The Determinants of Debt Maturity Structure in Iranian firms

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Abstract: The purpose of this research is to test the main theories of firm debt maturity structure in an emerging economy, including agency conflict, signaling and tax theories. This paper investigates the firm specific determinants of debt maturity structure for a sample of 140 Iranian manufacturing firms listed in Tehran Stock Exchange during the period 2001-2009. Employing random effect panel data analysis and multivariate regression, the study provides empirical evidence that profitability, firm size, tangibility, growth opportunity and financial leverage have significant effects on debt maturity choice in Iranian context however, tax effects and business risk are not significantly related to the debt maturity structure.

Key words: Debt maturity structure ∙ Profitability ∙ Dividend policy ∙ Business risk

INTRODUCTION

The studies of Modigliani and Miller [1] presented a basis for modern corporate finance. In their paper (Miller and Modigliani [2]; Modigliani and Miller [3]; Miller [4]), they elaborated on the conditions under which the firm would be largely indifferent to the sources of its financing, in an efficient capital structure. This was also explicitly represented by Stiglitz [5]. In other words, decisions about the debt maturity can never improve the value of a firm. But in a real market especially in developing countries that the capital markets are not efficient, choosing the debt maturity structure can affect the firm value. Additionally in these countries; firms have some limitations to choose debt maturity structure [6]. So the determinants of debt maturity in each country can add to literature. Discriminates of debt maturity are a mixture of specific variables of firm and institutional environment [7]. There are several studies about capital structure based on Modigliani and Miller’s works (Titman and Wessels [8] for American firms, Campbell and Hamao [9] for Japanese firms, Gatward and Sharpe [10] for Australian firms Yahia Zadefar et al. [11]; Ghadiri and Asadiyan [12] for Iranian firms), however, much less attention has been devoted to the debt maturity structure (Terra [13], Hajiha and akhlaghi [14]), especially in Iranian context as an emerging economy (the only current research is Hajiha and Akhlaghi [14]). Hence, the main objective of this research is to examine main firm specific determinants of debt maturity structure according to different theories in literature, for Iranian firms listed in Tehran Stock Exchange (TSE).

The rest of the paper proceeds as follows: Section 2 reviews the theoretical framework on debt maturity and develops the hypotheses. Section 3 and 4 present the research methodology and results and hypotheses testing respectively and finally section 5 presents discussion and conclusion.

Theoretical Framework, Hypotheses Development and Literature Review

Theories: There are three leading theories in literature that tried to explain the debt maturity structure namely agency conflicts (Myers [15]; Barnea et al. [16]), information asymmetry (Flannery [17], Kale and Noe [18], Diamond, [19]) and taxes (Brick and Ravid [20]; Mauer and Lewellen [21]; Emery et al. [22]). Based on agency costs theory, firms match the maturity of their liabilities with that of their assets agency costs. Small firms have higher investment opportunities but fewer tangible assets. Myers [15] investigated that short-term debt reduces the “under-investment” problem when firms pursue relatively riskier projects because creditors get more benefits from these investments. The under-investment problem is more severe if a firm has more growth opportunities. Additionally, when firms grow very quickly their financing

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needs exceed their internal resources [23]. According to this theory the firms try to reduce their debt maturity to solve the conflict problem.

Another theory derives from the asymmetric information problem presented by Jensen and Meckling [24] and developed by Myers [15]. In this theory, the maturity structure is yet another tool that firms can employ to solve the agency problem. Therefore, the signaling hypothesis is also extracted from information asymmetry, it suggests that the maturity choice is used by firms as a way to signal their high quality to the market and as a result this signal reduces the firm’s cost of capital [17]. This theory suggests that the issuance of short term debt is a positive signal of good quality of firm [17, 18].

Finally, the tax hypothesis analyzes the tax implications of the debt maturity choice. Brick and Ravid [20] found that the firms use more long-term debt when the term structure of interest has a positive slope. Long-term debt is more expensive so the firm can avoid more taxes when the firm has higher profitability. This theory represents that optimum debt maturity structure is a tradeoff between tax advantages for firm debts and disadvantages of agency costs.

