researchers who study capital structure (Vo, 2017) and the determinants of capital structure. The results indicate that the determinants of capital structure are different for long-term and short-term indicators (Ardalan, 2017). In capital structure theory (Namara,et al., 2017), long-term debt is synonymous with efficient bankruptcy environments, whilst the information and legal environments matter more for short-term debt. The regulatory environment is important for both long-term and short-term debt. Our results also lend support for the pecking-order, trade-off and agency theories of capital structure (Ahsan et al., 2016; Iqbal. et al., 2016). The results show that short-term debt is a major source of financing in these firms (Tarus & Ayabei, 2016; Rashid, 2016; Yazdanfar & Öhman, 2016; Uyar & Guzelyurt, 2015; Dimitropoulos, 2014; Li & Wang, 2014; Sheikh & Wang, 2013; Sheikh & Wang, 2012; Ebaid, 2009; Al-Najjar & Taylor, 2008).

Capital Structure, Growth and Firm Performance

The results of Tingqiu et.al, (2004), show that capital structure and ownership structure influence firm performance in different ways for the firms of different growth opportunities listed firms on Shanghai and Shenzhen Stock Exchange, Yu-jun and Jian, (2006), the results show significant government effects between capital structure and performance depend on corporate growth probable. Capital structure and performance are negatively related to high growth firms and positively related to low growth ones. Hengzhen and Rui, (2012), the relationship between capital structure and corporate performance based on different capital structure option preference and growth opportunities. The result is that the overall performance of China's companies has a negative relationship with their capital structure, the mare the impact of capital structure on firm performance, capital structure and performance are negatively correlated under different growth groups, the lower the growth and the greater the negative impact.

Growth and capital structure (debt ratio): Debt financing is one of the large factors in investment decision making (Erol, 2004; Sinai and Rezaeian, 2005; Reinhart, 2002). Growth and firm debt can play an alternative role in firm value. Yahia-ZadehFar et al. (2010) found a result that there was a negative relationship between the growing market to book value and capital structure. Results of Nourvash and Yazdani (2010) showed that there was a negative relationship between financial debt ratio and investment and that relationship is stronger in firms with more growth. Sinai and Rezaeian (2005) effects of four characteristics i.e., size, profitability, growth and tangible assets of the firm, as the most important on firm capital structure. In the case of growth absence, it is expected that there is a positive relationship between debts and firm value (Lang et al., 1996; Singh and Faircloth, 2005; Torre et al., 2007).

Based on previous literature, the current study suggests the following null hypotheses:

1st Main Hypothesis. There is no significant effect of capital structure on firm performance.
2nd Main Hypothesis. There is no significant effect of firm growth on firm performance.

Research Methodology

Data

The study depends on the selected sample, which has 525 observations derived from 35 Jordanian industrial corporations listed in Amman Stock Exchange for the 15 years from 2001 to 2015. The data used in this study was collected from the ASE database. The sample was selected based on the following main conditions: firm required data was available during 2001 to 2015 and the firm has never been merged or delisted through the study period, and firm's shares are publicly traded.

The Study Variables and Measurement

The independent variables are capital structure and firm growth. The dependent variables of firm's performance have been measured using operational performance (Return on Assets ROA and Return on Sales ROS), financial performance (Return on Investment ROI) and market performance (Price to Book Value PBV). Table 1 below shows the measurement of study variables.

Table 1: Variables Measurement

Variables	**Label**	**Measurement**
Dependent Variables:		
Operational performance:		
Return on Assets	ROA	Net income divided by total assets.
Return on Sales	ROS	Net income divided by total sales.
Financial performance:		
Return on Investment	ROI	Is measured by the ratio of the net profit margin divided by the asset's turnover.
Market performance:		
Price to Book Value	PBV	Is measured by the price per share divided by the book value of equity per share.
Independent Variables:		
Capital Structure:		
Debt Ratio	DR	Is measured by the ratio of the debt divided by the total assets.
Debt to equity ratio	DTE	Is measured by the ratio of the Total Liability divided by Total Equity.
Equity to assets ratio	ETA	Is measured by the ratio of the Total Equity divided by Total liability and Equity.

