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What Impact do Both Structures of Finance and Costs Have on Firm's Value? A Case Study of Industrial Manufacturing Companies in Jordan

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ABSTRACT

Debt and cost structures are tools used by many firms to leverage their capital and profit. Empirically, the concern has received substantial consideration, however the evidence is varied. Against this background this study offers an empirical understanding into the impact of cost and financial structures have on firm's value of manufacturing companies in Jordan for the period 2012-2016. Where it is customary, Return on assets (ROA) and return on equity (ROE) of a firm are considered the key factors of the growth rate of its earning. The study sample consist of 21 companies as well as data has been analyzed by descriptive statistics and regression model; the dependent variables comprised of Return on Assets (ROA) and return on equity (ROE) as measures of firms value and the independent variable was the cost ratio and liabilities ratio. The result of the study demonstrates that generally there is a significant impact of cost and financial leverage on firm's value where has shown that there is a significant impact of the financial leverages on ROE and there is a significant impact of operating leverage on ROA.

JEL Classification: K32; M42; O13; Q56.

Keywords: Cost Structure; Leverage; Return on Assets (ROA); Return on Equity (ROE); Firm Value.

1. INTRODUCTION

The Jordanian industrial sector is formed mainly from the manufacturing sector, the extractive industries sector, and the electricity and water sector, The industrial sector is considered one of the main pillars of the Jordanian economy, because of its multiple and prominent contributions to the economic and social development process, which constitutes about quarter of the gross domestic product. This requires the provision of financial information for the purposes of planning and making appropriate decisions.

Moreover, in order for this sector to continue its expected role, it is necessary to identify and assess the operational and financial risks it may faces. Confronting these risks requires always seeking to evaluate the performance of companies through various means such as financial analysis and determining production costs and pricing policies. The link between the cost structure and the financial structure and their respective role in generating profits and maximizing wealth is one of the important topics dealt with by the studies to measure the efficiency of the management in investing its assets effectively and achieving satisfactory returns.The drive of this study is to explore the leverage state and inspect the effect on firm's value. Moreover, this study may contribute to the literature in two folds first; to assess whether firm's specific leverages reveal a statistically significant relationship with financial performance of manufacturing companies in Jordan whereas the mutual effect of two leverages can be to a certain extent significant for the incomes available to shareholders (Pandey, 2010). Second, to determine whether manufacturing companies have some distinctive working capital management characters which are dissimilar from other industries. Due to the current Jordanian industrial companies facing financial crises related to both structures, this study is intended to provide a better understanding of the relationship between these two structures and the rate of return on assets and on equity as measures of the efficiency of companies in investing assets and generating profits.

2. LITERATURE REVIEW

Financial leverage expresses the use of debt in the composition of the capital structure. It is like a double side blade as it can increase the firm's possible gain and loss. On the other side, operating leverage refers to the proportion of fixed costs in a firm's cost structure. In general, the greater the operating leverage, the more a firm's income is influenced by variation in sales level.

2.1 Operational Leverage

Brigham, E. (2011) illustrates that Operational Leverage signified by any small change in the sales volume leads to a bigger change in the operating income of the firm (EBIT). The operational leverage size is referring to the portion of fixed costs of total costs where the operational leverage is more the fixed cost to the total costs is bigger. The great fixed costs are associated with the capital density of the firms where they practice high technology, and have effective and skilled workers where firms are keen to keep them and pay them high wages even in eras of recession; they as well have great cost of innovation and improvement of products, which are fixed cost. According to Gitman and Zutter (2011), Operating leverage may be distinct as the possible use of fixed operating costs to amplify the effects of variations in sales on the company's earnings before interest and taxes. It is consequently a degree of the extent to which the firm uses the fixed cost in its operations. The greater the percentage of fixed costs to total costs, the greater the operational leverage is, and the lesser the variation in the size of returns may cause a noteworthy change in operating profit.

