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# Survey the impact of different ownership structure on debt maturity structure in Tehran Stock Exchange

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**ABSTRACT**

The study aimed to examine the impact of different ownership structure on debt maturity structure in of firms listed on the Tehran Stock Exchange (TSE). The objectives of the study were: to evaluate the relationship between corporate, individual, centralized, intuitional and government ownership on debt maturity. The data for the study was obtained from 101 firms that had been consistently listed in the TSE from 2010 to 2014. Correlation and regression analysis were used to test the relationship between ownership structure and debt maturity. The results of the study indicated that there was a statistically significant relationship between ownership structure and debt maturity of firms listed at the TSE.

## 1. Introduction

### 1.1 Background of the study

Many empirical studies about capital structure have been done, but a new branch of capital structure, that is, debt maturity structure now has been more considered. Theories of debt maturity focus on the roles of agency costs [1,2], taxes [3,4], and other market imperfections. In addition, recently debt maturity importance has been highlighted in the context of policy concerns about financial crises and credit availability [5]. But now we concentrate on the role of ownership structure which how affected the debt maturity structure. Today the optimal debt structure of companies has attracted the attention of many capitalists and economists. Managers, in addition to increasing the value of the company through financial leverage, liquidity, and dividend policies, increase the value of their companies by choosing a maturity structure [6]. When a company borrows, in addition decide to amount of debt, it must also decide on the debt nature, one of these features is the debts maturity [7]. Short-term debt can reduce the volatility of managers and force them to carefully examine the financial market and effectively prevent them from selfish behaviors [8]. Also, corporate finance is usually done in the short or long term. One of the short-term financing methods is the use of commercial credits and bank loans. Long-term financing sources include borrowing, issuing bonds, and issuing ordinary or privileged bonds. In summary, the tax savings of debt, the lower the cost of special capital debt compared to the cost of specific capital stock, the lack of a voter rating for the creditors and the lack of change in the percentage of ownership of shareholders as a result of borrowing as the benefits of financing through debt ratios Has published the stock [9]. On the other hand, in developing countries, in contrast to developed markets, there are some limitations for debt maturity choices, due to less profitability and limited access to the market, developing companies than those in developed countries, they use much less long-term debts [10]. Grossman and Hart state that high levels of debt are a threat to bankruptcy and loss of corporate control by managers [11]. On the other hand, increasing debt will force executives to avoid decisions that reduce the value of the company thus the selection of debt maturity structure is at the disposal of the management and it is not expected that managers will voluntarily restrict themselves by choosing the right level of shareholders' equity. In addition to individual interest issues, managers prefer to have a lower debt or longer maturity debt [12]. Researchers have shown that the debt structure determinants of each companies are a combination of factors associated with specific company characteristics, as well as factors related to its institutional environment [13]. In mid-1990s, many studies were conducted to identify the factors affecting maturity structure of debts. The results of the research indicate that factors such as size of economic unit, rate of bonds and growth opportunities of companies affect debt maturity structure [14]. Some studies have claimed that a shorter maturity term could be used to alleviate information asymmetry problems. Because from the borrower perspective, these characterizes appropriate for company and it is possible to obtain better pricing conditions in future reinsurance contracts; and, from the creditor's perspective, shorter maturity, provides better control and supervision to the managers [15]. Also, in the financial literature it is stated that debt maturity is important in reducing the representation conflict [16], and in fact, empirical evidence supported of short-term debt role in reducing the conflicts between shareholders and creditors and supports managers, shareholders, and various groups of shareholders [17]. Also, research results indicate that presence of large shareholders may affect conflict of representation between large and minority shareholders. They can also help to reduce the agency's conflict by monitoring management decisions, because major shareholders may be co-managing their interests (Lydia et al., 2016). Considering that investments are more based on the financial information related to company ownership structure and consequently some of the mechanisms of corporate governance principles. Science the consideration given to the explanation can be essential in determining overall sales strategies in the capital market, it seems a study which explores the role of different ownership structure on debt maturity structure in Tehran Stock Exchange is necessary.

