

The Influence of Level Capital Structure on Firm Performance: An Empirical Study of Non-Financial Listed Firms in Jordan

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Abstract. The article intends to explore the role of the capital structure (C.S) in the firm financial performance of 84 non-financial firms listed in the Amman stock exchange (ASE) during the period 2012–2018. The explained variable was market share as a novel proxy for operational performance. The explanatory variable is the total debt to total assets, while the as firm size, firm age, and sales growth were taken as control variables. This article provides a new viable evidence on the operational performance effects of C.S decisions using panel data of Jordanian listed firms. Using a random-effect regression method to analyse balanced panel data, based on the Hausman test statistics. This article found that the ratio of total debt to total assets has a positive and significant relationship with the market share of non-financial listed firms in Jordan. The outcome is consistent with most studies conducted in developed countries. This result indicates that Jordanian listed firms should be optimizing their C.S to distinguish themselves in the market. While the relationship is positive and significant between firm size and sales growth as control variables with a market share, unlike the earlier studies, the current article surprisingly establishes that firm age is not meaningfully contributing to non-financial Jordanian sector performance. In the Jordanian case, this article suggests that the operational performance of firms depends more on debt as their main corporate financing option.

Keywords: Capital Structure, Performance, Non-financial listed firms, Jordan.

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1. Introduction

The C.S choice of a business represents a combination of the sources (equity and debt) through which it is financed which are undoubtedly one of the firm's key challenges (Bajaj et al., 2020). Thus, this choice is one of the first significant decisions of a firm as well as among scholars in the finance field due to its link with the reward and risk (Ullah et al., 2020). C.S and its impact on firm performance is an essential issue in the finance field and thus there are a number of theories explaining this association such as Modigliani–Miller theory, trade-off theory, pecking order theory and agency theory (Mansour et al., 2018). According to Jensen and Meckling (1976), the amount of debt in a firm's C.S has an influence on agency conflicts between managers and shareholders by compelling or pushing the managers to take more action at the interest of shareholders, which means that the level of debt in C.S influences firm performance.

This argument regarding possibility of C.S effects on firm performance has fuelled many researchers to conduct many studies that intend to investigate the relationship between corporate C.S and firms' performance, especially in advanced markets, however, these studies yield contradictory and mixed results (Ullah et al., 2020). While a positive relationship between C.S level and the firm performance had been reported such as Berger and Udell (2006), Grossman and Hart (1982), Roden and Lewellen (1995), Taub (1975), and Williams (1987). The findings of those studies are consistent with agency theory and the theoretical predictions initially suggested by Jensen and Meckling (1976). In contrast, other studies had been reported a negative relationship between them like Fosu et al. (2016), Pratheepkanth (2011), Rao et al. (2007). However, some studies reported no relationship between them, such as the study of Cuong and Canh (2012), and El-Sayed Ebaid (2009). The difference in the findings might be attributed also to the differences in the sample size, sector, period covered, or the difference in the performance measure used (Hassan & Halbouni, 2013).

In addition, practical evidence recently shows different and contradictory outcomes and indicates that this association depends meaningfully on the specific circumstances. Thus, based on the above discussion, the C.S is considered to be critical in determining firm performance regardless of the prevailing theories. Many studies had been investigating the performance implications of C.S choices in advanced markets like the USA, very little is theoretically and empirically known about such implications in less developed countries such as Jordan (Mansour et al., 2018). Unlike developed countries, the capital market in developing countries is incomplete and less efficient as well as suffers from a higher level of information asymmetry (El-Sayed Ebaid, 2009; Saleh, Shurafa, Shukeri, Nour & Maigosh, 2020).

Thus, this environment of the market may cause financing decisions to be incomplete and subject to a considerable degree of irregularity. It is, therefore, necessary to study the validity of C.S impact on a firm's performance in Jordan as an example of emerging economies which have a lack of development of the debt market and the high cost of borrowing. Therefore this article contributes to the theoretical perspective by providing an insight into the link between C.S and firm performance in an under-developed financial system.

Performance reflects the ability of firms to manage available resources to achieve a competitive advantage, and good performance represents the efficiency of management in dealing with investment and financing decisions. This also will have a lot of attention about the C.S choices and what performance indicators can efficiently reflect firm performance in its relationship with the level of capital structure.

