

## **The Relationship between Capital Structure and Firm Performance Evaluation Measures: Evidence from the Tehran Stock Exchange**

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### **Abstract**

*The main objective of this study is to investigate the impact of capital structure on the financial performance of companies listed in the Tehran Stock Exchange. For this purpose, we studied and tested a sample of 400 firm-years among Companies Listed in the Tehran Stock Exchange in the form of 12 industrial groups during the years 2006 to 2010. In this study, Variables of return on assets ratio (ROA) and return on equity ratio (ROE) used to measure the financial performance of companies. Results suggest that there is a significant negative relationship between debt ratio and financial performance of companies, and a significant positive relationship between asset turnover, firm size, asset tangibility ratio, and growth opportunities with financial performance measures. But the relationship between ROA and ROE measures with the firm age is not significant. Also, some of the studied industries have affect on firm performance. In addition, research results shows that by reducing debt ratio, management can increase the company's profitability and thus the amount of the company's financial performance measures and can also increase shareholder wealth.*

**Keywords:** capital structure, corporate financial performance, return on assets, return on equity.

## 1. Introduction

Capital structure is one of the most important effective parameters on the valuation and direction of economic enterprises in the capital markets. Current changing and evolution environment cause that rating companies also in terms of the credit depends partly to their capital structure and strategic planning required them in order to select effective resources to achieve the goal of "shareholders wealth maximization" (Drobetz and Fix, 2003). So, one of the most important goals that financial managers should consider to maximize shareholders wealth is determination of the best combination of financial resources for the company. Moreover, financing decisions for the investment is the important duties of company in determination of the best combination of financial resources, and another purpose of financial manager from taking such decisions is maximization of corporate value and also in this regard, he should determine where invest their resources. On the other hand, how to finance the company's assets for interested individuals and institutions is noteworthy and also how much debt and stock the company used to finance its assets is important, Because this will impact on corporate financing decisions (Yahyazadehfar et al., 2010). Financial manager by taking accurate and timely decisions can reduce capital cost of company and thereby increase corporate value. Therefore, adequate and appropriate financing and investment will increase corporate value and thus will increase shareholders wealth. Since combination of various financial sources of every company is called capital structure (Ghalibafasl, 2005), then it can be noted that the best combination of financial resources for every company is optimal or desirable capital structure.

Since the company's cost of capital is seen as a function of its capital structure, choice of optimal capital structure or adequate and appropriate financing and investment reduce company's cost of capital and increase its market value (Modarres and Abdoallahzadeh, 2008) and thus will increase shareholders wealth.

Capital structure of a company is combination of debt and equity that make up the sources of corporate assets. The company which has no debt, its capital structure is only equity. Different companies have different capital structure (Ahmadpour and Yahyazadehfar, 2010). But the financing resources of companies based on their financial policies are divided in two part "internal financial resources" and "external financial resources ". On internal financial resources, the company fund from accumulated earning, i.e. instead of divide profit among shareholders, uses profit mainly in the company's operational activities to obtain more return. And in external financial resources, the company fund from debt and stock (Titman and Grinblatt, 1998).

In fact, the present study seek to answer this question" whether capital structure of companies listed in stock exchange has impact on their financial performance?" Which investigate by using major and index factors such as debt ratio (capital structure), asset turnover, asset tangibility ratio (assets structure), size, age and firm growth opportunities and industry type as determinant factors of capital structure and return on asset (ROA) and return on equity (ROE) as criteria to evaluate corporate performance. In this research, first we describe research literature, then indicate hypotheses, analysis methods, variables research models and finally provide research results.

## 2. Literature Review

Decisions about capital structure is one of the most challenging and most difficult issues facing companies, at the same time, the most critical decision about the continued survival of companies. By reference to the conducted researches in this context, we can say that the most major reasons of firm failure is inefficient their inadequate and inappropriate financing and investment, the results of some conducted researches i.e. somewhat related to the topic of this research can be expressed as follows.