## 2. Literature Review

In 2005, Data and colleagues explored the relationship between corporate ownership and corporate debt maturity structure [19]. In their research, they confirmed this finding that there is a significant relationship between management ownership and company debt maturity structure .In the same year, Sang in the study of the determinants of Swedish companies' capital structure showed that many of the influential factors in the capital structure which proposed in their theories are compatible with Swedish companies [20]. In the same field, Huang and Sang in 2006 conduct a study with titled "Determining the Capital Structure in China" and stating that the debt ratio is increasing with rising in profitability, sharing the management ownership in the company and with the size of the company [21]. Significant assets also show capital structure have a positive impact on debt ratios. In 2007, Korner also investigated the factors determinants debt maturity structure of Czech companies, which showed that long-term debt had a direct relationship with firm size, financial leverage, and asset structure. Also, this research suggests that there is a significant negative relationship between corporate tax rates and the volatility of the company with long-term debt [22]. In contrast to these findings, Najjar and Taylor (2008), in study on the relationship between ownership structure and capital structure for a sample of companies listed on the Jordan Stock Exchange, stated that liquidity, size, and asset structure were positive and significant and profitable have a negative and significant relationship with debt of Jordanian companies [23]. Compatible with these findings, in the study of the relationship between ownership structure and maturity structure of the company, which was carried out by Marcia in 2008, it was found that there is a non-linear relationship between management and debt maturity [24]. A further study by Garcia and Martinez which was conducted on the structure of Spanish ownership and debt maturity of companies found a non-linear relationship between long-term debt and ownership of managers [25]. Finally, we refer to Mukonyi and et al. which examined the relationship between ownership structure and leverage of firms listed in the Nairobi securities exchange. They showed that there is a positive relationship between government ownership and debt financing through banks [26]. Also, the results showed that the state ownership structure affects the structure of debt, such as debt and security maturity. Therefore, based on the theoretical basis hypothesis 1 is presented:

**H1. There is a meaningful relationship between corporate ownership and debt maturity structure.**

Brailsford investigated the impact of debt structure policy in their research entitled "A Comprehensive Approach to Financial Perspectives and Capital Structure Strategies: Theory and Evidence from the Ownership Structure". In this research, they tested 135 companies listed during the financial period from 1990 to 1999. The results indicate that with free cash flow, focus on ownership structure increases financing through the issuance of bonds [27]. Also, the results show that the concentration of ownership does not change the relationship between management ownership and debt, because when managers are in control, the role of oversight of external stakeholders becomes ineffective, so the relationship between ownership concentration and Debt is affected by management. Data in 2005 studied the relationship between management ownership and debt maturity structure in research entitled "Management Ownership and Debt Settlement Structure". In their study samples were selected as 6,246 years-company during the years 1992 -1999. The results show that there was a significant relationship between corporate ownership and corporate debt maturity. Also, they found that management ownership had a significant impact on the relationship between debt maturity and credit quality, as well as the relationship between debt growth and debt growth opportunities [28]. Marcia in a study entitled "The relationship between Ownership Structure and Company Debt settlement structures," tested two different effects of intra-corporate ownership on the maturity of the non-financial corporate debt. The results of his research showed that, at lower levels of management ownership, the maturity of debt is longer to avoid the expected costs of liquidity risk. On the other hand, when the level of ownership of managers increases, it has a reverse effect on the value of the company and the capacity of managers and encourages executives to seek a surge in short-term debt [24]. In other words, there is a nonlinear relationship between managerial ownership and debt maturity. A testable hypothesis regarding the Centralized ownership structure and debt maturity structure is:

**H2: There is a meaningful relationship between centralised ownership and the debt maturity structure.**

Huang and Sang in 2006 studied 1,200 Chinese companies and investigated the relationship between some of the components of capital structure with debt ratios and showed that the debt ratio increased with increasing profitability, the shareholding of management in the company, firm size and amount of visible assets [20]. They also show capital structure has a positive impact on the debt ratio. Also, their research showed that state and institutional ownership does not have much effect on capital structure policies of corporations. Allen in the study of " The Determinants of the Capital Structure of Listed Australian Companies: The Financial Manager's Perspective ", using the integrated regression model and investigated the structure of capital in three different instances of small, medium and large size companies. He found that the ratio of debt in large companies is high and among the factors influencing the capital structure like age and company size, asset structure, profitability and ownership of managers have the greatest impact on the capital structure of the rich companies [29]. Najjar and Taylor in 2008 investigated the relationship between ownership structure and capital structure for a sample of companies listed on the Jordan Stock Exchange. The results of his research showed that there is not a negative and significant relationship between the capital structure and institutional investors. They stated that one of the mechanisms of external control affecting corporate governance is the emergence of institutional investors as capital owners [23]. Institutional investors by way of collecting information and pricing management decisions implicitly monitor the company through the management of the company's operations. Also, based on their findings, liquidity, size and asset structure have a positive and significant relationship with profitability and have a negative and significant relationship with the debt of Jordanian companies. Garcia and Martinez in a survey the structure of