Variables and Hypotheses: However, there are a number of the determinants of debt maturity in literature; some researches indicate another evidence for developing countries [23, 6, 24, 13]. This suggests that we should examine these variables for individual countries. In this research we want to examine some variables that the literature introduces under the theories in Iranian capital market. We summarize the results of previous empirical studies on these discriminants. Table 1 also indicates the measurement and definition of variables (determinants of debt maturity) and the expected relationships under each hypothesis for our study.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Sample empirical evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt maturity structure (Long term debt/ (Long term debt + Short term debt))</td>
<td>[31, 32, 33, 7, 13, 34, 14]</td>
</tr>
<tr>
<td>Leverage (Long-term debt/book equity)</td>
<td>Predicted sign and theories</td>
</tr>
<tr>
<td>Firm size (Log of total assets)</td>
<td>Sample empirical evidence</td>
</tr>
<tr>
<td>Tangibility (Net fixed assets/total book assets)</td>
<td>Agency costs (-)</td>
</tr>
<tr>
<td>Growth opportunity (market equity) / (total book assets)</td>
<td>Agency (+)</td>
</tr>
<tr>
<td>Profitability (profit before return and tax/total assets)</td>
<td>Agency (+)</td>
</tr>
<tr>
<td>Dividend Policy (DPS/ Total assets)</td>
<td>Signaling (-) Tax (+)</td>
</tr>
<tr>
<td>Business Risk (Sales/operating income)</td>
<td>Agency (+) Signaling (-)</td>
</tr>
<tr>
<td>Tax effects (the average of effective tax rate) (tax/taxable earning)</td>
<td>Agency (+) Tax (+)</td>
</tr>
</tbody>
</table>

Profitability: Myers and Majluf [26] believed that there is a negative correlation between profitability and debt maturity structure, because more profitable firms will need less debt. They have enough internal resources to projects financing. Rajan and Zingales [27] also emphasized this finding. But based on tax theory approach, the larger firms should borrow more because they need more tax shields (interest expense) so the positive relationship is expected [28]. However, most of the studies report a negative relation. This debate leads to the following hypothesis:

**H1:** There is a significant association between debt maturity structure and firm profitability.

Dividend Policy: We expect a positive correlation between debt maturity structure and dividend policy based on agency theory, while the correlation is negative based on signaling theory [13]. But, in the signaling theory, we expect a negative relation [29, 1]. However, Terra found no significant relationship between these two variables. It leads to the following hypothesis:

**H2:** There is a significant association between debt maturity structure and firm dividend policy.

Volatility or Business Risk: Volatility or business risk is a measure for profitability financial distress, according to agency theory we expect a positive correlation between risk and debt maturity [13]. But on the point of view of the signaling approach, riskier firms are not able to cover costs of rolling short-term debt and prefer long-term debt [6, 30]. So Third hypothesis of the research is as follows:

**H3:** There is a significant association between debt maturity structure and firm business risk.
**Tax Effects:** Almost all studies indicate that tax has an impact on capital structure and firms issue more debt when the tax rate is higher to profit from tax shields [20]. According to agency theory expected relation is positive, while based on tax theory the relation is expected to be negative [28, 13]. It leads to the following hypothesis:

**H4:** There is a significant association between debt maturity structure and tax rate.

**Financial Leverage:** Agency theory suggests a negative correlation between leverage and debt maturity [13], because there are two strategies to solve underinvestment problem, reducing leverage or debt maturity. On the other hand, Leland and Toft [42] posit that firms with a higher degree of leverage tend to choose longer maturity debt. Morris [43] also emphasizes this debate. Diamond [19] believes that this is true because firms with higher degree of leverage prefer long term debt to avoid suboptimal liquidation. They will have more time to repay their debt. This debate leads to the following hypothesis:

**H5:** There is a significant association between debt maturity structure and leverage.

**Growth Opportunities:** The researches indicate different findings about the relationship between debt maturity and growth opportunities in different countries [13]. Agency theory expects a negative relation [44]. Primary studies on growth opportunities [15] discuss that future investments of firms are as growth opportunities. Sometimes creditors may earn a large portion of earnings from investments and it can cause the stockholders to reject a project with positive net present value. This is an underinvestment problem. In order to solve this problem, short term debt can be used as a tool to reduce agency conflict [15, 16]. So we developed the sixth hypothesis as follows:

**H6:** There is a significant association between debt maturity structure and growth opportunities.

**Tangibility:** Studies indicate that tangibility of assets is positively related to debt [37, 27]. Jensen and Meckling [24] point out that the agency cost of debt exists when the firm shifts to riskier investment after the issuance of debt and transfers wealth from creditors to shareholders. If tangible assets are high, then these assets can be used as collateral, diminishing the lender’s risk of suffering such agency costs of debt [28]. Hence, high tangible assets is expected to be associated with high long term debts, this is consistent with Fan et al’s finding [7]. However, Abor [45] reported a negative relation for SMEs and Terra [13] found no significant correlation among different countries. So we examine this variable for Iran case context with the following hypothesis:

**H7:** There is a significant association between debt maturity structure and tangibility.

**Firm Size:** Some recent studies suggest larger firms have lower agency costs, because they have more access to capital markets [25]. Hence, it is expected that larger firms issue more long-term debts. Both agency and signaling theories suggest this positive relation [13]. So the final hypothesis of the research is:

**H8:** There is a significant association between debt maturity structure and firm size.

**Literature Review:** There are many studies that focus on firm level determinants of debt maturity. However, we review some related and current studies on emerging markets in this section:

Arslan and Karan [46] studied on leverage and debt maturity as jointly endogenous under simultaneous equations framework for Turkish firms. The findings showed that firms in which get financially strong or have more growth opportunities shorten their firm debt maturity structure. Moreover, despite having a controlling large shareholder or a concentrated ownership structure, firms with growth opportunities still prefer shorter maturities in order to solve the underinvestment problems. Finally, firm size is positively associated with long term debt but taxes do not affect debt maturity structure.

Cai et al. [47] investigated the determinants of debt maturity of the Chinese listed firms. They found that the size of the firm, asset maturity and liquidity have significant effects on extending the debt maturity in Chinese companies. Tangibility of assets and growth opportunities also are important. However, proxies for a firm's quality and effective tax rate apparently report mixed or unexpected results.

Majumdar [48] studied the determinants of debt maturity structure of Indian firms, using a sample of companies chosen from two broad indices, viz., the BSE 500 and the CNX 500 index. The findings suggest that tangible assets and leverage are the important determinants of debt maturity. Size and firm quality have the predicted effect on debt maturity; however, results are statistically significant only in the case of fixed effect firm
and time model. There was no evidence of the impact of effective tax rate, asset maturity and growth opportunities on debt maturity in the Indian context.

Stephan et al. [6] investigated the determinants of debt maturity structure in emerging markets using a panel of 4500 Ukrainian firms during the period 2000-2006. The results confirmed the importance of agency costs, liquidity, signaling and taxes for the debt maturity structure of firms operating in an emerging economy. Firm creditworthiness and access to long-term financing at bond markets are the key drivers of firms’ debt structure. The study provided strong evidence that constrained and unconstrained firms react differently on liquidity risk and, hence, pursue different debt maturity strategies.

Aicock et al. [39] examined the determinants of debt maturity in the Australian capital market with the Top 400 firms listed on the Australian Securities Exchange for the period 1989 to 2006. They found that Australian firms not only exhibit a positive leverage-maturity relationship but also use short-term debt to signal their high quality to the market.

Qiuyan et al. [49] in their paper employed financial engineering approach to test the influencing factors of debt maturity structure with the data of 202 listed Chinese firms distributed in 11 industries. By the simulation of single equation models and simultaneous equation model, using stepwise multiple regression analysis, the endogenous relationship between capital structure and debt maturity structure was reviewed. They suggest when the firms consider this relationship, the short-term debt maturity will not be an effective way to solve underinvestment problem. In contrast, growth opportunity and leverage rate are significant negative correlation. With the role of leverage, growth opportunity indirectly affected debt maturity structure.

MATERIALS AND METHODS

Sample Overview: This study used data from the annual financial reports of Iranian public-listed firms in TSE for the period 2001-2009. We selected the firms using the following criteria:

Firms were listed at TSE during years 2001 to 2009. They must have the same financial reporting date to be able to compare their financial statements. All of them must be manufacturing firms. They must have financing through long term debt during research period (2001-2009). They do not hold 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 data were available for all years under study. According to these criteria, we examined 140 firms listed in TSE.

