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Research Article

THE RELATIONSHIP BETWEEN DEBT STRUCTURE AND PERFORMANCE OF LISTED FIRMS IN TEHRAN STOCK EXCHANGE

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ABSTRACT
Financing decisions and optimal combination of capital structure on the one hand and the optimum use of obtained financial resources and the ability of debt retirement and trying to increase entity on the other hand include issues that are very important for management decisions making. This study, using data about 91 companies listed in Tehran Stock Exchange during the period 2008 to 2012, seeks to examine the relationship between capital structure and corporate performance. The information is extracted from the financial statements available at the databases such as Tadbirpardaz software. To test the research hypothesis, multivariate regression models were used, the results of hypothesis testing show that in companies that have a poor performance, a significant negative relationship exists between capital structure and performance of companies.

Keywords: *Growth Opportunities, Debt Ratio, Investment and Size*

INTRODUCTION
Performance measurement in the decision making process with regard to the importance of capital market role is the most important function in financial economics, so the functions of financial measures to assess the performance of companies is essential. In recent decades, the importance and impact of financial decisions on growth opportunities as a measure for the company performance and finally the value of the company, has become one of the main issues in academic research. On the other hand, financing through debt is one of the important factors in investment decisions at micro and macro levels, which in the Iranian capital market due to capital market constraints, debt is frequently used. Therefore, in this study, first to better understand the subject, various aspects of capital structure are expressed, and then according to the capital structure theories, the relationship between growth opportunity as performance index and debt rate as capital structure index will be discussed.
The purpose of reforming capital structure is the type and proportion of different types of securities issued by the firm.
The capital optimal structure is also the set of ratios that maximizes the overall value of the firm, but how can determine the range of maximum value of the firm?
Facing with the difficult problem, financial managers had to formulate appropriate policies. In this case, on of the data sources can be the fluctuations in the market price of the securities of a firm in the stock exchange. If after the announcement of a new financial plan, the company's stock price decreases, it can be concluded that the implementation of a new financial plan will result in the withdrawal of the company value from the optimal range. Meanwhile, financial institutions providing credit and financial services can also provide their perspectives on the financial plan of the firm for financial managers. Expected rate of return of buyers of the firm securities (stocks and bonds) depends on the structure of the firm. The important thing is that the manager measures the financing cost when the firm has a capital structure in optimal range (when the value of the firm is maximized), because otherwise the cost of financing may be associated with significant errors (Shabahang, 2000).
Relationship between the components of the capital structure and debt: Based on the static trade-off model, capital structure moves towards a spot where reflects the tax rate, the combined assets, business risk, profitability and bankruptcy regulations. While in the hierarchical model, capital market

imperfections are in the spotlight and relate transaction costs and information asymmetry and the ability of the company to accept new investments to the funds and internal resources. (Bows, et. al., 2001) The model predicts that an information asymmetry exists among external investors and managers of a company about the quality of new projects.

Thus, the stock market may underestimate the company's new project, that in this case, increasing capital through the issue of new stocks is the best source of financing (Hong & Jason, 2006). According to this model, firms choose their source of funding, based on the problem of inverse selection. Since the retained earnings has no adverse selection problem is considered as the best source of financing.

Adverse selection problem on the stock reached its highest level and in our debt is between stock and retained earnings.

Also, among the debts, the firm should first issue those debts that have the least information costs. In simpler terms, short-term debts should be used before long-term debts and from among the long-term debts, capital leases and secured long-term debts must be used before any unsecured long-term debts (Frank and Goyal, 2003).

Growth Opportunities: According to the prediction of static trade-off theory, firms without investment opportunities should issue their debts based on representation theory to limit agency costs related to management.

Thus, the static trade-off theory predicts that a negative relationship exists between the amount of using debt and growth opportunities of a firm (Chen, 2004). In addition, the growth opportunities are assets that increase the value of the firm (Chen, 2004 and Hong & Jason, 2006).

In contrast, hierarchical theory predicts that firms with investment opportunities will use debts as the primary external financing resource. So according to this theory, a positive relationship exists between growth opportunities and debt ratio (Chang *et al.*, 2005). Consequently, this model predicts that a positive relation exists between growth opportunities and debt ratio to book value.

Background: Sung (2009) empirically examines the relationship between financial leverage and investment opportunities in China's industrial companies To measure the financial leverage, he used fourratios: the ratio of debt to capital book value, ratio of debt to market value of capital, ratio of long-term debt to book value of capital and the ratio of long-term debt to market value of shares. To measure the growth opportunities, market to common stock book value can be used. Also the firms were classified according to the type of industry.

He stated it is expected that the tendency of those Chinese companies having greater growth opportunities to borrow is less.

Meyer and Krishnan (1997), examined the relationship between capital structure and companies performance and concluded that a significant negative relationship exists between total debt ratio to total equity (TD/TE) and Return on equity (ROE).