 

ownership and maturity of debt: new evidence from Spanish companies, investigated the relationship between ownership structure and maturity of debt using companies admitted to the Spanish stock exchange [30]. They found that there is a non-linear relationship between long-term debt and ownership of managers, long-term debt is increasing at lower levels of ownership of directors but at a higher level of ownership of directors. Also, the results indicate a non-linear relationship between debt maturity and ownership of major shareholders. The relationship between these variables is low at the bottom of the ownership of the major shareholders and negative for their high levels of ownership. A testable hypothesis regarding the Centralized ownership structure and debt maturity structure is:

Some testable hypothesis regarding a different aspect of ownership and debt maturity structure which less discussed them is following there:

**H3: There is a meaningful relationship between Institutional ownership and debt maturity structure.**

**H4: There is a meaningful relationship between Governmental ownership and debt maturity structure.**

**H5: There is a meaningful relationship between Individual ownership and debt maturity structure.**

## 3. Research Methodology

### 3.1 Sampling procedure and data collection

We used data from the annual financial reports of Iranian public-listed firms in Tehran Stock Exchange (TSE) between the years 2010 and 2015. We collected balance sheets, loss and profit statements and ownership data, from a database of TSE, Rahavard Novin and Tadbir Pardaz software (a database of financial information of Iranian public firms). Our sample firms have selected the firms using the following criteria:

- Enter before the year 2010.
- Investment companies, financial intermediaries and leasing companies.
- During the period under review, they have not changed their fiscal year.
- Until 2015 they will not be excluded from the Tehran Stock Exchange.
- Regarding increasing their comparability, their fiscal year ends at the end of March each year.

Accordingly, after applying the above limitations, 101 companies during the period from 2010 to 2015 had the above conditions.

### 3.2 Research Design and target population

This study aims to examine effects of different type ownership structure on debt maturity in the Iranian context. In this way, we specify five kinds of firm ownership: Corporate, Centralized, Government, Individual, Institutional and Family Ownership. Thus according to our hypotheses, the dependent variables are defined as the ratio of long-term debt/ (Long-term debt + Short-term debt). The independent variables used to measure the effects of ownership structure on debt maturity and also some of the control variables were explained and measured as follows descriptive in table 1. The instruments used in this research include financial statements of companies, including balance sheet, profit and loss statement, cash flow statement and notes accompanying financial statements at the end of each fiscal year. For processing, categorisation and preparation of data, Excel and then Eview software was used for statistical analysis. The main explanatory variable is insider ownership percentage (OWNER) this main ownership structure explanatory variable is further divided into five categories:

Independent variables in this study are:

- **Corporate Ownership:** It is a company that is the largest owner of non-governmental legal entities.
- **Centralized ownership:** In this research, it is equal to the percentage of the shares of the first shareholder who holds the most shares of the company.
- **Institutional ownership:** The corporate ownership structure is the largest owner of those banks, insurers, investment companies, social security organizations, retirement funds.
- **Governmental Possession:** It is a company that owns more than 50% of its shares in the government, the privatization organization, the Charity Foundation and like this.
- **Individual Ownership:** A company that is the largest owner of the real individuals.

**Table (1): Descriptive independent variable**

| Variable name | Definition |
|---|---|
| **Dependent variables** | |
| DM (corporate debt maturity structure) | This is calculated as Long-term debt to total debt ratio |
| **Explanatory variables** | |
| PIO | Identifies as the shareholders who hold the most shares. |
| INS (institutional ownership) | 1 If company ownership is institutional<br>0 Otherwise |
| GOV (government ownership) | 1 If company ownership is government<br>0 Otherwise |
| COM (corporate ownership) | 1 If company ownership is corporate<br>0 Otherwise |
| IND (individual ownership) | 1 If company ownership is individual<br>0 Otherwise |

| | |
|---|---|
| SIZE (Company size) | Use the natural logarithm of total assets to measure company size |
| ROA (asset cash returns) | This is calculated as the net profit ratio to total assets of the company |
| GROW (the growth of the company) | This is calculated as the percentage change in the value of assets |
| ASSET (the asset structure) | This is calculated as the ratio of fixed assets to total assets |
| AGE (the life of the company) | This is calculated as years number of company activity |
| TAX (the tax rate) | This is calculated as ratio cost of income tax divided by pre-tax income |
| Z-Score (the financial health of the company) | This is calculated as Altman Model (1986) $998 + X_4 0.420 + X_3 3.107 + X_2 0.847\ X_1 0.717 + = Z$ |

Table 2 displays the combination of participating companies. A complete survey showed that about 41% of the total 606 year-company belongs to institutional ownership and about 40% of the observations are also about corporate ownership.