2.2 Financial Leverage

Gitman and Zutter (2011) indicated to the structure of capital by the consequence of the leverage in the capital structure on return and risk. Structure of capital was distinct as a blend of the debt and the equity held by the firm. In studying the types of capital, it is clarified that all features on the left side of the balance sheet, comprising current liabilities, are springs of capital and this is a description of the financing structure. The study used the term "capital structure" to refer to the total sources of funds, in contradiction of the familiarity of the term finance structure. Whereas the financial leverage is expressed as the degree to which a business depends on debt to finance its operations and investments, this may result in solvency problems and may finish with bankruptcy. The leverage recounts to the use of a combination of funds to maximize the influence of a modification in net profit before interest and taxes to earnings per share

2.3 Firm Value

Gibson (2009) distinct the return rate as a measure to grade the firm's ability to capitalize on its assets. The ROA is one of the best significant traditional accounting roles that can be utilized to express the value of firms. The return on assets can be stated in net income divided by assets and in addition to return on equity is one of the most public measures in scholars that examining the factors that influence the firm value. This percentage is a sign of the fraction of the investment power of the assets put in in the firm, or it can be supposed that it measures the proficiency of the organization in investing the funds acquired by the firm from all external and internal financing, so it is a percentage to quantify the profitability in general (Matar, 2010). The return on equity is the extent of the return on each dollar invested by the ordinary shareholders APAS, 2008. It takes into consideration the influence of operational and financing activities. In addition, Brigham, E. (2011) claims that the shareholders are present their funds to the firm looking to reach a high return on their investments. This shows the role of this ratio in achieving investor expectations.

Hadad (2007) stated that if there is no debt in the financial structure of the company, the rate of return on equity is equal to the rate of return on assets. Amiri (2010) stated that the return on equity is the crucial measure of profitability and signifies the overall performance. This gauge has received significant consideration from the financial unit as it measures the degree to which its objective is accomplished. Moreover, the rate of return on capitals invested by investors is the standard to maximize their wealth.

One of the motives that such a study may be defensible is the probability of an association between operational and financial leverage and firm value. This has led to the appearance of some theories such as the Modigliani and Millar 1958, which tried to boost the value of the firm through its structure of capital and the theory of the trade

off between utility and costs, which assumed several elements, including the bankruptcy cost, the agency and the tax shield .Besides the pecking order theory of financing sources that relies on the asymmetry of information among the firm and the investors. Alternatively is the utility theory that clarifies the behavior of the managers in the assets acquisition and investing of them to get the most out of the profits of different interests holders for each level of one of the risk, and essential also refer to the agency theory that is anxieties about the agreement between the owners and the management and endorse their separation to accomplish advantages for both parties and finish at boosting of wealth.

In the same context of studying the leverage factors may have impact on firm value, Recently, there are a a variety of studies that observe this association where for example Jasinthan, T. and Achchuthan, S. (2012) aimed to detect the Influence of Financial, operating leverage on the financial performance of the Lanka ORIX Leasing Company plc in Sri-Lanka. Evaluates of the data specified that only operating leverage has a noteworthy impact on the financial performance of LOLC plc. The outcomes further publicized that no significant difference was establish between financial leverage and financial performance. LOLC PLC is suggested to add the specific amount of equity to enhance the capital structure together with leverage ratios besides concentrating on matching of liabilities with the sort of assets they possess. Furthermore, Akhtar, et al. (2012) intended to measure the impact of leverage on corporate financial performance of oil and energy firms sector. The consequences showed that financial leverage leads to advance firms' financial situation, thus increasing the probabilities of growth within the sector in which they function. On the other hand, Rahman et al. (2012) examined the impact of the short term debt, long term debt on profitability of a sample of industrial firms in Pakistan, and the outcomes of the study display that long-term debt and total debt have no effect on profitability, where there is an adverse and significant impact of short-term debt on profitability.

In the same area of interest, Saleem et al. (2013) inspected the impact of financial and operational leverage on the profitability of oil and gas firms in SAARC countries (Sri Lanka, Bhutan, India and the Maldives, Nepal, Pakistan, Bangladesh and Afghanistan). The study utilized numerous statistical methods such as mean, standard deviation, Correlation analysis and variance analysis. Some financial percentages were also used to estimate the financial and operational leverage, and data were gathered from the annual reports for the period 2001-2010. The study established that there is a relationship of significance between the degree of financial leverage and operating leverage and profitability (return on equity, return on investment and return on assets). The leverage effect is positive when the firm's profits are more than the fixed amounts to be paid to creditors and other financial institutions.

