

Ownership Structure and Debt Maturity Structure: An Empirical Study on Iranian Firms

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Abstract: The main purpose of this research is to examine the impact of firm ownership structure on the firm debt maturity in the context of Iranian firms listed in Tehran Stock Exchange during 2002 to 2009 as an emerging market. We used managerial ownership, the presence of large stockholder and institutional investor as ownership structure proxies. We also controlled the effects of some determinant variables including growth opportunity, firm size, tax effects, leverage and profitability. Our empirical examinations via multivariate regression analysis in a panel data framework indicate that managerial ownership and the presence of institutional investor have significant positive effects on debt maturity. However, the presence of large stockholder is not significantly related to short term debt. We also found that larger Iranian firms use less short term debt. In addition, profitability and growth opportunity have a positive effect on debt maturity. Moreover, firms take decisions about debt maturity without considering tax effects and leverage.

Key words: Debt maturity structure • Ownership structure • Managerial ownership • Large shareholder • Institutional investor

INTRODUCTION

Empirical studies support the idea that the choice of debt maturity structure can cause to reduce agency costs [1-4] in the US market [4, 5, 6] in the UK market [6]; Cun˜at, 1999 in Spain [7]). Additionally, capital structure studies have implied the importance of short term debt in reducing the underinvestment problem [8, 9]. However, short term debt increases the risk of suboptimal liquidation and, thus, increases the expected bankruptcy costs [10, 11]. Therefore, the decision making about debt maturity and long term debts is a tradeoff between lower underinvestment problem and bankruptcy cost due to increasing liquidity risk [12]. But, Datta *et al.*, (2005) argue that these studies assume perfect interests alignment of managers and shareholders [13]. However, usually there is not a complete alignment between these two groups of stakeholders. When managerial and shareholder interests are not aligned, managers tend to make suboptimal debt maturity choices. It means they prefer longer debt maturities [14], because the monitoring roles of these lenders are limited. Although their costs are high. Stockholders; however, prefer short term debt. So we can

expect that ownership characteristics and structure affect financial decision making including debt maturity. There is a similar line with this idea in the literature. The agency cost theory stresses that short-term debt can reduce the conflict between management and ownership through more monitoring by lenders. However, the studies mainly focus on the impact that managerial ownership and board composition have on debt maturity decisions [13, 15, 16]. They argue that when managers are owners, whose interests become more aligned with stockholders, so the agency costs are reduced. But, managers may or may not have the same incentive as owners [17]. Hence, the relation between managerial ownership and debt maturity structure is ambiguous.

On the other hand, institutional investors monitor managers by determining the debt maturity structure directly through corporate governance (for instance, determining the level of compensation and its sensitivity to performance) and indirectly by influencing many corporate decisions related to R&D and fixed asset expenditures, acquisitions, leverage and cash holding and dividend payments [18, 19], as well as debt maturity structure. Institutional investors as a part of large

stockholder also are considerable. Additionally, institutional investors influence on the performance of companies in which they invest. Also the research results show that the institutional investors are the most important factors which have the positive effect on the corporate value [20].

On the one hand, the investigation of ownership structure and its impact on debt maturity can be worthy, because there are rare studies on this issue. On the other hand, there are so many empirical studies on debt maturity structure that have concentrated on developed countries. However, the studies on developing countries can add to literature, as we know there is no similar study on Iranian firms. Thus, we aim to fill this gap in the literature.

The main purpose of this study is to examine the impact of the different types of firm ownership structure proxies as strong corporate governance mechanisms on the firm debt maturity structure of a sample of Iranian firms listed in Tehran Stock Exchange (TSE) for the years 2002 to 2009. The main question of this study is how ownership structure affects financial decisions of Iranian firms, specially, debt maturity structure as an investment structure decision making. This effect can have significant implications for the firm performance.