Céspedes et al. (2010) investigated the relationship between capital structure and ownership in seven Latin American countries during 1996 to 2005. In this study, the numbers of 6766 firm-years were selected as a sample. They concluded that there is a positive relationship between leverage and ownership concentration. Also, the research results indicate a positive relationship between leverage and growth variable, and a negative relationship between leverage and profitability and larger firms have more tangible assets.

Abor (2005) reviewed the impact of capital structure on profitability of the 22 companies listed in Ghana Stock Exchange during 1998 to 2002. Results showed that there is a significant positive relationship between capital structure (total debt to total assets ratio) and return on equity (ROE). Also he indicates that profitable companies have more dependence to financing through liability and high percent (%85) of liabilities of these companies are short term liabilities.

San and Heng (2011) in their research studied the relationship between capital Structure and Corporate Performance of Malaysian Construction Sector during 2005 to 2008. In this study, 49 companies were selected as samples. Results showed that there is a significant relationship between capital structure and corporate performance.

Aburub (2012) in his research investigated the impact of capital structure on the firm performance of companies listed in Palestine Stock Exchange during 2006 to 2010 which 28 companies were selected as samples. In this study, five measures of Return On Equity (ROE), return on assets (ROA), earnings per share (EPS), market value to book value of equity ratio (MVBR) and Tobin Q ratio as the measures of accounting and market of firm performance evaluation and also as dependent variables., and four measures of short-term debt to total assets ratio (SDTA), long-term debt to total assets ratio (LDTA), total debt to total assets ratio (TDTA) and total debt to total equity ratio (TDTQ) as the measures of capital structure and also as the independent variables were selected. Results indicate that the capital structure has a positive effect on firm performance evaluation measures.

Zeitun and Tian (2007) in their study Surveyed the impact of capital structure on the firm performance for 167 Jordanian companies during 1989 to 2003. The results suggest that capital structure has significantly negative impact on accounting measures of firm performance evaluation. Also they indicate that short-term debt to total assets ratio (SDTA) has significantly negative impact on market measure of Jordanian companies' performance evaluation i.e. Tobin Q ratio.

Sunder and Myers (1999) examined the effect of four factors: assets tangibility, growth opportunities, company's tax status and profitability on the capital structure (debt ratio) of 157 American companies in the period of 1979 to 1981. Research results indicate a significantly positive relationship between assets tangibility with debt ratio and a significantly negative relationship between debt ratios with firm profitability. Moreover, there is no significant relationship between two variables, growth opportunities and the tax status with the debt ratio.

Rajan and Zingales (1995) studied the determinant factors of capital structure of common company corporations in seven large countries around the world (America, Japan, Germany, France, Italy, Britain and Canada) during 1987 to 1991. In this study, they chose 4557 companies as samples of these seven countries. Research findings indicate that financial leverage has negative relationship with profitability and market value to book value ratio and positive relationship with the value of tangible fixed asset and firm size.

Chen and Strange (2005) investigated the relationship between the variables of firm size, firm age, business risk, sale growth rate, tax, profitability and intangible assets with debt ratio (capital structure) in 2003 in 972 stock companies in China and concluded that the relationship between these variables and debt ratio depend on the basis of calculation of dependent variable (market value or book value).

Sogorb (2005) Surveyed the impact of small and medium companies' features on their capital structure in Spain during 1994 to 1998. In this study, he used from data of 6482 nonfinancial companies in 8 industry order. Results show that tax reserves and profitability of these companies have negative relationship with capital structure while size, growth opportunities and assets structure in these companies have positive relationship with capital structure.

Daskalakis and Psillaki (2005) in their research reviewed the determinants of Capital Structure of the SMEs in the Greek and the French companies. This study was performed on the 1252 Greek companies and 2006 French companies during a six-year period from 1997 to 2002. In this study, they used from assets structure (tangible assets to total assets ratio), size, growth opportunities and profitability of company as determinants of capital structure. Results showed that assets structure and profitability have negative relationship with debt ratio (Capital Structure) in both countries, but firm size and growth opportunities have positive relationship with Capital Structure.

Harris and Raviv (1991), Chevalier (1995) and Kovenock and Phillips (1995) Surveyed the effect of various industries on capital structure decisions and concluded that the type of industry can affect the use of debts and firms performance.

