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An Investigation of Impact of Debt Structure on the market value of Jordanian Transportation Companies

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Abstract
The objective of this paper is to investigate the impact of debt structure on the market value of transportationcompanies,debt structure was measured by both debt ratio and short term debt, while market value was measured by market share price. The paper conducted on the data of all the 12 transportation companies listed in Amman Stock Exchange. The study relied on multiple regression analysis to examine the impact of debt ratios on firm market value.The analysis result indicates thatmarket value is effected by debt structure significantly, both debt ratio andshort term debthad a negative impact on market value, and suggests that more debt is not always useful for market value.

Key words: debt–short term debt – marketvalue–transportation companies - Jordan

Introduction:

The study literature showed great interest in how activities should be financed Modigliani and Miller, 1958 a study of corporate since that found an impact of the capital structure on the value of the firm. Many theories were developed to explain the movements of stock market price, one of the reliable theories was CAPM which used beta to explain these movements, followed by improvements by Fama and French (1992) who included more variables to the model, others tried to link market price to dividends, earnings, and other variables.

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According to Modigliani and Miller (1958) there is not a link between market value of firm and its financing structure, they argued that either debt or equity financing decision will not affect market value including TOT (Theory off-Trade) that is the cost-benefit differentiation, and-picking theory POT (Theory Order) that depends on how responsive it isThe financier is sensitive to the variance of information to explain the capital structure, MTT (Theory Timing Market) theory that is built on the timing of the need for funding, the capital structure affects the performance of the firms. Therefore, increase the proportion Financial leverage to a certain extent may improve profitability, and increase in value the same time burdens the company. Also, choose a header structure. The right money balances profit maximization and preservation continuity, and these are the most important goals of companies in sectors business, Siddiqui and Shoaib (2011) state that determine an ideal capital structure is a difficult process.

The capital structure includes both equity (financing Internal) and debt (external financing). It indicates the capital structure to how the assets are financed. The facility seeks through management capital structure to reduce cost and increase profits of external financing (borrowing), it creates savings Tax, and maximize the return on the share. This study complements the literature on this topic in recognition the impact of capital structure on the performance of all Jordanian transportation companies listed in the Amman Stock Exchange for the period from 2011 to 2019. The main goal of the study is to identify the impact of debt structure on the market value of transportation companies in Jordan.

The remaining sections of the study is structured as follows. Section 2 includes literature review. Section 3 signifies research methodology in terms of study sample, research hypotheses study conceptual model and measures reliability and validity. Section 4 shows contains empirical results and discussion. Section 5 highlights research conclusion.

Previous studies (Literature review)

The main Trade-off theory by Lichtenberger (1973) stats that when a firm obtaining tax saving from debt financing faces financial risk. However, the idea of capital structure according to Miller (1958) developed his theory of the insufficiency of capital structure. This theory assumes that the firm's choice of capital formation largely determines the market value of the firm's structure based on its ability to generate income and the risk of its business assets. In the field of theory and empirical research, there were discussions about the structure of capital relations and market value. The literature presents various goodwill criteria that affect overall cash, asset and liability management efforts based on performance. Return on investment (ROA), which is often used in the literature, is a business's return on its assets. Stock profitability is related to the reward of investors for advertising (Akhtar et al., 2016). Guner (2016) describes goodwill as the deduction of interest before interest and property tax. Adenogba et al. (2016) Measuring a company’s value based on market

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value. According to the agency, previous trade documents will benefit from the depreciation of fast-growing companies, and vice versa.

The universally accepted Modigliani & Miller (M&M) (1958,1963) theory is the basis of the capital structure theory used by many researchers. This is the core of a fair economy and an independent establishment. This is said to be the financial performance of a company (Simon and Afolabi, 2011). Companies can choose different types of capital formation, the more they focus on them, the better the value of the company. The different financing options available and how to stimulate profitability through the capital structure are explained (Rahman et al., 2007). In this case, the capital structure can be viewed as a mix of the company's long-term debt, short-term specific debt, common stocks, and preferred stocks (stocks).