Theoretical Framework and Literature Review: The seminal papers of Modigliani and Miller (1958) represented that capital structure decisions are not related to firm value [21]. However, the literature implies that agency conflicts between the shareholders and managers [22, 23] can affect financial decisions [14]. In this issue, the ownership characteristics of firms are important. These characteristics can act as corporate governance mechanisms and so can mitigate the agency conflicts between the shareholders and managers. Some theoretical studies suggest that debt maturity can influence agency costs. Primary theoretical papers [23, 24, 25, 26] emphasize the role of debt in reducing agency costs between shareholders and managers because management is more frequently monitored due to periodic credit renewal of short term debt [27, 28]. Myers (1977) found that short-term debt reduces “under-investment” problem [26]. It point to that managers do not like to pursue relatively riskier projects because creditors get more benefits from these investments. This problem becomes more severe if a firm has more growth opportunities. Therefore, short-term debt is less sensitive to shifts in the risk and decreases the agency costs by more frequent monitoring by short term creditors. Barnea, *et al.*, (1980) also argued that shortening the debt maturity structure to match the

structure of assets can help to reduce the agency costs of under-investment [9]. There are many studies in the literature consistent with this theory [3, 30, 31]. Demirgüç-Kunt and Maksimovic (1999) argued that managers of smaller firms on average own a larger proportion of the equity. This aligns the interests of the managers with the shareholders but makes these managers to be less risk adverse [32]. Additionally, the investment opportunity of small firms usually is related to collateralizable assets [33]. In these firms case, the creditors have a little access to their required information. In contrast, large companies are more transparent and thus creditors can obtain more accurate information on them at relatively low cost. Thus, they face fewer limitations on obtaining external financing [34]. There are rare studies in the literature studying the relationship between debt maturity and agency conflicts between managers and shareholders.

Different categories of shareholders may have different effects on debt maturity choice due to different incentives and abilities to monitor managers [19]. In the following parts we review related literature in three lines: managerial ownership, large shareholder and institutional shareholder and their relationship with debt maturity. We will develop our research hypotheses on these studies.

Datta *et al.*, (2005) studied the role of managerial stock ownership in US firm's debt maturity and found a negative relation as a result of the alignment of the interests of managers and shareholders. They also point out that managers with low equity ownership prefer longer maturity in order to avoid external monitoring, but they will choose short maturity as their managerial stock ownership increases, because of an alignment of interests between managers and shareholders [13]. As another similar line, Guney and Ozkan (2005) found a negative relationship between managerial ownership and debt maturity for UK firms [5]. They stress that firms prefer more short term debt when the expected agency costs of managerial ownership are higher [35].

However, Marchica (2008) studied the effects of internal ownership and large external shareholders on debt maturity in the UK and found a significant negative coefficient for managerial ownership and a positive coefficient for the square of managerial ownership and this provided strong evidence that the link with insider ownership is nonlinear. Moreover, she provided evidence of a significant negative relationship for large external shareholders [14]. In a brief, for a sample of UK firms, Marchica (2008) found a non-linear relationship between maturity of debt and managerial ownership, positive for low levels of managerial ownership and negative for high

levels [14]. However, Guney and Ozkan (2005) studied a non-monotonic relationship between these two variables; they found no meaningful non-linear effect [5, 35]. A recent study by Garcí'a-Teruel and Martí'nez-Solano (2010) focused on the relationship between ownership structure and debt maturity using a sample of listed Spanish firms. Their results suggest that there is a non-monotonic (concave) relationship between long term debt and managerial ownership. Long term debt and managerial ownership relate positively at low levels of managerial ownership and negatively at higher levels [28]. In emerging markets but there is no study on the issue except on: Arslan and Karan (2006) that reviewed the emerging market of Turkey, to study the effects of ownership structure and the presence of a large shareholder and discovered a positive relationship with firm debt maturity. But they did not study the effect of managerial ownership on debt maturity [36]. So there is no many studies in developing countries on this issue, drawing upon this argue, we develop our first hypothesis as follows:

H1: There is a significant relationship between managerial ownership and debt maturity structure.

The large shareholders in firms also act as a control mechanism to reduce the conflict of interest between managers and stockholders. Shareholders monitor managers via their voting power. Large shareholders have a greater incentive to monitor managers [37]. Additionally, large shareholders act as a signal to the market that shows the managers are restrictedly monitored [28, 38]. So we expect a negative relationship between large shareholder and debt maturity. There are some studies that focus on this relation.