Haque A. (2014) investigated how corporate investment of Pakistani firms affected by financial leverage. The study evaluated the panel data of 400 non -financial companies belonging to different sectors over the period from 1998 – 2011. The study recognized the adverse relationship between corporate investment and Leverage which emphasized that managements are limited to overinvest in Pakistani company if the leverage is increased. As well as, Enekwe (2014) deliberated the association of leverage and performance of the existing pharmaceutical firms in Nigeria,12 year data of 3 firms has been composed and the data was assessed through regressions, which specified the adverse relationship of debt-equity ratio and debt ratio with Return on Assets. However, a positive association is present between coverage ratio and Return on Assets.

Abdul and Adelabu (2015) presented an empirical understanding into the association between financial leverage and return on equity in the oil and gas industry of Nigeria for the span 2004-2007. Secondary data obtained of the selected firms were evaluated using ordinary least square regression. The consequences displayed that there is direct and significant association between financial leverage and the company performance. As leverage rises by one, profitability also rises by 1.028. The study consequently established that the firm should use more debt to increase profitability.

Nawaz and Salman and Shamsi (2015) attempted to found a stochastic association between financial leverage and Profitability of cement firms in Pakistan. For this objective, six years data of 18 cement manufacturers were combined in the study. An Ordinary Least Square model was employed to establish a causal association between the variables. The study discovered that financial leverage has a negative significant impact on profitability.

Anton, S. G. (2016) aimed to assess the impact of leverage on firm growth in eras of economic growth and economic uncertainty. The study employed a sample of Romanian listed companies over the time period 2001-2011 and several alternative measures for firm growth. The outcomes of fixed effects regression model indicated

that the leverage has a positive impact on firm growth. Additionally, profitability was found to positively affect the growth, while older companies saw a quicker rise in assets and sales.

Bukari and Doghoum (2017) deliberated the effect of financial leverage on profitability in the national oil firms operating in Hassi Messaoud. A sample of five firms was used over the period from 2009 to 2014. The most important conclusions of the study were: the presence of a significant adverse influence of financial leverage on profitability and its modules of total profitability ratio, asset turnover rate and structural ratio. Accordingly, the extent of the financial debt ought to be compact to increase its financial burdens, adversely affect profitability

Efforts have been made in the Jordanian situation to link the impact of financial and operational leverage on the performance, mainly the industrial sector such as the study of Abdul Jalil (2014), which surveyed the impact of the capital structure signified by the debt ratio and other measures on the performance of the Jordanian industrial firms over the period from 2008 to 2012. The consequences of this study presented that there is an adverse impact of the debt ratio on the return on investment and there is no impact on the return on equity and the absence of an impact of debt to equity ratio on both the return on investment and the return on equity, though there was a positive impact of the asset turnover on return on assets and return on equity. There are also other studies in Jordan trying to explain these associations in the same context and the impact of leverage on firm performance such as; Amarna, Al-Tathmouni (2012), Al-Hamdouni, Al-Subaihi (2012). Hence, this study is an extension of the literature detects the impact of altering the capital structure and structure of costs or operating leverage on the value of manufacturing firms specifically.

It is obvious from preceding studies that there is a discrepancy of views in the financial and operational leverage association with the financial performance measured by the of return on assets. This divergence demands for a study that sheds light on the financial and operational leverage and their impact on the financial performance of the firms operating in the Jordanian environment, and liken their outcomes with the results reached in previous studies.

3. DATA AND METHODOLOGY

The study was based on the methodology of descriptive analytical research suitable for research purposes. The literature of theoretical and field studies was reviewed. Due to the nature of the study data, the study carried out the statistical and financial analysis of the variables through the financial data of the sample firms during the study period. To produce the most important conclusions and recommendations, various statistical methods, such as the OLS regression method were employed accordingly.