The cost of the agency for the debt is incurred by the increase in the cost of debt or the implementation of debt obligations for fear of the cost of the agency. Generally, agency cost of debt occurs when debt holders fear that the management team will engage in risky actions that benefit shareholders more than bondholders. the impact of the external cost is equal to the loss or decrease in the value of the enterprise resulting from departments that are interested in maximizing their personal benefits rather than maximizing the value of the institution. As a result, Debt suppliers may place restrictions on how their money will be used for fear of potential lead agent problems with the company.

Jensen and Mockling (1976), and Myers (2001) Harris and Raviv (1991) indicated that choosing an appropriate capital structure could lead to the elimination of such costs. The assumption of the institution’s cost is that an increase in leverage or a decrease in the equity ratio leads to To reduce the costs of the enterprise resulting from external financing, and to increase the value of the enterprise by encouraging managers or departments to work hard in order to maximize the profits of the enterprise, and to achieve the owners' goals of maximizing profits. In this regard (Grossman and Hart, 1982) explained that increasing debt financing could positively affect managers and reduce the cost of the institution by reducing the cost of external financing represented by maximizing the institution’s profits, providing the necessary liquidity to pay the institution’s obligations on time, and granting the institution The ability to negotiate low-cost loans and easy terms.

From a short-term debt perspective, short-term debt may improve the value of the firm because short-term debt is beneficial and it decreases problems of underinvestment and asset replacement. (Myers, 1977). Also, Berlin (2006) When companies have much of long-term debt, managers may not engage in profitable investments. Nima, Mohammad, Saeed and Zeinab (2012) studied the relationship between the capital structure and the performance of the company of the Companies of the Stock Exchange of Tehran, over the period 2006 and 2011. The researchers conclude that there are significant relationships between the performance of companies and long-term debt, short-term debt. According to (Siahaan et al., 2016), the debt ratio is the ratio of the total debt of a company to company assets. The lower

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the debt ratio, the lower the source of financing through debt. Conversely, the higher the debt ratio, the higher the source of financing through debt

On the other hand, longer term debt has a benefit for the borrower from the fluctuations in interest rates as long-term fixed-rate debt. Furthermore, comparing transaction costs of short-term debt may experience more costs as to one-time transaction costs of long-term debt. However, the idea of long-term debt is generally used in developed countries as a result of their higher levels of credit monitoring and restricted policy of credit worthiness is rejected, and this conceivably explains the fact that the recent financial crises influence developed countries (Alves & Francisco, 2015).

There are many studies focus on the determinants of debt maturity (Siahaan et al., 2016; Adenogba et al. 2016; Berlin, 2006; Nima, Mohammad, Saeed and Zeinab, 2012;), and only a few researchers have investigated the debt structure direct effect on firm value (Antoniou, Guney, &Paudyal, 2006; Berlin, 2006; Terra, 2009). This study provides a significant and respected contribution to the body of knowledge.

Methodology

This sectiondicusses the study sample, variables definitions, measurments, hypotheses, and model development.

Study sample

The study population consisted of all Jordanian transportationcompanieslisted in the Amman Stock Exchange (ASE), all of the (12) Jordanian transportation companies were the study sample for the period between (2011-2019). Table (1) shows their assets size and debt ratios in 2019.

Table (1)**:** Jordanian transportation companiesAssets and debt ratio (thousands U.S dollar) 2019

		Assets	Debt
1	Jordan National Shipping Line	51,100	0.25
2	Salam International	45,800	0.34
3	Trust International	587	0.30
4	Jordan Express Tourist	38,270	0.21
5	Jordan Investment & Transport Co	23,827	0.64
6	Transport & Investment Barter Company	17,122	0.22
7	Alia - The Royal Jordanian Ailines	1,215,384	0.85
8	Masafat For Specialised Transport	47,683	0.35
9	Comprehensive Multiple Transportations Co	52,096	0.67
10	Rum Group For Transportaion& Tourism Investment	44,554	0.29
11	United Group For Land Transport Co	13,131	0.007
12	UbourLogesticSrvices PLC	643	0.18

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Table (1) represents the total assets and debt ratio of Jordanian transportation companies, the highest size of total assets was over $1.2 billion in Alia - The Royal Jordanian Ailines, and it has also the highest debt ratio of 85%, the lowest total assets was just over half a million in Trust International,and the lowest debt ratio was0.7% in United Group For Land Transport Co.

