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INVESTIGATING THE ROLE OF LEVERAGE STRUCTURE EFFECT ON THE OF DEBT MATURITY IN THE TEHRAN STOCK EXCHANGE

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ABSTRACT :

     The study aimed to examine the relationship between leverage structure effect on the of debt maturity of firms listed on the Tehran Stock Exchange (TSE). The objectives of the study were: to evaluate the relationship between leverage and debt maturity, to determine how leverage affected debt maturity. The data for the study was obtained from 101 firms that had been consistently listed in the TSE from 2010 to 2015. Correlation and regression analysis were used to test the relationship between leverage and debt maturity. The results of the study indicated that there was a positive statistically significant relationship between leverage and debt maturity of firms listed at the TSE.

KEYWORDS : *leverage, debt maturity, Tehran Stock Exchange.*

INTRODUCTION

     Financial leverage can be affected firm value by influencing agency costs [1]. Science debt financing limits the amount of free cash available to managers causes to difficulty in control the agency. One of the main and challenging issues which companies facing is decision making about the capital structure. Due to the importance and the crucial role of leverage in debt maturity structure, with detecting the relationship between them can be identified the main strategies for control and guidance this important element. Prior studies have shown that capabilities managers for making profitable investments decided toward use the financial leverage [2]. In order to achieve the goal of effective management, it is essential to ensure that a finance manager is more secure during the financial crisis. So they have to seek the opportunity for profitable investment in order to increase the company's performance [3]. One financing sources for each firm is the leverage, which defined as the amount of debt that is required to finance the required benefits [4]. Leverage as a main factor explains the major risk factor for each company. On the other hand debt structure also is one of the major cornerstones that determine the company's success and leads to the sustainable growth of the company [5]. According to the maturity structure, debt is divided into two groups: long-term debt (over one year) and short-term debt (maturing less than one year). Financing decision making is the measurement of firm performance. The creditors also assess the performance of the company in order to decide on the amount and rate of credit. Effective managers determine the debt structure according to the company's future goals and perspectives. Debt structure is one of the key indicators determining the success of the company and leads to the sustainable growth of the company. Hence, decisions are focused on the debt structure for the company's survival, and therefore, the study of factors affecting the maturity of debt and capital structure is one of the most important fluctuations. For this purpose, this study aims to investigate the relationship between leverage effects on debt maturity with the decision between short- and long-term debt for a large sample of Tehran Stock Exchange.

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THEORETICAL FRAMEWORK

One of the important issues in financial management is the choice of leverage for the firms. Modigiliani &miller theory, static tradeoff theory and pecking order theory, all are based on the belief that the amount of debt to be included in the financial profile is based on the critical assumptions that the managers of large corporate companies, by extending ownership, try to improve the interests of all owners [6]. Donaldson believed that domestic funds would be preferred to the company's foreign funds. For the first time he arranged a lexical hierarchy and stated that in the case of external funds, the first prefer debt and then would use convertible instruments like convertible bonds and ultimately use stock issuance like this [7]. Pecking order theory that gained ground in the 1980s with the pioneering contribution of Myers (1984) and Myers and Majluf refer to financial leverage. The theory challenges the existence of a leverage optimum. Instead, it considers the observable debt-equity mix as the cumulative result of historical financing transactions, assuming a firm that in every decision opts for minimizing the costs of financing [8].

There are different theories regarding corporate debt structure, one of which is the theory of leverage. According to Leland and Toft in 1996, firms with higher leverage tend to choose longer maturities of debts and vice versa. The optimal leverage depends on the maturity of the debt, and when the company is financed with short-term debt, the value of the firm is sharply reduced [9]. Morris in 1992 also argues that companies with a higher debt ratio tend to publish long-term debt, in order to be more vulnerable to the risk of bankruptcy. On the other hand, theories of ownership and representation predict a negative impact on the maturity structure of debt, so the effect of the leverage on the maturity of debt is still unknown. Hence leverage, as an independent theory can be used for determinants of the maturity structure Debt, is debated [10]. Diamond in 1991 argues that high-leverage companies prefer long-term debt to avoid liquidity with little optimism because firms give them more time to repay their debts [11]. The choice between financing alternatives is determined by the costs related to asymmetrical information between insiders (management) and outside investors (shareholders, creditors, other investors) of the company.