3.1 *Population and Sample of the Study*

Industrial sector has been chosen as one of the most important sectors of the Jordanian economy and it is important to drive economic growth. It contributes a quarter of GDP directly and is associated with most other economic sectors (Jordan Chamber of Industry, http://www.jci.org.jo/jci/ar/tabid/89).Therefore; the sample of the study is an intentional sample. The study population consists of the industrial joint stock firms listed on the Amman Stock Exchange. To choose the sample of the study, the manufacturing companies were selected with a condition to achieve profits and excluded the companies whose data are lacking between 2012 and 2016. The number of companies available data for the entire study period is (21) of manufacturing companies. In addition, the study relied on secondary sources in data collection. The following tools were used to obtain data: Reports and publications issued by the ASE for the period 2012-2016 and Annual reports and monthly statistical publications of the Research Department issued by the Central Bank of Jordan for the period (2012-2016).

3.2 Variable Development

The study is heading for describing the variables that will be used to examine the impact of leverage on firm's value as seen in table (1). Value of firm was utilized as a dependent variable which is governed by many factors. Plus those elements were carefully chosen by taking into account the accessibility of data and their impact on firm value as mentioned in literature. The value of the firm can be defined as the amount of utility/benefits derived from the shares of a firm by the shareholders. Some of the important measures to value of the firm in the existing literature are ROA and ROE (Akhtar et al., 2016). It is important to state that this study employs two financial ratios (ROA and ROE) to measure the value of the firm.The operational leverage was measured in this study as recommended by many studies like Nofal et al.(2012); as follows:

Operating Leverage = Total Fixed Assets / Total Assets

Where, the financial leverage was measured in this study as recommended by many studies like Ross et al. (2003); as follows:

Financial Leverage = Total Liabilities / Total Assets

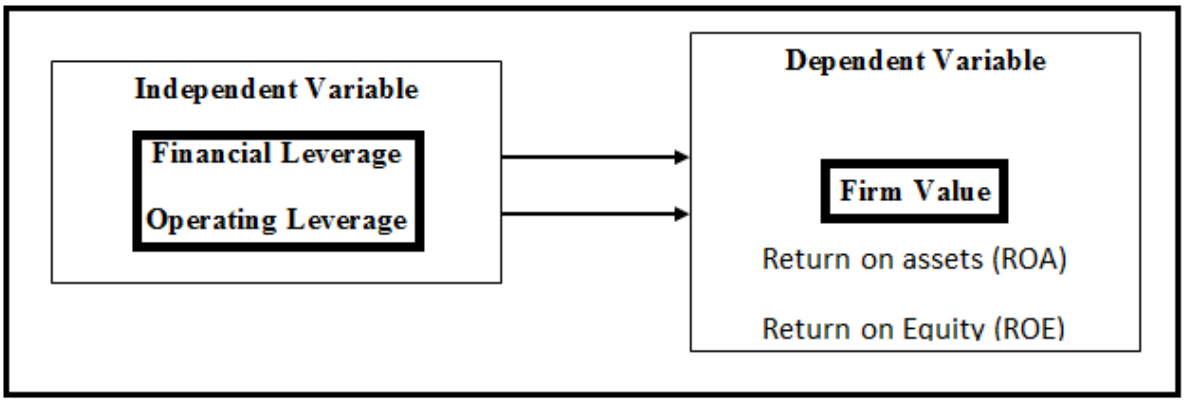
Table 1. Variables and Their Descriptions

Symbol		Variables	Description and Measurement of variables
FV (Firm value)	ROA	Return on Assets	Net income / Total Assets.
	ROE	Return on equity	Net income / Total Equity.
FL		Financial Leverage	Total Liabilities / Total Assets
OL		Operating Leverage	Total Fixed Assets / Total Assets

Source: Author's processing.

3.3 Model Specifications

By reviewing the literature and empirical evidences such as Saleem et al. (2013) and Jasinthan, T. and Achchuthan, S. (2012), the model of the study was developed where the ordinary least square was used ending at the following main equations to test hypotheses:



Source: Author's Design.