Marchca (2005; 2008) found a significant negative relationship between short term debt and large shareholders for UK firms [39, 14]. Arslan and Karan (2006) for Turkish firms confirm also this negative relationship [36].

Although Shleifer and Vishny (1986) believe that there is a conflict between large shareholders and minority shareholders instead of between managers and shareholders [37]. In this case the large shareholdings are costly, since majority owners can expropriate wealth from minority holders [28]. Thus, may be the large shareholder does not act as a mechanism for the monitoring with short term debt. Garcí'a-Teruel and Martí'nez-Solano (2010) results supported a non-monotonic relationship (concave) between debt maturity

and a large shareholder. The relationship is positive when the ownership of the large stockholder is low and it becomes negative for higher levels of ownership [28]. Upon this discussion, we expect a significant relationship between large stockholders and short term debt in Iranian firms. But the direction of this relation is not clear. So we develop our second hypothesis as follows:

H2: There is a significant relationship between the percentage of large stockholder and debt maturity structure.

The literature investigates whether institutional investors act as a monitoring factor, directly through corporate governance and indirectly by affecting financial decisions [40, 41, 19]. However, as Marchica (2011) believes that the relation between maturity decisions and institutional ownership could be indigenous [19]. Thus, the examination of this relation in Iran can be useful to help Iranian stakeholders and to the international literature as a result of an emerging market. On the other hand, the relation between the act of institutional investors and managers on the debt maturity structure is mutual. Institutional investors may choose the firms and own its equity with maturity structures that better suit their preferences (self-selection). Alternatively, managers may make the maturity structure of their firm so as to attract certain types of institutional investors (a clientele effect) (Ibid). So we intend to examine the direction of this relation in this research too.

There are a few studies on institutional investor activism that study the effects by investors on financial decisions. For instance, Brav *et al.*, (2008) and Klein and Zur (2009) indicated that hedge funds significantly affect dividend payouts and leverage in order to reduce potential free cash flow problems [42, 43]. Their analyses mainly focus on a particular group of investors, hedge funds. Also, Cronqvist and Fahlenbrach (2009) investigated the influence of pension funds and mutual funds on leverage, dividend policy as well as cash holding decisions [44]. They researched the impact of all large blockholders with more than 5% ownership over a 6 year period. But as it seems the only research about the effect of institutional investor on debt maturity structure is Marchica's research (2011). She found a positive and strongly significant association between institutional investor and debt maturity, defined as the proportion of debt maturing in three years or less for UK firms. This relation was not only statistically significant, but also economically sizable.

This paper completes the above literature by providing further evidence on an active monitoring role of institutional investors through a specific financial decision, that is, the debt maturity choice. Therefore, we arise our third hypothesis as follow:

H3: There is a significant relationship between institutional investors and debt maturity structure.

We test institutional investors separated from large shareholders because the recent research shows that firms use more short term debt when the main shareholder is a bank [28]. It means if the large shareholder is institution the managers' behavior can be different from other large shareholders. Institutional investors can exert greater control for reasons of economies of scale in corporate supervision [11] and therefore less short term debt is needed. Because of their investments are more diversified, they may have fewer motivations to control a specific firm [45]. But the managers may use more short term debt to signal to the market that effective control exists [41].

MATERIALS AND METHODS

Sample and Data: We used data from the annual financial reports of Iranian public-listed firms in Tehran Stock Exchange (TSE) between the years 2002 and 2009. We collected balance sheets, loss and profit statements and ownership data, from data base of TSE and Rahavard Novin software (a data base of financial information of Iranian public firms). Our sample firms were selected the firms using the following criteria:

Firms had been listed at TSE before the year 2002 (the first year of research period). They must have the same financial year that we can compare their financial statements. All of them must be manufacturing firms because other firms like financial firms or banks have different operations from manufacturing firms. So we excluded these firms from our sample to provide homogenous sample. They must have external financing through long term debt during research period (2002-2009). They do not have any changes in their financial year in the research period and in this period their stock must be traded at least every three months and finally all data were available for all years under study. According to these criteria, we examined 96 firms listed in TSE.