Research Model: We employed multivariate regression analysis in a panel data framework to investigate the impact of firm specific variables on debt maturity structure. 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 that intercept and slope terms are constant. In order to analyze the impact, we developed one model as below which is based on literature:

\[
\text{Debt Maturity} = \beta_0 + \beta_1 \text{Profit} + \beta_2 \text{Dividend} + \beta_3 \text{Risk} + \beta_4 \text{Tax} + \beta_5 \text{Size} + \beta_6 \text{Tangibility} + \beta_7 \text{Growth} + \beta_8 \text{Leverage} + \epsilon
\]

The model presents the impact of firm specific determinants using eight variables namely Profitability, Dividend Policy, Business Risk and Tax rate, Financial Leverage, Growth Opportunities Tangibility and Firm Size. In the model \( \beta_0 \) is constant and \( \epsilon \) is error. (All variables have been explained in Table 1).

This should be mentioned that the dividend distributed in year \( t \) belongs to year \( t-1 \).

RESULTS AND DISCUSSION

Descriptive Analysis of Variables: Table 2 contains summary statistics for the dependent (debt maturity structure) and explanatory variables (Profitability, Dividend Amount (as a proxy of Dividend Policy according to literature review [39, 40, 41], Business Risk and Tax effects, Leverage, Growth Opportunities, Tangibility and Firm Size). The table presents the descriptive statistics for each variable in the period 2001-2009. The mean and median values of size for sample firms are both 5.4, which implies the data is normal. Firms have an average debt maturity ratio of 12.8% and an average tax rate of about 14.5%. The standard deviation of debt maturity is .226 while standard deviation for growth opportunities and asset intangibility is 34.14 and .176 respectively, that is the highest and the lowest deviation in the variables. Deviations of kurtosis of all variables are greater than absolute of 1.96, which indicates an asymmetric distribution. This indicates that there are some far points in the left and right domains, but compression is around the central index (left domain means a negative.
Table 2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std Dev</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Maturity</td>
<td>0.128</td>
<td>0.116</td>
<td>0.226</td>
<td>7.64</td>
<td>2.022</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.339</td>
<td>0.185</td>
<td>0.153</td>
<td>25.33</td>
<td>4.485</td>
</tr>
<tr>
<td>Dividend</td>
<td>0.252</td>
<td>0.223</td>
<td>0.266</td>
<td>3.435</td>
<td>0.835</td>
</tr>
<tr>
<td>Business risk</td>
<td>4.459</td>
<td>4.545</td>
<td>1.095</td>
<td>1081.7</td>
<td>-2.977</td>
</tr>
<tr>
<td>Tax effects</td>
<td>0.145</td>
<td>0.127</td>
<td>0.105</td>
<td>4.802</td>
<td>0.379</td>
</tr>
<tr>
<td>Size</td>
<td>5.495</td>
<td>5.495</td>
<td>0.641</td>
<td>3.887</td>
<td>0.668</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.245</td>
<td>0.204</td>
<td>0.176</td>
<td>3.667</td>
<td>1.025</td>
</tr>
<tr>
<td>Growth opportunities</td>
<td>8.612</td>
<td>0.83</td>
<td>34.14</td>
<td>82.53</td>
<td>8.086</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.667</td>
<td>0.176</td>
<td>15.91</td>
<td>110.7</td>
<td>32.03</td>
</tr>
</tbody>
</table>

Table 3: Correlations Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>Profitability</th>
<th>Dividend</th>
<th>Business Risk</th>
<th>Tax Effect</th>
<th>Size</th>
<th>Tangibility</th>
<th>Growth</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend</td>
<td>.893**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Risk</td>
<td>.328**</td>
<td>.284*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax Effect</td>
<td>-.016</td>
<td>-.014</td>
<td>-.005</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-.293**</td>
<td>-.253*</td>
<td>.015</td>
<td>-.051</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>.015</td>
<td>.003</td>
<td>-.000</td>
<td>.011</td>
<td>-.085*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>.039</td>
<td>.065*</td>
<td>-.004</td>
<td>.005</td>
<td>-.265*</td>
<td>-.066</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>.011</td>
<td>.005</td>
<td>-.001</td>
<td>.001</td>
<td>-.030</td>
<td>-.069</td>
<td>.043</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 4: Results of panel data methods selection

<table>
<thead>
<tr>
<th>Statistic</th>
<th>P-value</th>
<th>Statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.923</td>
<td>0.004</td>
<td>7.495</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Because of high inflation rate in Iranian economy, the distance of market value of equity and book value of equity for firms high. That may be why the statistics of Growth opportunities variable are more than the others. On the other hands, the value creation of firms may cause that.