Figure 1. Conceptual Framework

$$VF = \beta 0 + \beta 1FL + \beta 2OL + \mu \quad (1)$$

Accordingly, the regression equations for this study turn out to be;

$$\text{Model 1: } ROA = \alpha 1 + \beta 11\ FL + \beta 12\ OL + \mu \quad (1a)$$
$$\text{Model 2: } ROE = \alpha 2 + \beta 21\ FL + \beta 22\ OL + \mu \quad (1b)$$

Where:
VF = Value of Firm i
ROA it = Return on Assets of firm i at time t
ROE it = Return on Equity of firm i at time t
FL it = Financial Leverage of firm i at time t.
OL it = Operating Leverage of firm i at time t.

μ = error term or residual in the model. α = intercept of the regression.
β11 β12, and β21, β22 = coefficients of the independent variables.

3.4 Hypothesis of the Study

The capital market in Jordan is characterized by low level of competition and liquidity, and therefore high financing costs. In addition to the lack of satisfaction and transparency resulting from the problem of asymmetry in the financial market (Nusseirat, 2012). Therefore, many Jordanian companies may fail to reach the optimal financing mix to finance their activities and operations because there is no proper planning of the financing and cost structures that is commensurate with the company's capabilities. Therefore, corporate management must carefully plan the optimal mix of capital structure to avoid any losses that may occur in the future such as the failure of the management in the adoption of investment decisions, administrative and financial and therefore to succeed in achieving the study's objective the afterward hypotheses were established i.e. the main argument of the study was designed in to following alternative hypotheses:

H_1: There is no significant impact of financial leverage on the value of firm measured by return on assets (ROA).
H_2: There is no significant impact of financial leverage on the value of firm measured by return on equity (ROE).
H_3: There is no significant impact of operating leverage on the value of firm measured by return on assets (ROA).
H_4: There is no significant impact of operating leverage on the value of firm measured by return on equity (ROE).

4. RESULTS

With the purpose of attaining the objectives of the study, statistical implements like mean, standard deviation and regressions have been used to evaluate and interpretation of the data.

4.1 Analysis of Descriptive Statistics

Table 2 displays the descriptive statistics of all the used in the study where VF is a dependent variable measured by ROA and ROE and FL and OL are independent variables. The mean of ROA of the sampled firms is about 7.2% with standard deviation 0.175 indicating Low efficiency in asset utilization in profit making and the standard deviation indicates relative variation in the values of the return on assets where the minimum and maximum values of ROA as an example are 0.008 and 0.280 correspondingly. Moreover, the mean of ROE is 8.1%. The average financial leverage is 0.289 with a standard deviation of 0.183Indicating not to exaggerate in the use of debt to finance their business. The average operating leverage is 0.311 with standard deviation 0.175 indicating a decline in the ratio of fixed assets to total assets where the lower standard deviation indicates the relative variation in the values of the operating levers. The rest of explanatory variables are as shown above in the table.

Table 2. Descriptive statistics Variables.

Variable	ROA	ROE	FL	OL
Mean	0.072	0.081	0.289	0.311
Std. Deviation	0.071	0.195	0.183	0.175
Minimum	0.008	0.012	0.005	0.007
Maximum	0.280	0.347	0.746	0.761

Note: ROA= Return on Assets; ROE= Return on Equity; FL = Financial Leverage; OL = Operating leverage.

4.2 Findings of Estimations and Interpretations

Table-3 demonstrates the results of the multiple regressions and point to a negative impact of operating leverage on ROA at 5% level of significant .This result is similar with Saleem et al. (2013) .This result is dissimilar to Jasinthan, T. and Achchuthan, S. (2012). Moreover, there is no significant impact of operating leverage on ROE. In addition, it is obvious that the impact of financial leverage on the ROA is negative and statistically is not significant at 10% level. Besides, there is an impact of financial leverage on the ROE and also negatively significant at 1% level where this outcome has the support of Saleem et al. (2013) and Jasinthan, T. and Achchuthan, S. (2012) and is dissimilar to Sainhi (2012) and Pachori and Totala (2012).