Assets Turnover Rate	AT	Is measured by the ratio of the net sales divided by the total assets.
Firm Growth:		
Sales Growth	SG	Equal (sales(t)- sales(t-1))/ sales (t-1)

Study Model

In order to measure the relationship between capital structure, firm growth and firm performance, the study used a multiple-linear model as follows:

$$Perf_{i,t} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 DTE_{i,t} + \beta_3 ETA_{i,t} + \beta_4 AT_{i,t} + \beta_5 SG_{i,t} + \varepsilon_{i,t}$$

Where:

$Perf_{i,t}$: is a continuous variable; the dependent variable is the performance measured by four models (ROA model, ROS model, ROI model and PBV model).

β_0: is the constant.

β_{1-5}: is the slope of the independent variables.

$DR_{i,t}$: The independent variable; debt ratio for the firm (i) in the year (t).

$DTE_{i,t}$: The independent variable; debt to equity ratio for the firm (i) in the year (t).

$ETA_{i,t}$: The independent variable; equity to assets ratio for the firm (i) in the year (t).

$AT_{i,t}$: The independent variable; assets turnover rate for the firm (i) in the year (t).

$SG_{i,t}$: The independent variable; sales growth for the firm (i) in the year (t).

$\varepsilon_{i,t}$: random error.

Descriptive Statistics

Table 1 below, shows that descriptive analysis of the variables of the study. Where the arithmetic average of the independent variable was reached, Debt Ratio (0.355), and the standard deviation value reached (0.255), and the average of the Debt to equity is (2.0845), and the standard deviation value reached (32.6825), also the results of descriptive statistics show that the Equity to assets was (0.643), and the standard deviation value reached (0.255) and the average of the Asset turnover rate (0.649) and the standard deviation value reached (0.401). But the average of the sales Growth (0.068) and the standard deviation value reached (0.509).

Table 1: Descriptive Statistics

Variables	**No. Obs.**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Independent variable:					
Debt Ratio	525	0.004	2.275	0.355	0.255
Debt to equity	525	-65.748	745.179	2.084	32.682
Equity to assets	525	-1.275	0.996	0.643	0.255
Asset turnover rate	525	0.000	2.649	0.649	0.401
Sales Growth	505	-1.000	6.297	0.068	0.509

Dependent variable:					
ROA	525	-58.672	32.270	2.372	8.597
ROI	504	-0.637	0.315	0.015	0.102
ROS	504	-6.844	2.367	-0.015	0.558
PBV	525	-14.226	500.130	2.335	21.891

Moreover, the ROA was (2.373), and the standard deviation value reached (8.597), also the results of descriptive statistics shows that ROI (0.015), and the standard deviation value reached (0.102), also the results of descriptive statistics shows that ROS (-0.015), and the standard deviation value reached (0.558), and table (1) show that PBV (2.334), and the standard deviation value reached (21.891).

Empirical Study

Fixed-effect regression models

After validating the data used in the study using statistical tests to ensure that this data complies with the conditions of the General Linear Model and based on that fixed effect regression model, the results of these tests can be found in Table 2 below. As shown in Table 2, the results reveal that ROA, ROI, ROS and PBV regression models have high statistical significance and high explanatory power, as the p-value of the F-test for each is less than 1%.

The effect of Capital Structure and Firm Growth on ROA

Table 2 shows that multiple linear regression test results for the effect of capital structure and Growth sales on ROA; the coefficient of debt ratio, equity to assets, asset turnover rate and sales growth being positive and statistically significant at 1% level (p-value < 0.01) for equity to assets, asset turnover rate and sales growth variables and at 10% (p-value < 0.1) for debt ratio variable. The coefficient and debt to equity variable being negative coefficient and statistically significant 1% level (p-value < 0.01). This result differs from Dawar (2014), who found no significant relationship with firm performance, the debt ratio has a negative influence on the financial performance of Indian firms.

The effect of Capital Structure and Firm Growth on ROI

Table 2 shows multiple linear regression test results for the effect of capital structure and Growth sales on ROI. The coefficient of debt ratio, equity to assets, asset turnover rate and sales growth being positive and statistically significant at 1% level (p-value < 0.01) for asset turnover rate and sales growth variables. The coefficient and debt to equity variable being negative coefficient and statistically significant 1% level (p-value < 0.01). This result different with Nourvash and Yazdani (2010) showed that there was a negative relationship between debt ratio and investment, but agree in the case of growth absence, it is expected that

there is a positive relationship between debts and firm value (Singh and Faircloth, 2005; Torre et al., 2007).