Onaolapo and Kajola (2010) investigated the effect of capital structure on financial performance of companies listed on Nigeria Stock Exchange. This study was performed on 30 nonfinancial companies in 15 industry sectors in a 7-year period from 2001 to 2007. The results showed that the capital structure (debt ratio) has a significant negative effect on financial measures (ROA and ROE) of these companies.

Fosberg and Ghosh (2006) in the research conducted on the 1022 companies in the New York Stock Exchange (NYSE) and 244 companies in the America Stock Exchange (AMEX) concluded that the relationship between capital structure and ROA is negative. Houang and Song (2006) in the research conducted on the 1200 Chinese companies during 1994 to 2003 concluded that financial leverages has negative relationship with return on assets and growth opportunities. Andersen (2005) reviewed the relationship between capital structure and firms performance for 1323 companies from various industries and concluded that there is a significant relationship between capital structure and ROA. Elsayed Ebaid (2009) studied the effect of capital structure on the performance of 64 Egyptian companies during 1997 to 2005. The results suggest that there is a significant negative relationship between ROA and total debt to total assets ratio. But there is no significant relationship between ROE and total debt to total assets ratio. And also Mramor and Crnigoj (2009) concluded that there is a significant negative relationship between financial leverage (total debt to total assets ratio) and return on assets ratio (ROA).

### 3. Research Hypotheses

In order to investigate the effect of capital structure on corporate financial performance, we designed the following hypotheses for testing:

**H<sub>1</sub>**: there is a negative and significant relationship between debt ratio and firm performance.

**H<sub>2</sub>**: there is a positive and significant relationship between asset turnover ratio and firm performance.

**H<sub>3</sub>**: there is a positive and significant relationship between firm size and firm performance.

**H<sub>4</sub>**: there is a positive and significant relationship between firm age and firm performance.

**H<sub>5</sub>**: there is a positive and significant relationship between assets structure (assets tangibility) and firm performance.

**H<sub>6</sub>**: there is a positive and significant relationship between growth opportunities and firm performance.

**H<sub>7</sub>**: type of industry has effect on firm performance.

Intentions of firm performance in above hypotheses are accounting measures of firm performance evaluation i.e. the return on assets (ROA) and return on equity (ROE).

### 4. Research Design

#### 4.1 Statistical Society and Sample

Statistical society of this study includes all companies listed in Tehran Stock Exchange during 5-years period from 2006 to 2010 which have following features:

- 1) Companies must be listed before the research period.
- 2) They should be nonfinancial companies.
- 3) The end of financial period of companies lead up to December 31 of each year.
- 4) Financial period have not changed in the course of study.

Thus, by considering the above constraints, the investigated sample size was about 80 companies. These companies have been selected among 12 investigated industries in this study.

In Table 1, the number of selected companies for each industry is presented. (Table 1)

#### 4.2 Methods of data collection and information

Data used in this study are actual and historical information which have been collected using documents analysis method and through the site of Tehran Stock Exchange (Note 1) and CDs of financial data in companies listed in Tehran Stock Exchange.

#### 4.3 Methods of Data Analysis and Hypotheses Testing

In this research, for indication of type and intensity of relationship between dependent and independent quantitative variables, we use Pearson correlation and estimation of multiple regression models for hypotheses testing. And analyzed the results based on statistical significance or insignificant coefficients. For this purpose, after determining the method that shows the most accurate estimation, by using the t statistic, we test the estimation coefficients of independent variables in regression models used to hypotheses.

The following general hypothesis used for this test:

$$H_0: \beta = 0$$

$$H_1: \beta \neq 0$$

$H_0$  hypothesis means that the independent variable coefficient is zero and in other words, there is no relationship between the changes in the tested dependent variable and independent variables.  $H_1$  is also indicating the relationship between changes in independent variables and dependent variable. Here, the hypotheses are tested in a 5% error level. If the pvalue <5%, the correlation is confirmed at 95% confidence level and otherwise is rejected. After doing t test, general significant of regression model is examined using the F statistic (Fisher's test). In order to identify the presence or absence of significant auto regression among components of intervals from Durbin Watson test (DW), and also to final analyses and statistical tests, we use from SPSS.18 and EXCEL software.