Table 3. Multiple Regression Results

Variables	ROA			ROE		
	Beta Coefficient	t-value	Sig.	Beta Coefficient	t-value	Sig.
FL	-0.01795	-4.9300e-01	0.623	-0.01795	-3.60183	0.004***
OL	-0.09446	-2.2840e+00	0.024**	-0.09446	-0.31752	0.742
	R Square = 0.643			R Square = 0.192		
	Adjusted R squire = 0.476			Adjusted R squire = 0.179		
	F value =3.85			F value =6.17		
	F significance = 0.024			F significance = 0.000		
	Durbin Watson =1.883			Durbin Watson =1.716		

* P<0.1, two-tailed, ** P<0.05, two-tailed, *** P<0.01, two-tailed

As displayed in the above regression results, the coefficient of determination (R^2) = 0.643 for the first Model which is considered high reflecting that the predictor variables clarify around two third of the change in the dependent variable (ROA) whereas 35.7% of the variation is clarified by other factors outer the model and the error term. Furthermore, the 64.3% value of R^2 specifies that the model is fairly reliable. Finally, Durbin-Watson indicators display that the dependent variable does not suffer from the issue of the serial link. However, the F-statistic confirmed that model employed was decent and good enough fitted. Moreover, the situation is different in the second Model where only 19.2% of the variation in the dependent variable (ROE) was clarified by the independent variables and that 80.8% of the variance in the return on equity is explained by other factors not specified in the current study.

5. CONCLUSIONS AND RECOMMENDATIONS

The results showed that there is no impact of the financial leverage on the ROA at the level of ($\alpha \leq 0.05$) and that the inverse relationship may be interpreted is by the effects of the global economic problems on the industrial companies. This is very clear when evaluating the last period inventory, in addition to recessions which affected the sampled Jordanian industrial companies. This can also be explained by not using external financing enough to buy new assets that will generate more sales and profit.

The results showed an adverse impact of financial leverage on (ROE) at a level of significance ($\alpha \leq 0.05$).It also shows that the cost of financial is greater than the return on assets, as reflected negatively on the equity , and concludes that the use of third-party funds was not beneficial to the company for the period 2012- 2016. This can be explained by the reluctance of the financial sector, which consists of banks, to encourage lending to the industrial sector or to raise the cost of debt.

The results showed that there is a statistical impact of operating leverage on (ROA) at the significance level (0.05) $\alpha \leq$. The impact on the return on assets indicates a negative impact between them. It is clear that the operational leverage is almost constant. This explains that companies sell products at prices close to cost, which can barely cover variable costs and part of the fixed costs. The decline in global raw material prices led to lower selling prices and because the companies have a large inventory of goods at high prices, this led to a decrease in the return while maintaining the degree of operational leverage as it is.

The results showed that there is no statistically significant impact of operational leverage on ROE at a level of significance ($\alpha \leq 0.05$). There is an inverse relationship, though simple between operating leverage and return on equity. This relationship can be explained by oscillation in the results of the industrial companies that represent the study sample.

Therefore, the study recommends that industrial companies increase their investments in the sense of changing the structure of the cost of the product produced and the search for new markets to increase sales to try to reduce the share of one unit of fixed cost and look to expand its scope to increase the opportunity to grow.

The results show that there are losses to companies as a result of the exposure of inventory of the last period for large losses that led to its valuation below market value as a result of the global recession. Accordingly, the study recommends not accumulating goods in large quantities in stock so as not to suffer such losses and to build the inventory in conditions of low degree of uncertainty.

Moreover the study recommend that industrial companies exploit what they own of assets to increase the operating capacity as they are the source of returns and profits and to utilize more of debt to modernize the low productivity assets. Accordingly, this study put forward that further works essential to be done in this scope in Jordan such as studies that deal with the impact of the cost structure and the financial leverage on variables excluded in these studies, for instance value added. Analysis on leverage in Jordan is still generally unapproachable therefore, the study recommends that future studies should weight on addressing sectors other than the industrial sector. More revisions also proposed to be done on the impact of leverage among firms in Jordan and other countries. It may correspondingly be vital for forthcoming works on this ground to employ different analysis to observe these relations as opposing to the present method used with other variables and measurements.

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