Sergio and Paolomokas (2010) examined the relationship between growth opportunities and debt in Portuguese companies. Their results showed that the relationship between growth opportunities and debt is not linear. When the companies have low and high growth opportunities, the relationship between growth opportunities and debt is positive.

For moderate levels of growth opportunities, the results also showed that a negative relationship exists between growth opportunities and debt. Their results showed that the relation between growth opportunities and debt in the capital structure decisions are influenced by a complex dimensions.

Saeedi and Mahmoudi (2011) surveyed the capital structure and firm performance among Iranian companies. The results showed that EPS is positively correlated to capital structure and capital structure relationship with ROA is negative. They also stated that the relationship between capital structure and Tobin's Q is positive.

Rahmani (1995), examined "the impact of funding (long-term loans and issuance of common stock) on the stock price of companies listed in Tehran Stock Exchange. During his studies, he concluded that share issue decreases stock prices and debt does not reduce the stock prices without risk.

Anderson (2005) examined the relationship between capital structure and performance for1323 firms and found that a significant relationship exists between capital structure and ROA.

Ahmadi (2001) examined "the relationship between capital structure and various types of short-term and long-term financing through debts with return on listed companies in Tehran Stock Exchange" and concluded that no definitive inference has been accomplished about the significant relationship between capital structure ratios and return ratios, but it seems that this relationship is not completely ruled out.

Kurdish and Najafi (2008) by examining 93 companies listed in the Tehran Stock Exchange during the period 1999 to 2006 achieved the following results that a positive significant correlation exists between the firm size and debt ratio based on book value and a significant negative relationship exists between the tax saving other than debt and debt ratio based on book value and market value which is consistent with the static trade-off theory.

Noorvash and Yazdani (2010) examined the relationship between leverage and investment decisions in companies listed in Tehran Stock Exchange. For this purpose, two sizes of leverage and three experimental models were used.

The results showed that a significant negative correlation is established between leverage and investment. The results also showed that the relationship between investment leverage for firms with fewer growth opportunities is stronger than companies with more growth opportunities.

This study examines the relationship between capital structure and performance of listed companies in Tehran Stock Exchange, where low growth opportunity in companies is considered as a measure of performance and debt ratio as a measure of capital structure.

It is intended to answer the question whether a significant difference exists between low growth opportunity and corporate debt.

To find answer to the above question, based on the theories stated, the research hypothesis is formulated as follows:

1. In firms with low growth opportunity, there is a significant association between growth opportunity and debt.

In this study, a systematic removal method was used for sampling, so that, the researcher defines the conditions for the selection of intended sample and if each of community element lacks one of the conditions will be removed from the community and at the end, the rest of the population constitute the sample. These conditions include:

1. Their full details should be available in the study period (1999-2012).
2. To enhance the comparability, the end of financial year should be19 March of each year.
3. During the study period no change in the fiscal year should be done.
4. The type of company activity should be manufacturing, so financial, investment institutions, banks, insurance, leasing and holding companies are not included in the sample because they have different activities.

Finally, by applying the above requirements, 91 companies were eligible and were selected as samples.

Hypothesis Model

$$\text{Model(1): BLEV}_{it} = \alpha_0 + \alpha_1 \text{Growth}_{it} + \alpha_2 \text{Size}_{it} + \alpha_3 Prof_{it} + \alpha_4 \text{Tang}_{it}$$

Probability of independent variable coefficient (Growth) i.e.$\alpha_1$in each of the patterns (1) or (2) is below 5%, hypothesis corresponding to the level of growth opportunities will be acceptedat 95% significance level.

How to measure the research variables: To test the research hypotheses, 2 variables were used as independent and dependent variables and control. How to calculate the variables is as follows:

Table 1: How to measure research variables

Type	Variable title	Symbol	Calculation method
Dependent	Debt Ratio	BLEV	**BLEV** $=\frac{\mathrm{TD}_{it}}{\mathrm{TA}_{it}}$ TD_{it} = Book value of debts of firm i in year t TA_{it} = Book value of total assets of firm i at the end of year t
Independent	Growth Opportunity	Growth	$\mathrm{Growthit}=\frac{(TAit+MVEit)-BVEit}{TAit}$ BVEit = Book value of equity of firm i at the end of year t MVEit = Market value of equity of firm i at the end of year t, which is equal to, multiplying the number of shares issued by the company, in the last traded price for stocks by the end of year t TAit = Book value of total assets of firm i at the end of year t
	Size	Size	$\mathrm{Size}_{\mathbf{it}}=\boldsymbol{log_{10}(TA_{it})}$ OI_{it} = Operating profit of firm i at the end of year t
Control	Profitability	Prof	$\boldsymbol{PROF_{it}}=\frac{\mathrm{OI}_{it}}{\mathrm{BVE}_{it}}$ OI_{it} = Operating profit of firm i at the end of year t BVE_{it} = Book value of owners' equity of firm i at the end of year t
	Ratio oftangible fixed assets	TANG	$\boldsymbol{TANG_{it}}=\frac{\mathrm{TFA}_{it}}{\mathrm{TA}_{it}}$