Table 2: Regression analysis

Variables	ROA Model		ROI Model		ROS Model		PBV Model	
	β	*t*-statistic (*p*-value)	β	*t*-statistic (*p*-value)	β	*t*-statistic (*p*-value)	β	*t*-statistic (*p*-value)
Constant	-66.434	-2.123** (0.034)	-0.322	-0.972 (0.331)	-11.571	-5.452*** (0.000)	-7.894	-0.736 (0.462)
Debt Ratio	58.204	1.845* (0.066)	0.161	0.483 (0.629)	11.154	5.212*** (0.000)	8.345	0.772 (0.441)
Debt to equity	-0.051	-4.982*** (0.000)	-0.021	-4.192*** (0.000)	-0.014	-0.331 (0.741)	0.665	19.568*** (0.000)
Equity to assets	71.180	2.258** (0.024)	0.380	1.137 (0.256)	11.731	5.484*** (0.000)	8.668	0.802 (0.423)
Asset turnover rate	3.668	3.935*** (0.000)	0.052	5.187*** (0.000)	0.069	1.081 (0.280)	0.474	1.483 (0.139)
Sales Growth	2.340	3.432*** (0.001)	0.034	4.599*** (0.000)	0.188	4.018*** (0.000)	-0.305	-1.307 (0.192)
F-statistic	33.485***		64.351***		19.335***		7.293***	
p-value (F)	(0.000)		(0.000)		(0.000)		(0.000)	
R	0.501		0.628		0.405		0.993	
R Square	251.000		0.394		0.164		0.987	
Adjusted R Square	0.244		0.388		0.155		0.986	

Notes: OLS: t-Statistic (top), p-value (bottom). *, ** and *** denote significance at the 10%, 5% and 1% levels.

The effect of Capital Structure and Firm Growth on ROS

The slope coefficients of debt ratio, equity to assets and sales growth variables indicate that there is positively and significant impact on ROS, as the p-value in each case is less than 1%. Therefore, the null hypotheses are rejected and concluded debt ratio, equity to assets and sales growth are found to have significant positive impact on ROS. These results are different

with those from many previous studies which found negative impact on ROS (Javeed and Azeem, 2014)

The effect of Capital Structure and Firm Growth on PBV

Table 2 above shows that the only debt to equity variable negatively and statistically impacts PBV. This result agrees with Hadiwijaya, et.al (2016) capital structure does not affect firm value. This is different to the findings of Balasundaram, and Pratheepan (2015) who stated that the capital structure as measured by Debt Ratio and Equity Ratio significantly affects correlates to the firm value (PBV). This is consistent with the findings of (Taub, 1975, Grossman and Hart, 1982, Williams, 1987, Roden and Lewellen, 1995, Ghosh et al., 2000, Hadlock and James, 2002, Margaritis and Psillaki, 2010) Li,et.al (2019), regarding the relationship between capital structure and firm performance. Naseem et.al, (2019), explore the between the role of capital structure in the relationship between the debt and equity ratio partially mediates the link and firm performance Pakistani companies. Chakrabarti and Chakrabarti (2019) found that for firm asset turnover ratio to be significant, determinants of capital structure for the Indian energy companies: profitability debt and sales growth are insignificant determinants.

Conclusion

One of the core issues in finance and accounting is the combination of debt and equity which is referred to as the capital structure and its potential influence on firm performance. The aim of this study is to offer empirical evidence regarding the impact of capital structure and firm growth on firm performance. This research paper is quantitative in nature, based on a cross-sectional and time-series analysis of 35 industrial firms listed in Amman Stock Exchange for 15 years from 2001 to 2015 and comprised a total of 525 observations. The findings deduced from the empirical results demonstrate that the debt to equity, equity to assets and asset turnover rate positively affects firm operational and financial performance however, debt to equity negatively affects market performance. However, with a small sample size, caution must be applied as the findings might not be able to be generalised. This research has generated many questions in need of further investigation. It is suggested that future research consider undertaking this type of study in emerging markets such as Middle Eastern and North African (MENA) countries. Further, a pre- and post-financial crisis period could be a separate study in the future.

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