#### 4.4 Operational Research Models and Variables

In order to test the hypotheses presented in this research, we used from research models of Onaolapo and Kajola (2010). Where is used the dependent variables, return on assets (ROA) and return on equity (ROE) as accounting measures for evaluating the firms performance, and independent variable, the debt ratio (DR) as capital structure. Also is used from variables of asset turnover (TURN), firm size (SIZE), firm age (AGE), assets tangibility (TANG) and growth opportunities (GROW) as control variables. Models 1a and 1b investigate the total sample of companies, while in models 2a and 2b type of industry (IND) as dummy variable add to model 1 and investigate the effect of each industry on firm performance. Research models and variables are as follows and how to calculate each of the variables is shown in Table (2).

Model (1):

$$ROA_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \alpha_2 TURN_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 AGE_{i,t} + \alpha_5 TANG_{i,t} + \alpha_6 GROW_{i,t} + \epsilon$$

(1a)

$$ROE_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \alpha_2 TURN_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 AGE_{i,t} + \alpha_5 TANG_{i,t} + \alpha_6 GROW_{i,t} + \epsilon$$

(1b)

Model (2): (by adding variable of industry sector)

$$ROA_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \alpha_2 TURN_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 AGE_{i,t} + \alpha_5 TANG_{i,t} + \alpha_6 GROW_{i,t} + \alpha_7 IND + \epsilon$$

(2a)

$$ROE_{i,t} = \alpha_0 + \alpha_1 DR_{i,t} + \alpha_2 TURN_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 AGE_{i,t} + \alpha_5 TANG_{i,t} + \alpha_6 GROW_{i,t} + \alpha_7 IND + \epsilon$$

(2b)

In these models:

$ROA_{i,t}$  = return on assets of firm i in year t

$ROE_{i,t}$  = return on equity of firm i in year t

$DR_{i,t}$  = debt ratio of firm i in year t

$TURN_{i,t}$  = asset turnover ratio of firm i in year t

$SIZE_{i,t}$  = size of firm i in year t

$AGE_{i,t}$  = age or number of activity years of firm i in year t

$TANG_{i,t}$  = assets tangibility ratio or assets structure of firm i in year t

$GROW_{i,t}$  = growth opportunities of firm i in year t

*IND* = industry types that company works in it.

$\varepsilon$  = The error of model (Table 2)

## 5. Research Findings

### 5.1 Descriptive Statistics

Descriptive statistics table i.e. shown in the following indicates the descriptive parameters amount for each variable separately and for all years. Information about descriptive statistics is shown in (Table 3).

As it is clear from the observation of information in descriptive statistics table, the ROA mean for sample firms is 10%. ROA represents the profit i.e. obtained from the use of corporate assets (Rahnamayroodposhti, 2008). Thus, the mean value of 10% for ROA indicates poor performance of management in obtaining profit from firm assets. The ROE mean for the total sample is 638.891. ROE represents the firm power to obtaining profit from resources which shareholders given to company (Rahnamayroodposhti, 2008). The mean value of ROE indicates good performance of management in obtaining profit from firm equity. Given the above, can be noted that the cost of financing is less than asset returns and therefore, the excess amount is belong to equity, as a result the return on equity is more than return on assets. On the other hand, application of debit ratio (DR) in the capital structure of sample companies is in a range between 0.01 and 2.36 which its mean is equal to 0.652 and this means that on average more than 65 percent of financial resources needed for companies are supplied from debt, that this case show the importance of application of debt policies in capital structure of companies and capital market of Iran.

The mean of asset turnover ratio (TURN) is %79.6 and if this ratio be higher, this indicates efficiency of profit enterprise in applying the total assets in sale process and profitability of companies. In contrast, if this ratio decreases, indicating that part of the assets remained stagnant or has not been optimized (Rahnamayroodposhti, 2008). The mean of firm size (SIZE) is equal to 13.354 and the mean age is 34.15, that indicate the company has a long history of activity and also total sample companies are in activity range of 9 to 55 years and these companies relatively aren't young. The mean of assets tangibility ratio (TANG) and growth opportunities are respectively about 30% and 10%.