Model and Variables: The research purpose is to examine effects of ownership structure on debt maturity in Iranian context. In this way we specify three kinds of corporate governance aspects of firm ownership: managerial ownership, large shareholding and institutional shareholding. So according to our hypotheses the independent variable is debt maturity structure which is defined as the ratio of long term debt/ (Long term debt + Short term debt). There are many studies that used from this ratio for debt maturity [46-51, 19].

The independent variables used to measure the effects of ownership structure as corporate governance aspects are managerial ownership, large shareholders and institutional shareholders. For the managerial ownership we employed the percentage of shares held by the managers, for the large shareholder we used percentage of shares held by the major shareholders (according to Garcí'a-Teruel and Martí'nez-Solano, [28]) and for the institutional shareholder we applied the percentage of shares held by banks, investment firms, insurance firms and governmental companies (according to Marchica [19]).

Large shareholder may be a bank or a family (Ibid). The effects of these two shareholders could be different on debt maturity. The research result shows that firms use more short term debt when the main shareholder is a bank. So for focusing on the role of professional financial institutes on debt maturity structure of firms, we separated institutional shareholders from large shareholders.

Previous literature on debt maturity structure has presented other factors that can also affect debt maturity structure. We used some of these factors as control variables, according to the previous researches.

One of the control variables is growth opportunity. According to agency cost theory [8, 18]. A positive relation between firms' growth opportunities and short-term debt due to underinvestment problems is expected. It means that firms with greater growth opportunities usually have more conflicts between shareholders and debt holders, so they may use more short term debt [1, 3, 26, 7, 5, 6, 26, 14]. However, firms with high growth opportunities are also expected to have more liquidity risk problems and this may give them an incentive to borrow long term [3, 11]. To measure growth opportunities constant with Garcí'a-Teruel and Martí'nez-Solano research (2010), we used Tobin's q calculated, as the relation 1 [28]:

$$Q_s = \frac{COMVAL + SBOND + STDEBT}{SRC} \quad (1)$$

Where COMVAL is the year- ended market value of common stock, SBOND is the year-ended book value of the firm's long term debt, STDEBT is the year - ended book value of the firms short term debt and finally, SRC is the firms year- ended book value of total assets.

The other control variable that we used is firm size. The researches indicate that smaller firms have more debt-related agency conflicts [52], higher levels of asymmetric information [53] and higher bankruptcy risk and less access to capital markets [31, 17]. They have limited abilities to negotiate too. Therefore, smaller firms have more problems to obtain long- term debts. The related literature implies a positive relation between debt maturity and the firm's size [1, 26, 54, 55, 5, 7]. Consistent to some previous researches, we used the logarithm of total assets of the firm as a proxy of firm size in our research [51, 56, 57].

In our empirical analysis we also included tax effects. When the term structure of interest rates is not flat, the expected tax values of debt depend on maturity [58]. Specifically, when the yield curve is upward sloping, the more long-term debts cause reduced tax rates. In other words, during the early years, the real value of tax reductions will be higher for long-term debt. Brick and Ravid (1991) argue that firms prefer long-term debt under flat or even negative term structures if there is uncertainty about interest rates [42]. Mauer and Lewellen (1987) and Emery *et al.*, (1988) also stressed that long-term debt might have a positive effect on the firm's value. Therefore, it is expected that there is a negative relation between tax rates and debt maturity to ensure that the tax benefits of debts are not less than the amortized flotation costs [59, 60]. However, some empirical evidence do not confirm this expected relation [1, 3, 26]. Emery (2001) suggests that firms are not concerned with the tax aspects related to debt maturity structure; they use short-term debt to avoid the term premium between short-term and long-term loans [61]. Consequently, the expected relationship between debt maturity and the term structure of interest rates is not clear [28]. In this research, we used the ratio of tax to taxable earning according to the works of Terra (2011) and Gracia and Barberá [51, 50].