Variables:

Variables used for the analysis are: debt to asset ratio (DR), short term debt (ST), and marketvalue (MV).Table (2) shows the types, code, and measurments of the study variables.

Table (2)**:** Variables in the study model

Variable name	**Type**	**Code**	**Measurement**
Debt to assets ratio	Independent	DR	Debts/total assets
Short term debt	Independent	ST	Short term/assets
Market value	Dependent	MV	Stock value

Hypotheses:

The main goal of the study is to identify the impact of debtstructureon the market value of transportation companies in Jordan, the following hypotheses will be tested:

Main hypothesis:

H01: Debt structure has no significant effect on the market value.

Sub-hypotheses:

$H_0$1a: Debt to assets ratio (DR) has no significant effect on the market value (MV).

$H_0$1b: Short term debt (ST) has no significant effect on the market value (MV).

Study Model:

The research model is designed as follows:

$M.V = \beta 0 + \beta 1\ DR + \beta 2\ ST + E$

Descriptive Analysis

Table (3) demonstrates the descriptive analysis of all the variables:

Table (3) Descriptive Statistics of Variables

Variable	Average	S D	Min	Max
DR	36.9607	25.1083	0.71	94
ST	34.3374	21.5922	0.71	93
MV	0.858646	0.596468	0	2.58

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Table (3) represents the total average and standard deviation of the debt ratio, short term debt and market vlue of share in Jordanian transportation companies, the average of debt ratio is 37%, which is very close to short term debt, while the market value average was around 0.85 JD.

The Pearson correlation matrix was calculated to show the relationship between the study variables, with the aim of detecting a linear correlation between them. Table (4) shows the results of correlation coefficients between the variables as follows:

Table (4) Correlation matrix for coefficient estimates

	DR	ST
DR	1.0000	0.3765*
ST	0.3765*	1.0000

Table (4) shows that the correlation value were less than (0.40), and thus the data indicated that there is weak correlation between variables.
(Hair, et.al.2018) indicated when testing the multiple linear correlation, if it is less than (0.80) then the independent variables do not have a high correlation between each others and they are suitable for the process of conducting regression analysis

Analysis and Results

The study implied multiple regression analysis to determine the impact of debt strucure on market value, the results of the test were as follows:

Table (5) Results of the regression test

Parameter	Estimate	S.Error	T.Statistic	P-Value
CONSTANT	2.1722	0.252687	8.5964	0.0000
DR	-0.00797	0.002328	-3.4236	0.0009
ST	-1.37072	0.270728	-5.0631	0.0000
Model				0.0000

R-squared = 23.3411 percent
R-squared (adjusted for d.f.) = 21.6925 percent
Durbin-Watson statistic = 1.53306

The results of table (5) shows that there is a statistically significant impactof debt structure variableson market value, since the P-value of the model is less than 0.05.The coefficients values show negative impact ofthe debt ratios,also the value of thedetermination coefficient is (R^2 = 0.23), this means that the debt structure hasexplained (23%) of the variance in market value of the shares.

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The adjusted R-squared statistic, which is more suitable for models with different numbers of independent variables, is 21.7 %.

The Durbin-Watson (DW)statistic tests the residuals to determine if there is any significant correlation. Since the DWvalue is 1.53, there is not any seriousautocorrelation in the residuals.

It should be noted that both variables in the model have P values less than 0.05, which means that debt ratioand short term ratio affectmarket value, and have the ability to explain about 22% of the marketvalue variattions.

Conclusion

The impact of debt structure has been one of the most depatedsubject in finance, several theories were introduced to clarify the impact of debt on the firm market value. This study attempts to examine the impact of debt ratios on market value of the context of Jordanian transportation sector, results show that there is a negative impact of debt ratio and short term ratio. Although the model explains only 22% of the market value variations, it also indicates the importance of debt ratios in predicting the movements of market, and suggests that more debt is not always useful for market value. The future studies should include more variables, and different sectors should be explored.

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