### 5.2 Correlation Analysis

Table 4a and 4b show the Pearson correlation between quantitative variables of study. As can be seen in Table 4a, there is a significant negative correlation between the return on assets (ROA) and debt ratio (DR) at 1% level. Also, there is a significant positive correlation between return on assets (ROA) with variables of asset turnover ratio (TURN), firm size (SIZE) and firm growth opportunities (GROW) at 1% level and with assets tangibility ratio (TANG) in 5% level. While there is a negative correlation between return on assets (ROA) and firm age (AGE), but this correlation is not significant. (Table 4a)

In table 4b can be seen that there is a significant negative correlation between Return on Equity (ROE) and debt ratio (DR) at 1% level. Also, there is a significant positive correlation between return on equity (ROE) with the variables of firm size (SIZE) and firm growth opportunities (GROW) at 1% level. Although in table 4b it shown that there is a positive correlation between returns on equity (ROE) with variables of asset turnover ratio (TURN), firm age (AGE) and assets tangibility ratio (TANG) but is not significant. (Table 4b)

### *5.3 Regression Results and Discussion*

Regression model of capital structure effect on corporate financial performance in the total level of sample industries of research is presented in Table 5. The results show that statistically there is a significant negative relationship between the capital structure or debt ratio (DR) and accounting measures of firm performance evaluation (ROA and ROE) at 1% level. This could indicate this issue, the companies that have high debt ratio (DR) due to borrowing, are incurred costs as the financial costs which reduce net income and in contrast, return on assets (ROA) and return on equity (ROE) will reduce. It can also be useful in decision-making of investors. Therefore, first hypothesis indicates that there is a significant negative relationship between debt ratio (DR) and measures of firm performance evaluation (ROA and ROE) will be confirmed. The results of this hypothesis is consistent with the research results of Onaolapo and Kajola (2010), Fosberg and Ghosh (2006), Houang and Song (2006), Mramor and Crnigoj (2009) and Zeitun and Tian (2007), but is not consistent with the research results of Aburub (2012).

The second hypothesis indicates that there is a significant positive relationship between asset turnover ratio (TURN) and the measures of firm performance evaluation (ROA and ROE). Test results showed that statistically there is a significant positive correlation between asset turnover ratio and ROA and ROE variables (coefficient 0.060 and 279.406, respectively) at 1% level. And the results of research are consistent with the research results of Onaolapo and Kajola (2010).

In the third hypothesis is investigated a positive and significant relationship between firm size (SIZE) and the ROA and ROE measures. The results from third hypothesis test indicate a positive and significant relationship between firm size and measures of firm performance evaluation at 1% level. Therefore, third hypothesis of research also is confirmed. The results of this hypothesis for ROA measure are consistent with the results of Zeitun and Tian (2007), but are not consistent with the results of Onaolapo and Kajola (2010). The results of this hypothesis for ROE measure are also consistent with results of Onaolapo and Kajola (2010).

The fourth hypothesis indicates that there is a significant positive relationship between firm age (AGE) and firm performance evaluation measures (ROA and ROE). The test results showed that there is a positive relationship between firm age and performance evaluation measures but this relationship is not significant. Therefore, the fourth hypothesis of research is rejected. The results of this hypothesis are not consistent with the results of Onaolapo and Kajola (2010).

In fifth hypothesis is investigated a positive and significant relationship between asset structure ratio or assets tangibility (TANG) and accounting measures of firm performance evaluation. The results showed that statistically there is a positive and significant relationship between assets tangibility and ROA and ROE measures at 1% and 5% levels, respectively. Thus, fifth hypothesis of research also is confirmed. The results also are not consistent with the results of Zeitun and Tian (2007) and Onaolapo and Kajola (2010).