Leverage can also be related to maturity of debt. Diamond (1991; 1993) represented that firms with a high level of debt prefer longer maturity debt in order to reduce the liquidity risk [62, 11]. Thus, more indebted firms, which have the greatest financial risk, try to control

risk by lengthening the average maturity of their debt [13, 11, 26, 7]. Leland and Toft (1996) also concluded that the leverage level depends on the debt maturity and firms with lower leverage level tend to have more short-term debt [63]. Therefore, a positive relationship between leverage level and debt maturity is expected. In contrast, Dennis *et al.*, (2000) indicated that the leverage has a negative relation to debt maturity, because agency costs of underinvestment may be limited by reducing leverage and shortening debt maturity [64]. Upon these debates the direction of the relationship between leverage and debt maturity is not clear. To measure leverage according to Marchica (2008) [14] and Nazir *et al.*, (2011) (that imply this measure is more proper for developing companies like Iran among other measures) [65], we defined the leverage variable as the total amount of debt to total assets.

Finally, the last variable that we considered as our control variable is firms' profitability. Myers and Majluf (1984) believed that there is a negative relation between profitability and debt maturity structure, because more profitable firms will need less debt [29]. They have enough internal resources to project financing. Rajan and Zingales (1995) emphasized also this finding [25]. But from tax theory approach, the larger firms should borrow more because they need more tax shields (interest expense) so the positive relationship is expected. In this research, we used the ratio of profit before return and tax to total assets as a proxy for profitability variable.

To test the hypotheses, we employed multivariate regression analysis in a panel data framework. The pool data analysis explores cross-sectional and time series data simultaneously. Pooled regression has been used with assumption of constant coefficients. Constant coefficient model assumes intercept and slope terms to be constant (we will discuss why we employed these statistical methods for our analyses). According to the variables and statistical analyses, the research model is as relation 2:

$$DM_{it} = \beta_0 + \beta_1 INSTSH_{it} + \beta_2 MANGSH_{it} + \beta_3 LARGS_{it} + \beta_4 Q_{it} + \beta_5 SIZE_{it} + \beta_6 ROA_{it} + \beta_7 TAX_{it} + \beta_8 LEVERAGE_{it} + \varepsilon \quad (2)$$

RESULTS AND DISCUSSION

Descriptive Analysis of Variables: Table 1 presents the descriptive statistics of the research variables. We observe that debt maturity (DM) is on average nearly 0.14, it means that about 14 percent of total debts are long term debts. Median for DM is about 0.14, too. Which means

Table 1: Descriptive Statistics of main variables

Variable	Mean	Median	Maximum	Minimum	Std Dev	Kurtosis	Skewness
DM	0.145	0.144	1.32	0.317	0.143	11.78	1.542
INSTSH	46.37	51.55	100	0	29.35	2.04	-0.362
MANGSH	4.50	4.17	7.11	4.17	0.622	7.25	2.036
LARGS	81.4	55.42	80.3	19	408.22	253.9	15.85
Q	8.51	1.47	50.29	0.267	34.62	123.5	9.84
Firm Size	5.58	5.48	7.86	4.33	0.596	4.25	0.914
ROA	0.221	0.194	3.09	0.113	0.1704	106.89	6.667
TAX	0.124	0.147	0.758	0.111	0.097	6.18	0.623
Leverage	0.643	0.156	0.896	0.214	14.23	106.8	23.06

about half of sample firms have debt maturity of 0.14 or less. The maximum and minimum of this variable are 1.32 and 0.317 respectively. The equality of mean and median for DM indicates that debt maturity (dependent variable) is approximately normal. So we can employ parametric statistical methods for testing our hypotheses (we used multivariate regression). As Table 1 shows the mean percentage institutional shareholders (INSTSH), managerial shareholders (MANGSH) and the percentage of large shareholder (LARGS) are 46.37, 4.50 and 81.4, respectively. The table also indicates descriptive statistics for control variables (where Q is growth opportunity, ROA is the proxy of profitability). The spectrum of INSTSH is 0 to 100 while the mean of INSTSH for 96 sample firms is 46.3. It implies that the existence of institutional shareholders is relatively high in the capital market of Iran. In aspect of managerial ownership the percent of MANGSH has changed between 4 to 7. It means managerial shareholding in Iran is low.