The 'least expensive' fund for managers are the retained earnings that are entirely consumed before they have recourse to the next cheapest fund, the external debt. The debt-equity ratio increases thus when the firm's cash flow is not sufficient to cover its all cash-out items (dividend, Capex, etc.), researchers like Myers [12] in 1984, depend on simple statistical measures of the observable volumes of funds, and concluded that retained earnings are dominant by far, which external debt falls short of; whereas net equity issuance can even be below zero on an aggregate basis in a given period [13]. Thus with our analyses, we intend to assess the leverage structure effect on the of debt maturity in the Tehran Stock Exchange. Alcock et al. in research the determinants of the maturity structure of Australian companies investigated the determinants of Capital Market debt maturity for the top 400 companies in the Australian Stock Exchange during the period 1989-2006 [14]. They made using the assumptions of the Merton model; they showed that leverage in Australian companies has a positive relationship with maturity. Noravesh in 2010 discussed the decision on corporate leverage. In this research, 1,620 Australian companies have been divided into two mineral and inorganic sections in a 13-year period - from 2000 to 2010 [15]. The researcher believes that the industry in his country is an economic priority, thus measuring the effect of the leverage effect on them. The findings of this paper show that there is a significant difference between mining and non-mining companies in the choice of the lever. According to the evidence, mining companies are more sensitive to tangible assets and profitability. Because in these companies, profitability and apparent assets have no meaningful relationship with non-corporations.

The overall results indicate that the industry is important in making decisions about organizational leverage. Akhlaghi in research the factors affecting the debt consolidation of the company investigated the factors affecting the debt maturity structure of the companies admitted to the Tehran Stock Exchange [16]. In order to achieve their goal, they selected 143 companies listed in the Tehran Stock Exchange for a 9-year period during the period from 1380 to 1389. Findings of the research indicate that there is a positive relationship between the size of the company and the apparent ability of the company to grow with the

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maturity structure of the debt. There was also no relation between the financial leverage and the maturity structure of the debt. Jabarzadeh Kenglouei et al. in a study the effective structures in debt recovery identified and introduced effective debt financing structures in companies admitted to the Tehran Stock Exchange [17]. They selected 60 companies admitted to Tehran Stock Exchange during the financial period from 2004 to 2003. In their research, the total financial leverage of total debt as the dependent variable and the percentage of institutional ownership as an independent variable, and the effective control variables affecting debt absorption including the cash dividend, profitability, business risk, asset structure, liquidity, growth and size of the company are also used. The results of their research show that there is no correlation between debt absorption and institutional ownership percentage. By entering the control variables in the regression model, the explanatory power of the model increases from 27% to 46%. Also, the results show that during the research period, the variables of profitability, business risk, asset structure, liquidity, growth rate and size of the company were factors influencing company debt absorption.

RESEARCH HYPOTHESES
According to the materials mentioned in the theoretical basis and research background, hypotheses that can be tested are following:
Hypothesis 1: The financial leverage structure is related to the debt maturity structure.
Hypothesis 2: The increase in the use of financial leverage cause increases the maturity of the debt.
Hypothesis 3: There is a significant relationship between financial leverage and debt maturity structure.

Data, Variables, Model, and Empirical Methods
Data :
This study focus on panel data related to the primary data sources are from the Tehran Stock Exchange, and database contains 101 firms six years covered period to study. Observations are yearly during the period 2010-2015the level of analysis is each firm. Regarding the availability of all required information, systematic elimination method was used to reach the appropriate sample. To do this, observed the following sample selection criteria:
• Enter before the year 2009.
• Investment companies, financial intermediaries and leasing companies.
• During the period under review, they have not changed their fiscal year.
• Until 2014, they will not be removed from the Tehran Stock Exchange.
• Regarding increasing their comparability, their fiscal year ends at the end of March each year.
According to the features mentioned, 101 companies have been selected as samples.
The information required for this study was collected from the Tadbir pardaz Stock Report Compact Disc, the New Raiders Software, as well as the reports published by the Securities and Exchange Organization.