**Table (2): Observations on the composition of shareholders**

| Variable | Institutional Ownership | Corporate Ownership | Individual Ownership | Governmental Possession | Total |
|---|---|---|---|---|---|
| | INS | COM | IND | GOV | |
| **Number** | 251 | 243 | 75 | 37 | 606 |
| **Percent** | %41/41 | *40/1 | %12/38 | %6/11 | %100 |

## Data Analysis

This research is a descriptive-analytic study in which panel's data for 101 companies that have been collected during the six years period (2010-2015) have been used. Among the various linear regression methods for estimating the parameters, the method (OLS) or ordinary least squares, when the assumptions are made has the best-known and most widely used method that due to its desirable properties. This method attempts to fit the best regression line for data by minimizing the sum of squares of disturbing sentences. One of the assumptions considered in the regression is the independence of the errors (the difference between the actual values and the values predicted by the regression equation). If the independence hypothesis of errors is rejected and the errors are correlated, regression is not possible. The Durbin-W test is used to check the independence of the observations (the independence of residual values or errors). The Durbin-W is between 0 and 4. If there is no consistency between the remnants, the value of this statistic should be close to 2. If it is close to zero, it indicates a positive correlation and, if close to 4, indicates a negative correlation. In general, if this statistic is between 1.5 and 2.5, it is not a concern.

To test the hypotheses we use the following model:

$DM = \alpha 0 + \alpha 1\ INS + \alpha 2\ PIO + \alpha 3\ GOV + \alpha 4\ COM + \alpha 5\ IND + \alpha 6\ LEV + \alpha 7\ SIZE + \alpha 8\ ROA + \alpha 9\ GROW + \alpha 10\ ASSET + \alpha 11\ AGE + \alpha 12\ TAX + \alpha 13\ Z\text{-}Score + \varepsilon$

In this model:

DM: Indicates the corporate debt maturity structure
INS: Indicates institutional ownership
PIO: Identifies the shareholders who hold the most shares.
GOV: Indicates government ownership
COM: Represents corporate ownership
IND: Indicates individual ownership
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

In statistics, the Jarque–Bera test is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution. If the data comes from a normal distribution, the JB statistic asymptotically has a chi-squared distribution with two degrees of freedom, so the statistic can be used to test the hypothesis that the data are from a normal distribution. The null hypothesis is a joint hypothesis of the skewness being zero and the excess kurtosis being zero. Samples from a normal distribution have an expected skewness of 0 and expected excess kurtosis of 0 (which is the same as a kurtosis of 3). As the definition of JB shows, any deviation from this increases the JB statistic. If the p-value of Jarque–Bera test is less than 5%, the distribution is not normal. Based on the results presented in Table 4, most variables have a normal distribution, except for the long-term debt ratio, company size, company life, and asset structure. In this case, there are different methods for normalizing abnormal variables. One of the methods is the removal of data and the use of logarithmic transformation. In this study, logarithmic transformation was used to normalize variables. Table 5 shows the results for abnormal variables after normalization.

**Table (4): The results Jarque–Bera test**

| | DM | PIO | Z | SIZE | ROA | GROW | ASSET | AGE | TAX |
|---|---|---|---|---|---|---|---|---|---|
| **The statistics** | 6/2354 | 4/2081 | 4/5868 | 2/0213 | 1/9786 | 11/3627 | 9/8173 | 21/3910 | 3/0986 |
| **Possibility** | 0/006 | 0/1085 | 0/2954 | 0/0129 | 0/2610 | 0/1125 | 0/0091 | 0/0062 | 0/174 |

**Table (5): The results logarithmic transformation abnormal variables**

| | DM | SIZE | ASSET | AGE |
|---|---|---|---|---|
| **The statistics** | 4/3291 | 2/0143 | 5/9460 | 11/0257 |
| **Possibility** | 0/1037 | 0/2194 | 0/0861 | 0/1376 |