Hypothesis Testing Results: To test our hypotheses we employed panel data analyses. Panel data analysis is a method of studying a particular subject within multiple sites, periodically observed over a defined time frame (in the present research the period of 2002 to 2009). With repeated observations of enough cross-sections, panel analysis permits to study the dynamics of change with short time series. The combination of time series with cross-sections can enhance the quality and quantity of data where using only one of these two dimensions is impossible [66]. Panel data sets generally include sequential blocks or cross-sections of data, within each of which resides a time series [67].

There are several types of panel data analytic models including constant coefficients models, fixed effects models and random effects models. To solve the problems of heteroskedasticity and autocorrelation, we have to choose an appropriate method. To determine which panel

data model (panel data or simple pooling, fixed-effects or random-effects) is more appropriate for our data; we employed two statistical tests: the Leamer F-test of simple pooling versus fixed-effects model and the Hausman test of random versus fixed effects. The results are shown in Table 2. According to this table, since the results of Leamer test show p-value ≤ 0.05 , we selected panel data method. This method has also two methods: fixed-effects and random-effects. The Hausman specification test is the classical test of whether the fixed or random effects model should be used. Since, the results of Hausman test indicate p-value ≤ 0.05 ; we selected fixed-effects, for the research. Fixed effect model represents the observed quantities in terms of explanatory variables that are all treated as non-random. This model will be employed as an alternative if the random effect model is not suitable for the analysis [68].

The research question is whether there is significant correlation between the unobserved person-specific random effects and the regressors. If there is no such correlation, then the random effects model may be more powerful and parsimonious. If there is such a correlation, the random effects model would be inconsistently estimated and the fixed effects model would be the model of choice [66].

The test for this correlation is a comparison of the covariance matrix of the regressors in the least squares dummy variable model (LSDV) model with those in the random effects model. The null hypothesis is that there is no correlation. If there is no statistically significant difference between the covariance matrices of the two models, then the correlations of the random effects with the regressors are statistically insignificant. The Hausman test is a kind of Wald χ^2 test with k-1 degrees of freedom (where k=number of regressors) on the difference matrix between the variance-covariance of the LSDV with that of the Random Effects model [69].

Table 2: The results of panel data methods selection

Hausman test		Leamer F-test	
Statistic	P-value	Statistic	P-value
21.325	0.000	7.524	0.000

We employed Durbin-Watson test to examine auto correlation between variables for panel data. If there is auto correlation between variables, we delete it by AR (1) component, that means if Durbin-Watson statistics is less than 1.5, we should add AR (1) component to the model to estimate. In this research the component is less than 1.5, therefore, there is auto correlation between variable. But after adding AR (1), Durbin-Watson statistics reached to 1.981. in other words, there is not auto correlation any more. Furthermore, we lunched variance equality test, according to the results of Arch test, the variances is not equal. Hence, we solved this issue by Generalized Least Squares Method (GLS). By this method the data have been weighted and so the variances equality has been generated. Finally, as the last hypothesis of regression method, to solve autocollinearity, we deleted each of the variables from the regression equation, separately. We did not observe significant changes in new equation's coefficients, therefore, the model variables do not have autocollinearity. In the next sections, we will present the results of our hypotheses testing:

The first hypothesis is: There is a significant relationship between managerial ownership and debt maturity structure. The results of statistical test confirm the positive relation between managerial ownership and debt maturity. It implies the more the percentage of managerial shareholding is the more long term debt in

financing resources in a firm. As Table 3 shows the significant level is 0.0000 (less than %1) and the coefficient for MANGSH is 0.0643. So there is a positive correlation between the two variables in 99% confidence. In the mean time, the variable MANGSH can determine about 6 percent of changes of debt maturity ratio, in the model.

The second hypothesis aims to examine the relationship between large stockholders and debt maturity. At Table 3 for LARGS variable the prob statistic is 0.3028 (more than %5). It means the relation is not significant. However, the coefficient for the percentage of large stockholder variable is 0.000054 (insignificant positive relationship). This relation is not meaningful.