Variable:
Dependent variable
The dependent variable is the maturity of debt that measured as Long-Term Financial Debt over Short-Term Loans plus Long-Term Financial Debt [18].
Independent variable
Financial leverage: Equal to debt to equity ratio [19-22].

Model and Methodology:
This research is an analytic-descriptive study which regarding its purpose is in applied research. Therefore, to test the research hypotheses, the multivariate regression method has been used along with

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the implementation of presumptive regression tests. For do this, the Eviews and Excel software have been used to analysis on panel data.

DM = α0 + α6 LEV + α7 SIZE + α8 ROA + α9 GROW + α10 ASSET + α11 AGE + α12 TAX + α13 Z-Score + ε

In this model:

DM: Indicates the corporate debt maturity structure

Lev: Expresses Financial Leverage

SIZE: Company size

ROA: Represents asset cash returns

GROW: Expresses the growth of the company

ASSET: Represents the asset structure

AGE: Indicates the life of the company

TAX: Expresses the tax rate

Z-Score: Indicates the financial health of the company

RESULT:

Table 1 shows the data for 101 surveyed companies in the period 2010 to 2015 which based on existing databases extracted and transferred to the Excel software then in Eviews was processed. The descriptive statistics of major research variables are presented in this table 1. The main point of table is that the average financial leverage of 61% in sample companies indicates that investigated companies are leveraged and apply of debt in firm financial. The results of the normality test are presented in table 2. If the probability of Jarco's statistics is higher than the three values of 0.05, 0.1, 0.01, and this means that the data has a normal distribution. As seen, the distribution of all variables follows a normal distribution. Prior to analyzing research data, reliability variables should be tested. This means that the mean and variance of variables in during of period and also theirs covariance between different years have been fixed. As a result, using these variables in the model not cause false regression. For this purpose, I'm Pesaran and Shin test were used. The results of reliability test in table 3 show that significance level for all variables is less than 0.05 and therefore, all variables of research in this period are at the steady level. The next test that should be used is a coherent test. Coherence is a situation that indicates an independent variable is a linear functional of other independent variables. The high coherency in a regression equation means that there is a high correlation between independent variables and although R^2 is high, model validity is not high. In other words, although the model looks good, it does not have meaningful independent variables and these variables affect each other. Since the optimum value for the variance inflation factor (VIF) is less than 10 and table 4 display that all variable take score less than 10, therefore it can be concluded that correlation between either variable no exist. As a result, the regression model is a suitable tool for prediction. Other assumptions which used in regression analysis is the independence of errors that means the difference between actual and predicted values by regression. To measure this, in table 5 the Durbin-Watson test was used. In the facts table 5 represents the results of the main model study and shows that the influence coefficient of LEV variable on debt maturity is significant in 95% of confidence level. The fact means that financial leverage has a positive impact on the company's debt maturity structure. Also, as seen in this table there is a positive correlation between the controls variables such firm growth, asset structure and company age and corporate debt maturity structure. On the other hand, there is a negative relationship between the tax rate and the corporate debt maturity structure. Finally, it can be conducted that there is no relationship between corporate size, cash flow from assets and financial health of companies with the company's debt maturity structure. According to the results, both research hypotheses accepted, and the result of this study showed that in addition to exist relationship between financial leverage structure and debt maturity structure, first has a positive effect on later.

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Table (1): Descriptive Statistics

Variable	Average	Middle	maximum	I cite	Standard deviation
DM	0/123	0/0814	0/728	0	0/120
LEV	0/610	0/5628	0/998	0/089	0/204
Z	1/981	1/822	7/584	-1/789	1/170
SIZE	13/986	13/777	19/106	12/031	1/569
ROA	0/109	0/091	0/621	-2/443	0/173
GROW	0/214	0/163	4/651	-0/629	0/446
ASSET	0/252	0/210	0/838	0/005	0/170
AGE	37/688	38	61	12	11/427
TAX	0/106	0/104	0/863	0	0/095