Hypothesis testing:= Hypothesis**:** "In firms with low growth opportunities, a significant relationship exists between growth opportunities and debt."
To test this hypothesis, two criteria of debt ratio to book value of assets (BLEV)used as debt leverage index were used as an indicator of company growth so the above hypothesis can be rewritten as follows:
"In companies with low growth opportunities, a significant relationship exists between growth opportunities and BLEV."
To examine the test, first the mean variable of growth opportunities in the years 2008 to 2012 were calculated for the sample companies and companies that their average growth opportunities is in the 50% below the distribution of average are classified as companies with low growth opportunities. Thus, 38 out of 91 sample companies are firms with low growth opportunity that the result of formulated patterns for the companies as follows:
Before examining the results of the hypotheses, the data layout was first specified using the F Limer and Hausman tests:

Table 2: Limer - Hausman Test Result

Lever	Test name	Amount of Statistics	Degree of Freedom	Probability	Result
BLEV	**F Limer**	12.718	(32,161)	0.00	Using panel data
	Hausman	3.223	4	0.521	Using random effects (EGLS)

Source: Researcher findings

The results of the above tests propose using panel data with fixed effects for first pattern and panel data with random effects for the second pattern.

To check the validity of the remaining regression models, Durbin-Watson test (no correlation between residual sentences), Jarque–Bera test (normality of residuals distribution) and the White test (lack of heterogeneity in residual sentences variances) were used. In Table 3 VIF test (no multi colinearity among independent variables) is provided.

Table 3: Reliability of Regression Patterns

Lever	**BLEV**	
Test	Probability	Result
D-W	1.69	The absence of autocorrelation between remaining sentences
Probability J-B	0.92	Normalizing the distribution of residuals
White	0.00	Lack of variances Heterogeneity

Source: Researcher findings

The results of Table 3 shows that the residuals of both regression models were valid and therefore the estimated coefficients of the patterns will be valid. The estimated coefficients of the patterns estimation in average growth opportunities along with multicollinearity (VIF) test results are provided in Table (4).
According to the results of testing this hypothesis in Table 4, the BLEV pattern is equal to 79%, thus, in companies with low growth opportunities, 79%of changes of debt ratio to the book value is explained by independent and control variables of pattern 2. The adjusted determination coefficient in both patterns is different from the determination coefficient. This is because of the variables that had no significant relationship with the dependent variable and thus have increased the coefficient of determination falsely. Durbin - Watson statistic with a value of 1.70 in the BLEV pattern verifies the lack of autocorrelation among the error components in both patterns because the rate of statistic of D-W is in the allowed distance of 1.5-2.5. Multicolinearity means the existence of a severe relationship among independent variables which is tested by VIF statistics. Values below 10 for this statistic verify the lack of existing multicolinearity among the independent and control variables. Noting the values of VIF column in Table 3, verifies the lack of existence of a severe relation between independent and control variables. In general, given the results in Table 4 at 95% significance level, in firms with low growth opportunities, a significant negative relationship exists between the debt ratios to book value of assets, thus there is no reason to reject the above hypothesis and the hypotheses is accepted.

Table 4: Results of hypothesis test and Multicolinearity test

Patterns Variables	**Model2: BLEV Coefficients**		**Statistics t**	**Significance probability**	**VIF**
C	0.367		2.164	0.032	-
GO	-0.075		-2.212	0.028	14.1
PROF	-0.286		-3.083	0.002	17.1
TANG	-0.043		-0.946	0.346	13
SIZE	0.233		1.886	0.061	1.05
R^2	R^2	0.792	F Fisher	4.153	-
R^2 Modulatory	R^2 Modulatory	0.602	F Fisher Probability	0.003	-
DW	DW	1.698	-	-	-

RESULTS AND DISCUSSION

The results of this study indicate that the companies listed in Tehran Stock Exchange, when have low growth opportunities (low performance), a negative relationship exists between growth opportunity

(performance) and debt (capital structure). This relationship confirms the trade-off theory, because based on trade-off theory, the use of debt increases the probability of bankruptcy, so to control the probability of bankruptcy, the companies decrease their debt level and prevent the potential reduction in growth opportunities. Consequently, according to this theory, the relationship between growth opportunities and debt can be negative. On the other hand, the negative relationship between growth opportunities and debt in companies with low growth opportunities suggests that no agency problems exist in such companies.
Thus, according to the dependency of the relationship between growth opportunities and debt to different levels of growth, it can be stated that in the companies listed in Tehran Stock Exchange, the communication is influenced by complex cases of capital structure decisions. Liquidity restriction and financing costs of the stock market are also items that prevent entering the firms to the stock market and thus the firms invest less and they don't use growth opportunities well.

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