The third hypothesis is to examine the significant relationship between institutional investors and debt maturity structure. In Table 3 INSTSH is the symbol of the percentage of institutional shareholders. For this variable prob. statistic and coefficient are 0.0491 (less than %5) and 0.0004 respectively. It represents a positive significant relation between institutional shareholders and debt maturity. By comparison of coefficients, we can conclude that managerial ownership has a stronger relation than institutional ownership. This comparison indicates that although Iranian market institutional shareholders hold more percentage of firm equity; managerial stockholders have a stronger positive effect on debt maturity than institutional stockholders. This finding is predictable, because the decision making about debt maturity is an insider choice, finally.

We tested the effects of some control variables on debt maturity. The related literature has showed that these variables can influence debt maturity. These variables are

Table 3: Results of Multivariate Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob
Constant	0.2986	0.1105	2.7020	0.0071
INSTSH	0.0004	0.0002	1.9720	0.0491**
MANGSH	0.0643	0.0064	4.6710	0.0000*
LARGS	0.000054	0.000052	1.0310	0.3028
Q	0.00024	0.000009	2.5640	0.0106**
Size	-0.05190	0.0196	-2.6380	0.0086*
ROA	0.46970	0.0178	26.3420	0.0000*
TAX	-0.02750	0.0249	-1.1047	0.2697
Leverage	-0.00990	0.0156	-0.6320	0.5271
AR(1)	0.30710	0.0414	7.4150	0.0000
F-statistic	32.921	Prob (F-statistic) 0.000	Durbin-Watson 1.981	
R-squared	.857	Adjusted R-squared 0.831		

* Significant at level of 1%; ** significant at level of 5%

growth opportunity (Q), firm size, profitability (ROA), tax effect (TAX) and Leverage. As it can be considered from Table 3, the significant level is 0.0106, 0.0086, 0.0000, 0.2697 and 0.5271 respectively. It reveals that just growth opportunity (at %95 confidence), firm size and profitability (both at %99 confidence) affect debt maturity. Among these effective variables firm size has a negative effect (larger firms have less short term debts). The other effective variables have positive relationships. Tax and leverage both have no significant relationship with debt maturity. However, the sing of their insignificant relationships is negative.

DISCUSSION AND CONCLUSION

Institutional investors have emerged as an integral force in the equity market and they are pushing companies to take long-term decisions that account for in the broader sense where they operate.

The main aim of this research is to examine of the effect of ownership structure as a corporate governance mechanism on debt maturity structure. As ownership structure characteristics, we examined managerial ownership, the existence of large shareholder and institutional shareholders. In order to achieve this aim, we used a sample of 96 Iranian firms accepted in TES, a market that is different from developed countries like US and UK. The research results indicate that there is a significant positive relationship between managerial ownership, institutional shareholders and debt maturity structure. However, a significant relation between the existence of large shareholder and debt maturity structure is not found. We employed some determinants that may affect debt maturity structure according to the literature (growth opportunity, firm size, tax effects, leverage and firm profitability). The results show that there is a significant relationship between debt maturity and growth opportunity, firm profitability and firm size. But tax effects and leverage did not have significant effect on the debt maturity structure of Iranian firms.

In the first hypothesis we focused on the effect of managerial ownership on debt maturity structure. However, our results are different from those of Datta *et al.*, (2005) and Guney and Ozkan [13, 35, 5]. They found a negative relationship between debt maturity and managerial ownership for US and UK firms, respectively, we found a positive relationship. Our findings are also different from those of Garcí'a-Teruel and Martí'nez-Solano (2010) (for Spanish firms) [28] and Marchica (2008) (for UK firms) [14]. However, they found a non-monotonic

(concave) relationship. In their studies, at low levels of managerial ownership there is a positive relationship and a negative relationship at high levels. Our results are consistent with these findings at low levels of managerial ownership. In the Table 1, the low level of the mean for this variable also implies that managerial shareholding is relatively low in sample firms (4.5 percent), with a maximum and minimum of 7.11 and 4.17 respectively. It can be interpreted that in emerging market of Iran, managerial ownership is in low level. Therefore, managerial ownership can not control debt maturity. At lower levels of ownership, managers may prefer to use long term debt to avoid the expected costs from liquidity risk.