Finally, the sixth hypothesis indicates that there is a significant positive relationship between growth opportunities (GROW) and measures of firm performance evaluation. The results from sixth hypothesis indicate that there is a significant positive relationship between firm growth opportunities and ROA and ROE measures at 1% level. Therefore, the sixth hypothesis is confirmed. The results of this hypothesis are not consistent with the results obtained from the researches of Zeitun and Tian (2007) and Onaolapo and Kajola (2010). (Table 5)

As it is evident from the results of Table 5, F statistics for the models 1a and 1b is respectively, 40.06 and 18.41 and the p-value is 0.000 for both two models, which indicate models 1a and 1b are significant in general. Also, adjusted  $R^2$  for both two models respectively is 38.8% and 22.1% that showed estimated models explain respectively 38.8% and 22.1% of changes in dependant variable.

In addition, about the autocorrelation test through Durbin-Watson, we can say that because the test value for the models 1a and 1b are respectively 1.1 and 1.6 and this value is less than two, we can be concluded that there is no autocorrelation between variables.

Table 6 shows the results from regression model of capital structure effect on the financial performance of companies in various industries levels (Model 2). For the effect of industry type on ROA and ROE measures (accounting measures of firm performance evaluation), a dummy variable IND DUM has been added to model 1. IND DUM1 to IND DUM12 represents 12 industries investigated in the present study that each of them has been determined in Table 1.

The results show that the relationship between ROA and ROE with only independent variable of research i.e. debt ratio (DR) is negative and significant at 1% level. This result is the same as result of model 1, thus confirmed the first hypothesis. Also, the relationship between dependent variables (ROA and ROE) with all control variables, asset turnover ratio, size, age and firm growth opportunities and assets tangibility should be consistent, except that the relationship between ROE and assets tangibility is statistically significant and positive at 10% level. Thus, given to evidence we can say that asset turnover ratio, assets tangibility, firm size and growth opportunities are the most major determinants of corporate financial performance.

Results about dummy variables of industry type in Table 6, indicate that there is a negative and significant relationship between ROA measure with IND DUM4 (food products and beverages), IND DUM5 (Basic metals) and IND DUM12 (automobile and manufacturing parts) respectively at 1%, 10% and 10% levels which indicate the low return on assets (ROA) in this industry during the period investigated in this study. Also, ROA measure with IND DUM3 (materials and chemical products) statistically has significant positive relationship at the 5% level. There is a significant negative relationship between ROE and IND DUM2 (other non-metallic mineral products) at 1% level. But there is a significant negative relationship between ROE and IND DUM3 (materials and chemical products) at 1% level. Among the other parts of studied industries, there are positive and negative relationships according to their  $\beta$  coefficients with performance evaluation measures (ROA and ROE). But this relationship is not significant. Thus, industry type affects on corporate financial performance only for industries that have a significant relationship with ROA and ROE. (Table 6)

The results show that adjusted  $R^2$  value for models 2a and 2b are 0.436 and 0.250 respectively, that indicate the estimated models (2a and 2b) explain respectively 43.6% and 25% changes in the dependent variable. Also according to the F statistic, the models are significant in general. In addition, the Durbin-Watson value test for models 2a and 2b is less than two, which is indicating no autocorrelation of errors.

## 6. Conclusion

The present study investigates the impact of capital structure on the financial performance of companies according to a sample of 400 firm-years during the years 2006 to 2010 among the companies Listed in Tehran Stock Exchange. Studied companies were selected from 12 industries. In this study, has been used

from debt ratio (DR), asset turnover ratio (TURN), firm size (SIZE), assets tangibility(TANG), firm age (AGE) and growth opportunities (GROW) as components of capital structure and from the measures of return on assets (ROA) and return on equity (ROE) as measures of evaluating the financial performance of companies.

Results indicate that there is a strong negative and significant relationship between debt ratios and performance measures of Iranian firms (ROA and ROE). Debt ratio will determine the financial health of companies. This ratio helps investors to identify risk rate for companies. The company that has a high debt ratio will have a negative impact on firm performance and value. Considering that the mean of debt ratio for studied companies is higher than 65%, so effect on their financial performance. Remarkably, Iranian companies by reducing the debt ratio can increase profitability and thus improved ROA and ROE measures.