The purpose of this article is to empirically inspect the relationship between C.S level and financial performance of firms listed on the ASE during the period 2012-2018, a unique measurement of firm performance was inspired by using market share as an operational performance measure. Market share has been selected as a proxy to signify firm performance but not in the field of the capital structure. The paper revealed several findings: first, there is a positive significant influence of C.S on financial performance measured by market share. These results may indicate, in general terms, that corporate

financial decisions has an impact on the non-financial firms' performance in Jordan. Second, while the relationship is positive and significant between firm size and sales growth as control variables with a market share, unlike the earlier studies, the current article surprisingly establishes that firm age is not meaningfully contributing to non-financial Jordanian sector performance (market share).

The rest of this article is organized as follows: the following section gives a summary review of the related literature. The subsequent section designates the research method. The following section presents the analysis and outcomes of empirical work.

2. Review of literature

Many studies (e.g. El-Sayed Ebaid, 2009; Hussainey & Aljifri, 2012; Saleh, Abdul Latif, & Abu Bakar, 2018) state that investigation of the association between corporate C.S (corporate financial decisions) and a firm's performance is very imperative for several reasons. One of the underlying reasons is that average firms' debt level has increased noticeably over the last periods, requiring a justification of the impact of corporate financial decisions such as build the optimal C.S on firm's performance, so that suitable debt level decisions may be made in the firm. The other reason and most important for investigating the nexus between C.S and firm's performance is to study the relationship between debt level and shareholders wealth, due to the maximization of shareholders wealth is considered the ultimate goal of modern corporate finance. Nevertheless, practical results remain unclear whether the debt is good or bad. Thus, C.S management encompasses the selection of debt and equity levels in a manner that will maximize shareholders' wealth. There are various theories that have evolved throughout the past 6 decades in modern corporate finance (Ullah et al., 2020), that demonstrate how firms can build the optimal "capital structure", which progresses the firm's performance by selecting the best mixture of equity and debt financing (Hussainey & Aljifri, 2012), these theories developed to unravel the C.S puzzle.

Debate on the important subject of C.S has been dynamic in the literature since the publication of Modigliani and Miller's (1958) seminal paper, which proposed that under very restrictive assumptions that do not hold in the real world, corporate C.S is irrelevant in decisive firm performance and value. Thus, when these assumptions are relaxed then the choice of C.S (debt-equity) turns into a significant factor in determining firms' performance and value. For example, by removing the assumption of taxes, Modigliani and Miller (1963) suggested that firms could use a maximum level of debt in their C.S to get the advantage include tax-deductible interest payments of the firm.

Accordingly, logically, a maximum level of debt in the best mixture of C.S has a positive influence on firm performance. In this regard, Berger and Udell (2006), indicates that a higher debt ratio is associated with higher firm performance as represented by profit efficiency by using data on the US banking industry. Many of the studies such as Grossman and Hart (1982), Kyereboah-Coleman, (2007), Roden and Lewellen (1995), Taub (1975), and Williams (1987), emphasize that C.S reduces agency costs, boosts firm outcomes, and improves firm efficiency and performance. In the same context, Gill et al. (2011) demonstrated that a significant positive association exists between C.S measures and return on equity of 272 American service and manufacturing firms listed on the New York Stock Exchange during the period from 2005 – 2007. Similarly, Margaritis and Psillaki (2010) found a significant progressive relationship between the C.S and performance of the French manufacturing firms during the period from 2002 to 2005. Similar findings have been reported in New Zealand (Margaritis & Psillaki, 2007, 2010). These results are linked with agency theory postulated by the Jensen and Meckling (1976). Accordingly, a positive relationship might be anticipated between C.S level and firm's performance through lessening the agency problems among managers and shareholders, which in turn boosts the performance of the firms.