Table (2): The results of normality test

Variable	DM	LEV	Z	SIZE	ROA	GROW	ASSET	AGE	TAX
The statistics	6/2354	3/6341	4/5868	2/0213	1/9786	11/3627	9/8173	21/3910	3/0986
Possibility	0/006	0/0584	0/2954	0/0129	0/2610	0/1125	0/0091	0/0062	0/174

Table (3): Data Tolerance Test

Variable	Im Pesaran and Shin	Sig
DM	-5/254	0/0000
LEV	-4/293	0/0000
ASSET	-7/8787	0/0000
AGE	-3/231	0/0006
TAX	-8/722	0/0000
Z	-6/164	0/0000
GROW	-7/004	0/0000
PIO	-5/697	0/0000
SIZE	-4/256	0/0000
ROA	-4/496	0/0000

Table (4): The result of the coherent test

Variable	Coefficient of variance	VIF
PIO	4/8410	8/7333
LEV	0/0018	2/5502
Z	3/4991	7/4797
SIZE	8/7920	8/6161
ROA	0/0011	2/8422
GROW	0/0211	1/4386
ASSET	0/0966	3/5508
AGE	1/4975	3/0981
TAX	0/0021	2/5110

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Table 5: Testing of Research Hypotheses

Variable	Coefficient	The statistics t	statistic	Relation	Significance level
LEV	0/0459	2/6309	0/0087	Positive	%99
Z	0/0026	0/9500	0/3425	Positive	Not meaningful
SIZE	-0/0085	0/4865	0/6470	Positive	Not meaningful
ROA	0/0168	-0/4865	0/6267	Negative	Not meaningful
GROW	0/0168	3/7962	0/00002	Positive	%99
ASSET	0/3311	10/9063	0/0000	Positive	%99
AGE	0/0013	5/3839	0/0000	Positive	%99
TAX	-0/0910	-2/4862	0/0132	Negative	%99
R^2	0/2797	**Watson Durbin Statistics**		2/0078	
justified R^2	0/2651	**F**		19/1941	0/0000

DISCUSSION AND CONCLUSION

Identifying the decision-making process of investors in the capital market, as well as understanding the decision makers of companies to adopt appropriate financing policies are among the most important academic and academic issues [23]. The use of financial policies for profitable investment and appropriate financing plays a very important role in corporate growth. Debt financing is often preferred to corporate executives due to tax savings and lower rates compared to expected returns for shareholders [24]. The factors determinants debt structure of each company is associated with specific characteristics company, as well as factors related to its institutional environment. In the mid-1990s, many studies have been done to identify the factors affecting the debt maturity structure. The results of the research indicate that factors such as the size of the economic unit, the rate of bonds and the growth opportunities of companies affect the structure of debt maturity [25]. On the other hand, prior finding shows that the leverage in many studies has been introduced as a company risk indicator or its financial status in models. The study attempts at using a contradiction in the arguments assess the relationship between financial leverage and debt maturity and take a comprehensive outcome that can accommodate conflicting arguments. Our finding displayed that financial leverage had a positive effect on debt maturity structure. Compatible with present findings, Bevan and Dan bolt in determining the dynamic capital structure of British firms showed that profitability, fixed asset ratios, growth opportunities, and company size had the most impact on leverage [26]. Also, Karan and his colleagues adjust the debt ratio to determine the determining factors of company's capital structure in determinants of corporate debt maturity European countries to achieve the target debt maturity structure. In their research confirmed the direct relationship between the maturity structure and the leverage of the liquidity risk hypothesis [27]. Konner explores the determinants of the debt-to-maturity structure of companies in the Czech Republic [28], which has a direct relationship with firm size, financial leverage, and asset structure. Alcock et al. observed the relationship between debt leverage and debt maturity in Australian companies in determining the determinants of the maturity structure of debt [29].

LIMITATION OF STUDY:

1. Lack of reliable and reliable data for calculating the research variables for some companies, which eliminated them from the statistical sample, and this affects the generalizability of the results to the statistical community.
2. Time and spatial constraints.
3. The financial statements prepared based on historic cost have been used, but if the financial information is adjusted for inflation, then the results of the research may differ from the current results.

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