Also, results show that there is a significant and positive relationship between variables of asset turnover ratio, firm size, and assets tangibility and growth opportunities with measures of the financial performance of companies (ROA and ROE). Given this relationship, it can be noted that these four control variables are the affecting factors on the financial performance of companies. There is no significant relationship between firm age (activity history) and performance measures. This can indicate this issue that long activity history for Iranian companies has no effect on their performance and these companies during financial period seek to business activities which increase the firm profit and thus the shareholders wealth. The results of model 2 show, the companies belonging to the industries of other non-metallic mineral products (IND DUM2), food products and beverages (IND DUM4), basic metals (IND DUM5) and automobile and manufacturing parts (IND DUM12) have negative and significant effect and the companies belonging to materials and chemical products industry (IND DUM3) has positive and significant effect on financial performance.

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**Table 1:** investigated Industry in research

Rows	Industry name	The number of selected companies	Symbol
1	mining	4	IND DUM1
2	other non-metallic mineral products	18	IND DUM2
3	materials and chemical products	14	IND DUM3
4	types of food products and beverages	11	IND DUM4
5	basic metals	6	IND DUM5
6	Machinery and equipment manufacturing	5	IND DUM6
7	Machinery and electrical equipment	4	IND DUM7
8	rubber and plastic	3	IND DUM8
9	metal products manufacturing	3	IND DUM9
10	petroleum products, coke and nuclear fuel	1	IND DUM10
11	Textiles	1	IND DUM11
12	automobile and manufacturing parts	10	IND DUM12

**Table 2:** Calculation of variables used in the research

The variable name	Calculating method
<i>Dependent variables</i>	
Return on assets	net income/ total asset
Return on equity	net income/ number of common shares issued
<i>Independent variable</i>	
Debt ratio	total debt/ total asset
<i>Control variables</i>	
Asset turnover ratio	net sales/ total asset
firm size	Natural logarithm of total assets of company
Firm age	Number of activity years since establishment of company up to observation date
Assets tangibility	net fixed assets/ total assets
Growth opportunities	change in the natural logarithm of total assets of the company
<i>Dummy variable</i>	
Industry sector	Dummy variable 1 and 0 while firm dependency to given industry in research give 1 value and otherwise give 0 values.

**Table 3:** Descriptive Statistics Data

	ROA	ROE	DR	TURN	SIZE	AGE	TANG	GROW
Mean	0.1015	638.891	0.652	0.7956	13.354	34.15	0.299	0.0987
Std. Dev	0.1173	861.225	0.247	0.42703	1.497	12.395	0.190	0.188
Skewness	0.432	-0.539	1.768	1.469	1.169	-0.281	1.025	0.140
Kurtosis	2.411	5.925	9.998	3.252	2.602	-1.170	1.526	2.942
Range	0.86	7413.35	2.35	2.81	9.71	46.00	1.17	1.61
Minimum	-0.32	-4051.28	0.01	0.03	9.88	9	0.00	-0.67
Maximum	0.54	3362.07	2.36	2.84	19.59	55	1.17	0.94
Sum	37.56	236389.70	241.08	294.39	4940.91	12637	110.76	36.51
N Valid	400	400	400	400	400	400	400	400
Missing	0	0	0	0	0	0	0	0

**Table 4a:** Pearson Correlation of Return on Assets (ROA) as dependent variable

	ROA	DR	TURN	SIZE	AGE	TANG	GROW
<b>ROA</b>	1						
Sig	.						
<b>DR</b>	-0.519**	1					
Sig	0.000	.					
<b>TURN</b>	0.147**	0.059	1				
Sig	0.005	0.260	.				
<b>SIZE</b>	0.199**	0.004	-0.148**	1			
Sig	0.000	0.941	0.004	.			
<b>AGE</b>	-0.026	0.115*	-0.018	0.097	1		
Sig	0.619	0.027	0.726	0.063	.		
<b>TANG</b>	0.132*	0.072	-0.006	0.050	0.026	1	
Sig	0.011	0.169	0.912	0.335	0.625	.	
<b>GROW</b>	0.237**	-0.177**	-0.078	0.202**	-0.051	-0.101	1
Sig	0.000	0.001	0.134	0.000	0.332	0.053	.