One of the most important assumptions about tests for causative hypotheses is that there should be no Coherent relationship between the variables. This means that none of the independent variables should have linear relationships with each other. A linear relationship is a situation that indicates an independent variable of the linear function of other independent variables. If the linearity is high in a regression equation, it means that there is a high correlation between the independent variables, and in this case, despite the high R2, the credit rating is not high. In other words, although the model looks good, it does not have meaningful independent variables. One-way analysis of variables in the calculation of regression can be used to analyze variance and tolerance tests. Tolerance is a relative variance of an independent variable not explained by other independent variables. The Tolerance coefficient, which fluctuates between zero and one, shows how independent variables have a linear relationship with each other. Therefore, the more tolerance is close to the number 1, the co-linear ratio is lower, and conversely, the lower the degree of tolerance (closer to the number 0), indicates that the co-linear ratio is high and the standard error of the regression coefficients is high in inflation. So there are problems with regression. The inflation factor of variance (VIF) results from the division of the number one on the tonality, the more the variance of the factor of inflation is greater than 2, the greater the coherency. The higher the coefficient, the greater the variance of the regression coefficients and the resulting regression model for inappropriate prediction. Therefore, the more the variation of the inflation operation for an independent variable is, we conclude that that variable does not play a large role in the model than in the other variables. Since the value of the variance inflation factor (VIF) for the independent variable and the control variables is less than 10, this indicates that there is no coherence. As a result, a regression model is a suitable tool for prediction the hypotheses.

**Table (6): The result of Coherent relationship test**

| Variable | Coefficient of variance | VIF | Variable | Coefficient of variance | VIF |
|---|---|---|---|---|---|
| **INS** | 9/3612 | 2/1960 | **ROA** | 0/0011 | 2/8422 |
| **PIO** | 4/8410 | 8/7333 | **GROW** | 0/0211 | 1/4386 |
| **GOV** | 0/0033 | 1/1925 | **ASSET** | 0/0966 | 3/5508 |
| **IND** | 0/00622 | 1/5936 | **AGE** | 1/4975 | 3/0981 |
| **Z** | 3/4991 | 7/4797 | **TAX** | 0/0021 | 2/5110 |
| **SIZE** | 8/7920 | 8/6161 | **COM** | 0/4125 | 6/2571 |

*(The attachment 1-2: Coherent test)*

In the next step, it should be noted that in time series and combination regressions analysis, the stability and reliability of a series of data can have a profound effect on its behaviour and features. If the variables used to estimate the model are unstable, while there may not be any logical relation between the independent and dependent variables, the determination coefficient can be mistakenly mistaken and can lead to misleading the researcher. The test is mainly to avoid false regressions. Manoeuvring or nonsense of a times series data can have a serious impact on its behaviour and properties. If the variables used in model estimation are unstable, while there may not be any logical relation between independent and dependent variables, the coefficient of determination obtained can be very high and cause the researcher to make incorrect inferences about the relationship between variables so using unpaired data can lead to false regressions. In this test, the hypothesis is zero based on the existence of a single root and the hypothesis of the stability of at least one member of the panel.

The root of the unit exists, and the variable is invariant. H0: θ = 0

The root of the unit does not exist, and the desired variable is H1: θ.

To test stability and reliability various tests are used, including Levin & Lin test, I'm Pesaran and Shin test (IPS), Fisher test and Augmented Dickey-Fuller (ADF) test. In the present research, we used ISP test to check stability. The results of this test are presented in Table 7. It shows that the model variables have stability and reliability characters and the model can be estimated.

**Table (7): Stability and Reliability Test**

| Variable | Im Pesaran and Shin test (IPS) | Sig |
|---|---|---|
| **ASSET** | -7/8787 | 0/0000 |
| **INS** | -15E+4/1 | 0/0000 |
| **GOV** | -2/078 | 0/0188 |
| **IND** | -2/863 | 0/022 |
| **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 |
| **COM** | -3/619 | 0/0001 |
| **SIZE** | -4/256 | 0/0000 |
| **ROA** | -4/496 | 0/0000 |
| **DM** | -5/254 | 0/0000 |

Also, to assess inequality of variance the ARCH test has been used and the results of which are presented in Table 8:

**Table (8): ARCH difference test**

| Description | Amount | statistic |
|---|---|---|
| F-statistic | 0/3391 | 0/5605 |
| Obs*R-squared | 0/3401 | 0/5598 |

*Coherent test 8: Arch test*

Based on the results presented in Table 8, the ARCH statistical test is not significant at 5% level. Therefore, this hypothesis which is based on the absence of inequality variance accepted. The estimated model does not have anomalous variance problem. After performing the F lemme test and selecting the model of fixed-periodic effects for choosing the data test method, two methods of fixed effects and random effects are used. In the estimation of a model whose data is of a hybrid type, the type of estimation model must first be determined. In other words, first of all, it must be checked that the model M, the rejection of the survey on which floor or panel class is placed. In the case of combined data, first, the F test (Chow test) is used to select a model estimation method between the Pooling and Panel methods. The first step in estimating the data panel is to determine the constraints imposed on the econometric model. In other words, we first need to determine that the regression relation in the sample has a width of heterogeneous origin and homogeneous slope, or that the hypothesis of the width of the common origin and the common slope between the sections (the data model of the data) is accepted. For this purpose, the F test is used. Based on this test, we first estimate the model unknowingly and in general we estimate the width of the common origin and the common slope, and we calculate the amount of regression residues, then the model is bounded and assumed to be the width of the heterogeneous sources between the sections We estimate common gradients and obtain the values of residual waste. If the calculated F value of F is greater than the specified degree of freedom, then the H0 hypothesis is based on the homogeneity of the sections and widths of the same origin, so the effects of the group are accepted and the width of the different sources must be taken into account in the estimation. The panel method is used for estimation, but if the H0 assumption is accepted, it means that the slopes are identical for different sections, and the combination of the data and the use of the model from the combined data is verified statistically. In this test, according to F, for all models examined, the panel data method is acceptable because the probability of this model is zero. The width of the source is the same at all times (compilation data): H0, The width of the origin is not equal at all times (panel data): H1. After it has been determined that there is heterogeneity in the sections and individual differences can be considered, in order to determine which method (fixed effects or random effects) is more suitable for estimation (constant or random detection of cross-sectional differences) The Husmon test is used. In Hausman's hypothesis, the meaning of the meaning of the meaning is that there is no connection between the disturbance component of the width of the source and the explanatory variables and they are independent of each other, whereas the opposite hypothesis means that between the component of the disturbance and the explanatory variables We face the problem of bogus and incompatibility. Therefore, it is better to use the static effects method if the H1 assumption is accepted. Under the hypothesis H0, constant effects and random effects are both compatible, but the method of constant effects is inefficient. The Hausman test hypothesis will be: Random effects: H0, Fixed effects: H1.

**Table (9): Test results F**

| Description | Amount | Degrees of freedom | statistic | Method |
|---|---|---|---|---|
| The main research model | 0/9351 | 5 | 0/9676 | pool |

*the attachment 9: chow test*

**Table (10): Hausman test results**

| Description | Amount | Degrees of freedom | statistic | Method |
|---|---|---|---|---|
| **The main research model** | 0/9351 | 5 | 0/9676 | pool |

*The attachment 10: Housman test*

Considering that in both of the tests for regression model the test statistic is less than 5%, so in this model, we should use the fixed effects method. The test results of the hypotheses are presented in Table 11. Based on the results presented, since

 

the probability of the F statistic is zero, suggests that the model is acceptable. According to Watson's camera statistics, values between 1.5 and 2.5 are acceptable values for accepting the lack of self-correlation in the model. Thus science the Watson camera's statistic (2/7), it is confirmed that self-correlation in model no exist. As shown in Table 11, the adjusted coefficient of determination is 0.26%, which indicates that approximately 26% of the dependent variable variations in this model are expressed by independent variables. As seen in Table 12, the coefficient of the COM variable is 0.0151, which is significant at the 5% error level. This result suggests that there is a meaningful relationship between corporate ownership and corporate debt maturity structure. However, the PIO variable is 0/0001 which is not significant at 5% error level. This implies that there is no meaningful relationship between centralised ownership and corporate debt maturity structure. Also, the result shows that there is a meaningful negative relationship between institutional ownership and corporate debt maturity structure. Moreover, the ownership structure does not have an impact on the company's debt maturity structure. Also, individual ownership has a negative impact on the corporate debt maturity structure and also, there is a positive correlation between controlling variables between company growth, asset structure and company life and corporate debt maturity structure. On the other hand, there is a negative relationship between the tax rate and the corporate debt maturity structure. Also, there is no relationship between firm size, cash flow from assets and financial health of companies with the company's debt maturity structure.