In the second hypothesis we examined the effect of large shareholder on debt maturity structure. Inconsistent to previous research, we did not find any significant relationship, while they found a non-monotonic (concave) relation again at low levels a positive relation and at high levels of major shareholder a negative relation [28, 14]. There is no evidence from significant effect in our results. In other words, in Iranian firms, large shareholder could not control debt maturity structure. The possible reason is that in Iran large shareholders have little incentives to monitor firms via short term debt. They have the other tools to monitor. Long term debt is not so risky like developed countries. Most of powerful banks are governmental. When firms borrow from governmental banks, they provide particular facilities to repay their loans. So, the bankruptcy risk is reduced for Iranian firms.

In the third hypothesis, it was tested the relationship between institutional shareholders and debt maturity. Institutional investors have emerged as an integral force in the equity market and they are pushing companies to take long-term decisions that account for in the broader sense where they operate [70]. So it is expected that they have effects on debt contracts inside and outside the company too. We used the percentage of shares held by banks, investments institutes, insurance and governmental companies as a measure of institutional shareholding that can be a kind of large shareholder (not family). A positive relationship was found. This can be an interesting result that means in a form of institutions, large shareholder affects debt maturity choice and totally institutional shareholders can influence financing decisions. Garcí'a-Teruel and Martí'nez-Solano, (2010) also argue that the relationship between these variables is positive when the ownership of the large investors is low and it becomes negative for higher levels of ownership. They suggest which could indicate that this type of large shareholder is less involved in monitoring so

less short-term debt is needed [28]. This result is in line with Marchica (2011) [19]. Totally, our results are more consistent with recent Spanish research instead of UK and US findings. It may be interpreted that the main resource of Iranian firms' financing is bank based instead of market based (like Spanish firms). Therefore, when the large shareholder is bank (or other institutions) debt maturity becomes more large too.

Additionally we tested some control variables. Our research results indicate that firms use more long-term debt when they are larger. It is inconsistent with Garcí'a-Teruel and Martí'nez-Solano' finding (2010) and Marchica (2008) and the other researches [28, 14]. Larger firms use long term debt more in Iran. It can be stressed that these firms can be successful in negotiation for attracting long term debts. Banks have access to their information and they have more collateral assets to long term debts. In addition, tax effect and debt maturity did not have any significant correlation in Iranian context, this is consistent to Garcí'a-Teruel and Martí'nez-Solano (2010) [28], but is not consistent with Marchica (2008) [14]; Ozkan (2000) and Antoniou *et al.*, [46]. We could not prepare evidence to the effect of leverage on debt maturity. However, we found that growth opportunities and profitability have a positive effect on debt maturity decisions. Garcí'a-Teruel and Martí'nez-Solano, (2010) did not find any significant effect for growth opportunities [28]. However, like us, Marchica, (2008) found a positive effect for growth opportunities [14]. But neither of these researchers studied the relation profitability and debt maturity.

The possible reason may be that firms tend to issue more long-term debt to avoid inefficient liquidation of their riskier growth opportunities. This finding is consistent with Stohs and Mauer (1996), Johnson (2003) and Datta *et al.*, (2005) for the US market [13, 11, 60, 26]; and with Schiantarelli and Sembenelli (1997) and Antoniou *et al.*, (2006) for the UK [46].

Recommendation for Future Research and Limitation:

The research findings imply the importance of corporate governance mechanisms particularly in ownership structure aspects to reduce the conflict between stakeholders in Iranian context. Institutional shareholders also can play an important role to optimal financing decisions. The results show the effect of some other variables that previous research confirmed their effects in international context. Thus, according to our results some other topics can propose for future research:

- To investigate the relationship between other corporate governance mechanisms and debt maturity structure or use some combined scores to corporate governance.
- To use other control variables like asset maturity and credit risk that was pointed in the literature.
- To research why large shareholder does not have effect on debt maturity.

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