Contrary to these studies, other studies had been informed of a negative relationship between them. Fosu et al. (2016) assessed the determinants of firms' value using a big sample of UK firms, and the practical outcomes suggest that C.S has an opposing effect on firm value as the ratio of the market value of assets to book value of assets. Other empirical evidence from Turkey, Nassar (2016)

examined the relationship between C.S and performance indicators of industrial firms listed on the Istanbul Stock Exchange (ISE) during a period of 8 years from 2005-2012. He found a significant and negative relationship between debt ratio and all accounting indicators of firms' performance. In developing countries, Abor (2005), by applying correlations and regression analyses for the panel data set in firms listed on the Ghana Stock Exchange (GSE) during the period from 1998 to 2002. He found that the relationship between C.S measures and return on equity is significant and positive. The relationship between C.S and firm performance was explored by Salim and Yadav (2012) in Malaysia, and their conclusions report an adverse relationship between all firm performance indicators and all C.S measures.

In the Jordanian context, Zeitun and Tian (2014) investigated the impact of C.S on firm performance by using both accounting and market measures. The results showed that there is significantly negative relationship between them at both measures, which indicates that agency matters already command a higher level of debt in the C.S than it should be. Similarly, Soumadi and Hayajneh (2012) found a statistically inverse relationship between C.S and performance of public Jordanian firms listed in ASE for period (2001-2006). Their result might be attributed to Jordanian firms' heavy reliance on financing their borrowing operations, which could increase the risk of bankruptcy. Shubita and Alsawalhah (2012) extend Abor (2005), and Gill et al., (2011) conclusions regarding the influence of C.S on profitability by testing the effect of C.S on profitability of the industrial firms listed on ASE during the period (2004-2009) and find significant negative relationship between debt and profitability.

This is in contrast to previous study in the Jordanian context by Mahmoud Abu-Tapanjeh (2006) who found that debt had a substantial positive influence on profitability. Other study by Taani (2014) found empirical evidence about C.S and bank performance, the findings show that total debt has positive significant impact on the performance of the Jordanian banks when it is measured by net interest margin and net profit, while the relationship is insignificant when the banks performance is measured by return on equity. Almajali et al. (2012) find that the leverage has a positive statistical influence on the financial performance of insurance companies in Jordan. Khraiweh and Khrawish (2010) examined the impact of C.S on profitability of the industrial firms listed on ASE during the period (2001-2005), and find that there are a significant negative association between financial leverage ratio and profitability of the industrial firms. That means that Jordanian industrial firms are heavily dependent on equity to finance their investments.

However, some studies reported no relationship between C.S and firms' performance, such as the study of Cuong and Canh (2012) which investigated the effect of an optimal C.S on Vietnam firm value, and conclude that the association between optimal leverage and firm value has a nonlinear relationship. Similarly, El-Sayed Ebaid (2009) investigated the influence of C.S choice on the performance of non-financial Egyptian listed firms during the period (1997- 2005) by using accounting-based performance measures (ROA, ROE, and gross profit margin). The results indicate that the decision of C.S choice has little or no influence on Egyptian listed firms' performance.

The difference in the findings might be attributed also to the differences in the sample size, sector, period covered, econometric techniques, or the difference in the performance measure used. In summary, empirical studies concerning the relationship between corporate C.S and a firm's performance in developed countries provided mixed and conflicting evidence, on the other hand, there are a few studies that empirically examine this association in a less developed nation. The present article extends the literature on the influence of C.S on firm's performance by empirically examining the connection between C.S and firm's performance in Jordan.

In fact, Jordan is a unique case for two reasons, first, despite the fact that Jordan has efficaciously walked down the path towards a free-market economy, the managerial decision making may quiet be controlled by the old school of government support to economic entities which could explain the high level of debt in the C.S of Jordanian firms, mainly, those firms that were owned by the public sector

and become owned private sector whether partially or fully as a consequence of the privatization program adopted by the Jordanian government by the mid of 19th century (Haddad et al., 2017). Second, the Jordanian capital market as a developing country is considered less efficient and incomplete and still suffers from a higher level of information asymmetry than capital markets in advanced countries (Tariq & Abbas, 2013). Moreover, the Jordanian capital market is considered still now an equity market (ASE, 2014), so, the debt market structure is still not mature yet. This environment of the capital market may lead to corporate financing decisions to be imperfect and subject to a large degree of irregularity. It is important, hence, to investigate the validity of a C.S decisions firm's performance nexus in the Jordanian context under these unique institutional characteristics of economic settings.