## 4. Data Analysis and Results

Table 11 display the descriptive statistics which observe the debt maturity (DM) is on average nearby 0.12 it means that about 12 percent of total debts are long-term debts. Regarding Median, DM gain score about 0.08 so means about half or less than of sample firms have 0.08 debt maturity. Also the minimum and maximum of this variable are 0 and 0.738 respectively. The summary of the characteristics of the variables used in this research is presented in the form of descriptive statistics in tables 1 and 2, related to research data for 606 years-companies. According to Table 2, an average of 52.58% of the shares of the company is held by major shareholders (centralised ownership). In other words, nearly half of the shares in the Tehran Stock Exchange belong to a natural or legal person. Also, the descriptive statistics of financial health variable (Z) show that in the whole study period, the mean and median of Z-Altman's were 1.98 and 1.82, respectively. This suggests that most of the companies surveyed were in doubt during the research period. Perhaps the reason for this factor is the economic situation of the country during this period, during this time the inflation rate was very high and the exchange rate especially the dollar has been growing.

**Table (11): Descriptive Statistics of main variables**

| Variables | Mean | Median | Max | Min | SD |
|---|---|---|---|---|---|
| **DM** | 0.123 | 0.0814 | 0.738 | 0 | 0.120 |
| **PIO** | 52.584 | 51 | 99.45 | 2.18 | 20.454 |
| **Z** | 1.981 | 1.822 | -1.789 | 7.584 | 1.170 |
| **SIZE** | 13.986 | 13.777 | 12.031 | 19.106 | 1.569 |
| **ROA** | 0.109 | 0.091 | -2.443 | 0.621 | 0.173 |
| **GROW** | 0.214 | 0.163 | -0.629 | 4.651 | 0.446 |
| **ASSET** | 0.252 | 0.210 | 0.005 | 0.838 | 0.170 |
| **AGE** | 37.688 | 38 | 12 | 61 | 11.427 |
| **TAX** | 0.106 | 0.104 | 0.863 | 0 | 0.095 |

## 5. Discussion and Conclusion

Concerning the test result of the first hypothesis, it should be stated that if a company is its largest owner, it is a non-state legal entity, it would increase the long-term debt liability of the company's debt maturity structure. Therefore, at the 95% confidence level, the first hypothesis of the study can be confirmed. The results show that the second hypothesis was not confirmed, and this fact was incompatible by the findings of Sheikh and Wang and Martinez [31], which displayed that there is a positive relationship between centralized ownership and debt structure and also to Qiuyan et al. that there is a negative relationship between centralized ownership and the debt maturity structure [32]. The present study consists of Akhlageha research that shows there is no significant relationship between the major shareholders and the debt maturity structure [10]. The test of the third hypothesis was confirmed at 95% confidence level. In other words, if a company is one of the largest owners of companies such as banks, insurers, investment companies, social security organisations, and pension funds, it can lead to a reduction in long-term debt in the structure deadline for debt participation. The results showed that at the 95% confidence level, the fourth hypothesis of the research could not be confirmed. On the other hand, studies have shown that this fact is contradictory with the findings of research by Ruan in 2012, which showed that there is a positive relationship between state ownership and debt maturity structure [33]. The result of the fifth hypothesis test shows that at 95% confidence level this hypothesis is confirmed. In other words, the companies are the largest real estate company owner, leading to a reduction in long-term debt liabilities in the corporate debt maturity structure. Also, the results of the control variables indicate that there is a significant positive correlation between company growths, asset structure and company life with the corporate debt maturity structure. These results are consistent with the results of Huang and Song [21], Korner [22] and Najjar and Taylor [23]. There is also a significant negative relationship between the tax rate and the corporate debt maturity structure. This result is consistent with the results of the Newberry et al. research [34] and Korner [22]. However, there is no statistically significant relationship between company financial health, company size and return on assets with the corporate debt maturity structure. These results are consistent with the results of Nauman Khan [35] and Teoh [36] which showed that there is a positive correlation between

 

firm size and debt maturity structure, and is opposite to with Kordestani et al. which showed a negative relationship between firm size and debt maturity structure there is a conflict [37].

## 6. 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 historical 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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