Table 3 shows the correlation among our independent variables. This table indicates that multicollinearity is not an important problem for the regression model since the correlations between the most of independent variables are not high. Additionally, possibility of correlated error terms is checked by assuming an AR(1) process.

Panel Data Results: 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 4 [50]. According to this table, since the results of Leamer F-test show p-value ≤ 0.05, we selected panel data method. This method has also two sub methods: fixed-effects and random-effects. Since, the results of Hausman test indicate p-value ≤ 0.05; we selected fixed-effects, for the research.

One of the assumptions of regression model is the normality of errors. To investigate the errors' normality, we drew the errors plots by the Eviews software and the results supported the normality assumption of errors in panel data level.

We employed Durbin-Watson test to examine autocorrelation between variables for panel data. If there is autocorrelation 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 autocorrelation between variables [51, 52]. But after adding AR (1), Durbin-Watson statistics reached to 1.9. In other words, there is not autocorrelation any more. Furthermore, we launched homoscedasticity test, according to the results of Arch test, the variances are not equal. Hence, we solved this issue through 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
Table 5: Results of Multivariate Regression Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.1129</td>
<td>0.6216</td>
<td>5.207</td>
<td>0.0000</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.2251</td>
<td>0.0104</td>
<td>2.441</td>
<td>0.003*</td>
</tr>
<tr>
<td>Dividend policy</td>
<td>-0.0221</td>
<td>0.0017</td>
<td>-2.172</td>
<td>0.0418*</td>
</tr>
<tr>
<td>Business risk</td>
<td>-0.0620</td>
<td>0.0533</td>
<td>-0.926</td>
<td>0.3213</td>
</tr>
<tr>
<td>Tax effects</td>
<td>-0.0001</td>
<td>0.0003</td>
<td>-0.552</td>
<td>0.5809</td>
</tr>
<tr>
<td>Size</td>
<td>0.0111</td>
<td>0.003</td>
<td>3.654</td>
<td>0.003*</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.3544</td>
<td>0.0173</td>
<td>15.385</td>
<td>0.000*</td>
</tr>
<tr>
<td>Growth opportunities</td>
<td>0.4543</td>
<td>0.0495</td>
<td>3.433</td>
<td>0.006*</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.0593</td>
<td>0.051</td>
<td>-5.783</td>
<td>0.000*</td>
</tr>
<tr>
<td>AR (1)</td>
<td>0.4346</td>
<td>0.0224</td>
<td>19.390</td>
<td>0.000*</td>
</tr>
<tr>
<td>F-statistic</td>
<td>19.5870</td>
<td>Prob (F-statistic) 0.000</td>
<td>Durbin-Watson 1.912</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.7315</td>
<td>Adjusted R-squared</td>
<td>0.6904</td>
<td></td>
</tr>
</tbody>
</table>

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

hypothesis of regression method, to solve collinearity, we deleted one of the variables from the regression equation. We did not observe significant changes in new equation coefficients, therefore, the model variables do not have collinearity (Ibid).

We employed t test to examine our research hypotheses in 95% confidence level, if the significance level is less than 5%, there is a significant correlation between the independent and dependent variables. As it is shown in Table 5, Profitability, Size, Tangibility, Growth Opportunities, Leverage (in 1% error level) and Dividend policy (in 5% error level) have significant effects on debt maturity. Except Dividend policy, all the variables are positively related to debt maturity. Dividend policy is negatively related to debt maturity. However, the impact of the variables is not very strong, for instance, the correlation coefficient between Profitability and Debt maturity is as high as 0.2251. The strongest and weakest effects on debt maturity belong to Growth opportunities and Dividend policy variables, respectively. As R-squared and Adjusted R-squared indicate, totally the independent variables can present the debt maturity structure of Iranian firms about 73% and 69% respectively. Prob (F-statistic) shows the whole regression model is significant, where the amount of its P-value is 0.000, it means the regression model is very convenient and significant. In brief, the model is as equation 2:

Debt Maturity = 0.1129 + 0.2251 Profit - 0.0221 Dividend - 0.062 Risk +0.001 Tax + 0.011 Size + 0.3541 Tangibility + 0.4543 Growth - 0.0593 Leverage + ε  

(2)

CONCLUSIONS

This research investigated the determinants of debt maturity structure in the emerging market of Iran. By applying panel data analysis and multivariate regression from 140 firms listed in TSE over the period 2001-2009. We found sufficient evidence to support six of our hypotheses relating to the effect of Profitability, Dividend policy, Size, Tangibility, Growth opportunities and Leverage variables on debt maturity structure in Iranian context. However, Business risk and Tax effects did not have significant effects.

In the research, profitability positively affects debt maturity in 99% confidence level. So the results support hypothesis 1 from Tax theory approach which suggests that the larger firms borrow more long term debt because they need more tax shields [28]. But from the view of agency theory that expects a negative relation, the hypothesis is not supported in Iranian firms. Therefore, the results are inconsistent with discussion of Myers and Majluf [26] and Rajan and Zingales [27]. Totally, more profitable firms borrow more long term debt.

The result of test of hypothesis 2 indicates that the relationship between dividend policy and debt maturity is negatively significant. It means the agency theory cannot support, while the new theory of signaling is supported in Iranian context. However, the relation is not very strong.

The multivariate regression results do not support hypotheses 3 and 4 (Business risk and Tax effects). This again implies agency theory is rejected (which predicts positive relation (Huang and Song, [28]) and also tax theory cannot support given the tax insignificant relation of tax rate variable (tax theory expects a negative relation [13]).

Financial leverage has a negative effect on debt maturity, this supports agency theory and however the relation is not such strong (about 5% of decrease in Debt maturity is represented by the leverage). This result is consistent with Terra [13], while, is inconsistent with Leland and Toft [42], Morris [43] and Diamond [19].
Our results show that in Iranian emerging market, there is a positive relationship between Growth Opportunities and debt maturity. It does not support agency theory. This highly positive relationship implies that in Iran, firms rely on credit market more than equity market.

As Table 5 shows, Tangibility has positively affect on debt maturity. This finding is in line with the theoretical and empirical studies (Rajan and Zingales [27]; Fan et al. [7]); however this is not in line with Abo [45], who reported a negative relation for SMEs. These studies imply that the agency cost of debt exists when the firm shifts to riskier investment after the issuance of debt and transfers wealth from creditors to shareholders. If tangible assets are high, then these assets can be used as collateral, diminishing the lender’s risk of suffering such agency costs of debt (Huang and Song [14], Jensen and Meckling [24]). So the finding supports agency costs theory, by hypothesis 7.

Finally, Firm Size positively affects debt maturity. It is consistent with Ozkan discussion [25]. Both agency and signaling theories suggest this positive relation [13]. So the final hypothesis of the research supports both theories.

Our study indicates that both traditional and new theories of agency costs and signaling are dominant in Iranian capital market. However, the tax rate is not a significant determinant to present debt maturity, that cannot support tax theory in Iran. It implies that firms do not make use from tax shield to debt maturity choice. However, this study does not present a general and complete presentation of a dominant unique theoretical framework for the maturity decision of the Iranian firms, while it seems signaling theory is a more dominant theory.

This study has its own shortcomings: we did not control some annoying variables in the research, so to generalize the findings we should be conservative. In addition, as we stressed earlier, inflation can be an issue in Iranian context, however, we did not adjust our variables for inflation rate in this research, it may affect the findings.

Although our results are informative, there are some questions unanswered to future research. First, the reasons why taxes do not matter for debt maturity choice in Iranian context, can be explored. Some studies present institutional and macro economic variables which affect debt maturity structure. This also can be a topic for further research. We investigated manufacturing firms listed in TSE, in an independent and similar research, researchers can also investigate non manufacturing firms and compare their results with these research findings.

REFERENCES

43. Morris, J.R., 1992. Factors Affecting the Maturity Structure of Corporate Debt. WP College of Business and Administration, University of Colorado at Denver.