H1. There is a significant positive relationship between capital structure on firm performance

3. Research method

3.1 Sample and data

Given the thinness of the Jordanian capital market, this article uses all publicly traded firms on the ASE during the period of 2012-2018. Securities Depository Center (SDC) is a database agency that keeps records of financial statements and market data of all Jordanian firms that are listed on the Jordanian stock exchange, and that are subject to the regulations by the Jordan Securities Commission (JSC) in Jordan. Listed firms were then screened against several factors; the financial firm's sector was deleted from the sample due to the significant variation in the regulatory framework from that of non-financial sector firms and because their C.S cannot be explained in the same way as for non-financial firms, and remaining firms were then tested for the availability of financial data during the test period (2012-2018). This screening yielded a final sample of 84 firms.

3.2 Variables measurement

3.2.1 Performance. Literature uses a number of dissimilar measures of a firm's performance, such as accounting-based measures which are highly sensitive to the variation between methods of accounting revenue as well as these measures exposures usually to accounting manipulations (Alabdullah, 2018). In addition, the problem with depending on market-based measures also is that developing countries' stock markets such as Jordan are usually inefficient (Tariq & Abbas, 2013). Thus, results based on such market measures can be specious and questionable. Consequently, this article depends on novel operational performance measures, which is market share as a conceptualization of organizational performance as suggested by Murphy, Trailer, & Hill, (1996), to estimate firm financial performance in its relationship with the C.S in the Jordanian context, where no previous study has tested C.S in such a relationship.

3.2.2 Capital structure. Similar to prior research (e.g. Saleh, Latif, Bakar, & Maigoshi, 2020; Sheikh and Wang, 2012, and Zeitun, 2014) CS as a key explanatory variable was measured in the current study by a ratio of total debt to total assets.

3.2.3 Control variable. Previous literature indicates that there are standard control variables that can influence firm performance such as firm size, firm age, and sales growth, thus we include it in the study models. Definitions of all these variables are listed in Table 1.

3.3 Model

The relationship between C.S and operational performance of Jordanian non-financial listed firms was examined by the following regression model:

$$M.SHARE = \beta_0 + \beta_1 C.S + \beta_2 FSIZE + \beta_3 FAGE + \beta_4 SGROW + \beta_5 Year + \epsilon_{i,t}$$

Where: *i* represents firm (1-84), *t* time period (2012-2018), M.SHARE is Market Share which is an indicator of the firm's performance. C.S is capital structure, FSZ is firm size, FAGE is firm age, SAGR is sales growth.

Table 1: Operational Measurement of Variables

Variables	Acronym	Operationalisation	Source
Dependent Variable:			
Market Share	M.SHARE	Market share is ratio as net sales divided by the total sales of the industry	Filtered
Independent Variables:			
Capital Structure	C.S	Total Debt / Total Assets	ASE
Control Variables:			
Firm size	FSZ	Measured as the natural logarithm of total assets.	Firms' annual reports
Sales growth	SAGR	Measured as the ratio of current year's sales minus previous year's sales, divided by previous year's sales.	Firms' annual reports
Firm age	FAGE	Measured by the natural logarithm of the total number of years since a firm was established, as of the year of data collection	Firms' annual reports
Year Dummy	YEAR	Year is a dummy variable to check the time effect for year 2012, 2013, 2014, 2015, 2016, 2017, and 2018.	Filtered

4. Descriptive Statistics Correlation of variables

4.1 Descriptive statistics

This section clarifies the descriptive analysis of the study variables: explained and explanatory variables for the 84 firms that belonging to the non-financial sector's firms listed at ASE by using the common descriptive statistics such as mean, standard deviation, minimum, maximum. In addition to the values for the skewness and kurtosis which illustrate the normal distribution of the sample.

Table 2 presents the descriptive statistics for operational performance measures which is market share as a novel explained variable for the full period under study (2012–2018). Table 2 shows that the market share of Jordanian non-financial firms ranged from zero to 62.6 percent, with an average (standard deviation) of 17.3 percent (.188). Furthermore, Table 2 also presents the descriptive statistics on the C.S as a main explanatory variable. The range of C.S was between 4 percent and 104.2 percent, with a standard deviation of .22. Thus, the mean C.S ratio was 34.5 percent. The statistics in the current study show that some of Jordanian non-financial firms still rely heavily on equity rather than debt, which is likely due to the lack of a debt market in Jordan (ASE, 2014).

In Table 2 the results also show that the values for the skewness and kurtosis measures that sample of the current study is normally distributed due to they are in the reasonable range of normality for both skewness and kurtosis measures as suggested by Gujarati (2014).

TABLE 2: Descriptive Statistics and Normality Test for the Sample

Variables*	Obs.	Mean	Std. Dev.	Minimum	Maximum	Skewness	Kurtosis
Market Share	588	.173	.188	0	.626	1.656	3.10
C.S	588	.345	.22	.004	1.042	.878	3.25
FSZ	588	17.30	1.44	13.06	21.3	.278	3.94
SAGR	588	.0014	.2	-.428	.409	-.12	2.95
FAGE	588	2.95	.69	.693	4.382	-.2	2.63

Source: Authors' calculation. *All variables are defined in Table 1.

4.2 Correlation of variables

Pearson correlation matrix is considered one of the econometric tools that inspect the trend of the correlation between variables. Thus, it is used to explore the strength of the relationship among variables. It also displays the significance of the correlation between the variables of the study. In addition, it provides an indication regarding the existence or absence of multicollinearity.

TABLE 3: Pearson Correlation Matrix and Multi-collinearity Test

Variable	Market share	C.S	Firm size	Sales growth	Firm age
Market share	1.0000				
C.S	0.21* (0.0000)	1.0000			
Firm size	0.59* (0.0000)	0.36* (0.0000)	1.0000		
Sales growth	0.082** (0.045)	0.036 (0.39)	0.092** (0.027)	1.0000	
Firm age	0.132** (0.0013)	0.10** (0.014)	0.26* (0.0000)	-0.061 (0.14)	1.0000
VIFs	-	1.15	1.24	1.09	1.12
Tolerance	-	0.866	0.809	0.915	0.896

All variables are defined in Table 1. Correlation is significant at the * P < 0.01, ** P < 0.05, and *** P < 0.1 (2-tailed). VIF, variance inflation factor for explanatory variables.

Table 3 shows the Pearson's correlation analysis for all continuous variables used in this article. None of the correlations among explanatory variables in this article were found to have correlation coefficients above 0.59. It is evident that there are no serious multicollinearity problems for the regression analysis because the degree of correlation between the explanatory variables is less than the benchmark of 0.7 as suggested by Gujarati (2014).

The article indicates a significant and positive correlation between capital structure (C.S) and performance indicator (market share), with value C.S 0.21, at the 1 percent level, indicating that

firms' performance benefits from the level of capital structure. In addition, all control variables have a significant and positive correlation with market share at the 1 and 5 percent level as illustrated in Table 3.

Furthermore, we examined the multicollinearity by using the variance inflation factor (VIF) and tolerance for explanatory variables as presented in Table 3 also. It reveals that all the values of tolerance for the variables are more than 0.1 with the VIF values that are less than 10, as suggested by Gujarati (2014).

5. Regression analysis and results

In the present article, to explore the direction of the relationship between predictors and predicted variables, multivariate regression analysis for a framework of panel data was used to do so. A regression model is a helpful tool that tells us whether the explanatory variables have an important influence on the explained variable or not. In addition, it suggests the portion of the change in the explained variables which is attributable to the explanatory variables.

TABLE 4:Results for the Relationship between C.S & Performance

Variables	Market share
Constant	-1.43 (-10.92*)
C.S	.056 (2.36**)
FSZ	.088 (11.98*)
FAGE	.022 (1.43†)
SAGR	.0206 (1.93***)
YearDummies	Included
Wald chi² (10)	201.18
Prob > chi²	0.0000
R² (between)	0.35
Hausman Test results	Random-effects
Observations	588
Number of groups	84

All variables are defined in Table 1. * P < 0.01, ** P < 0.05, and *** P < 0.1, † P-value insignificant. This table presents coefficients (z -statistics).

To be able to test the key hypotheses in this article, the Random Effects models were established, in which firm performance (expressed by M.SHARE) is the major dependent variable, capital structure (expressed by C.S) is the main independent variable. The article also included different control variables to rule out other possible explanations that have routinely been used in the literature, which is firm size, sales growth, firm age and Year Dummy (expressed by FSZ, SAGR, FAGE and YEAR, respectively).

Table 4 shows the results obtained from the Random-effects estimator for market share model have significant explanatory power. The R^2 (between) of the model is 35 percent and the Wald χ^2 (10) value of 201.18 is significant at the 1 percent level or better. This indicates that this model is statistically valid. The coefficient of determination of the model indicates that the explanatory variables in this model explain 35 percent of the variation in the market share. The regression results detect that the coefficient of capital structure level as a main explanatory factor is found to be positive and significant in predicting the market share at ($z = 2.36$, $P < 0.05$), these in the predicted positive direction, as revealed by the estimated coefficient.

A positive relationship between capital structure level and non-financial Jordanian firms performance is congruent with agency theory suggests that firms could select higher debt-levels so as to lessen the agency problems among managers and shareholders, which in turn boosts the performance of the firms. Moreover, the findings of this article also are consistent with many studies such as Grossman and Hart (1982), Kyereboah-Coleman, (2007), Roden and Lewellen (1995), Taub (1975), and Williams (1987). On the other hand, a positive relationship between capital structure level and performance of non-financial listed firms in Jordan as a developing country is incongruent with the debt irrelevance theorem by Modigliani and Miller (1958), due to this theory based on restrictive assumptions, hence, do not hold in the real world. In Jordanian contexts, the findings of this article also are consistent with studies such as Almajali et al. (2012) for insurance firms, Taani (2014) for Jordanian banks.

In terms of firm-specific control variables (firm size, firm age, and sales growth) enclosed in market share model, Table 4 exhibits regression results concerning these variables. For the others (control variables), FSZ ($z = 11.98$, $P < 0.01$) and SAGR ($z = 1.93$, $P < 0.1$) have a positive relationship with market share for non-financial firms listed in ASE. The result of the current study is in complete agreement with recent evidence (e.g. Alabdullah, 2018; Sheikh & Wang, 2013). The current article also discovered that there is no impact of the control variables firm age on market share, unlike the earlier studies, this article surprisingly finds that firm age is not meaningfully contributing to non-financial Jordanian sector performance.

6. Conclusion and recommendation

The objective of this article is to explore the effect of C.S as one of the important corporate financial decisions on firm performance using panel data of a sample of 84 non-financial firms listed on the ASE Jordanian during 2012-2018. The panel econometric technique namely random effects were used to do so, the current article found the following key issues:

- 1) Empirical results indicate that the measure of C.S (total debt to total assets ratio) is positively related to market share in multivariate regression analysis. This supported the notion of agency theory that firms could select higher debt-levels so as to lessen the agency problems among managers and shareholders, which in turn boosts the performance of the firms. As the current article implies that there is a positive and significant relationship between C.S and firms performance.
- 2) In terms of firm-specific control variables, the current article also revealed that firm size and sales growth have a positive impact on market share. Surprisingly, the last control variable which is firm age does not meaningfully contribute to non-financial Jordanian sector performance.

The contribution of the current article to the literature lies in its exploration of the relationship between C.S and firm performance signified by market share. In doing so, the present article contributes to the literature, via this link, by using novel and useful measurements. Consequently, this article contributes to the field of C.S and firm performance by investigating the link between total debt ratio and market share in one of the developing country, Jordan. In that, it should be noted that the current article is the first of its kind to provide new insights into the relationship between these two variables.

Finally, this article has some significant policy implications for investors, lenders and financial managers. For example, empirical results indicate that investors have to consider the firm's debt level before making investment decisions. Lenders have to carefully impose debt agreements considering their effect on firm performance. Lastly, financial managers have to deliberate the influences of C.S on firm performance before altering the debt levels.

Lastly, for future study in both developed and less developed countries, consideration must be taken to explore the relationship between these variables (C.S and market share) to recognize the results from different institutional contexts and from dissimilar levels of capital market development in another environment. Furthermore, future studies should explore other explanatory variables in addition to total debt ratios, such as short-term debt ratio and long-term debt ratio to validate the results of this article.

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Journal Article

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