\*\* Correlation is significant at 1% level (2-tailed).

\* Correlation is significant at 5% level (2-tailed).

**Table 4b:** Pearson Correlation of Return on Equity (ROE) as dependent variable

	<b>ROE</b>	<b>DR</b>	<b>TURN</b>	<b>SIZE</b>	<b>AGE</b>	<b>TANG</b>	<b>GROW</b>
<b>ROE</b>	1						
Sig	.						
<b>DR</b>	-0.299**	1					
Sig	0.000	.					
<b>TURN</b>	0.070	0.059	1				
Sig	0.176	0.260	.				
<b>SIZE</b>	0.245**	0.004	-0.148**	1			
Sig	0.000	0.941	0.004	.			
<b>AGE</b>	0.045	0.115*	-0.018	0.097	1		
Sig	0.391	0.027	0.726	0.063	.		
<b>TANG</b>	0.065	0.072	-0.006	0.050	0.026	1	
Sig	0.210	0.169	0.912	0.335	0.625	.	
<b>GROW</b>	0.319**	-0.177**	-0.078	0.202**	-0.051	-0.101	1
Sig	0.000	0.001	0.134	0.000	0.332	0.053	.

\*\* Correlation is significant at 1% level (2-tailed).

\* Correlation is significant at 5% level (2-tailed).

**Table 5:** Regression results (model 1)

	ROA			ROE		
	$\beta$	t	p	$\beta$	t	p
<b>DR</b>	-0.248	[-12.522]	(0.000)	-971.381	[-5.913]	(0.000)
<b>TURN</b>	0.060	[5.308]	(0.000)	279.406	[2.973]	(0.003)
<b>SIZE</b>	0.015	[4.593]	(0.000)	117.186	[4.264]	(0.000)
<b>AGE</b>	0.000	[.537]	(0.591)	4.860	[1.503]	(0.134)
<b>TANG</b>	0.108	[4.261]	(0.000)	450.895	[2.145]	(0.033)
<b>GROW</b>	0.088	[3.311]	(0.001)	1155.739	[5.259]	(0.000)
<b>R square</b>	0.398			0.233		
<b>Adjusted R square</b>	0.388			0.221		
<b>F-Statistics</b>	40.055			18.412		
<b>Prob(F-statistic)</b>	0.000			0.000		
<b>Number of observation</b>	400			400		
<b>Durbin Watson</b>	1.130			1.563		

t- Statistics are shown in the form [ ].

p- Values are in the form ( ).

**Table 6:** Regression results (model 2)

	ROA			ROE		
	$\beta$	t	p	$\beta$	t	p
<b>DR</b>	-0.230	[-10.939]	(0.000)	-819.143	[-4.595]	(0.000)
<b>TURN</b>	0.089	[6.627]	(0.000)	383.989	[3.364]	(0.001)
<b>SIZE</b>	0.017	[4.463]	(0.000)	123.250	[3.925]	(0.000)
<b>AGE</b>	0.000	[.295]	(0.768)	4.840	[1.329]	(0.185)
<b>TANG</b>	0.118	[4.101]	(0.000)	434.503	[1.780]	(0.076)
<b>GROW</b>	0.079	[3.091]	(0.002)	1097.339	[5.060]	(0.000)
<b>IND DUM1</b>	0.012	[0.488]	(0.626)	258.975	[1.209]	(0.228)
<b>IND DUM2</b>	-0.041	[-1.613]	(0.108)	-589.672	[-2.770]	(0.006)
<b>IND DUM3</b>	0.013	[2.511]	(0.012)	120.076	[2.738]	(0.006)
<b>IND DUM4</b>	-0.014	[-3.061]	(0.002)	-39.335	[-0.984]	(0.326)
<b>IND DUM5</b>	-0.008	[-1.846]	(0.066)	-59.592	[-1.572]	(0.117)
<b>IND DUM6</b>	0.001	[0.175]	(0.861)	-21.542	[-0.763]	(0.446)
<b>IND DUM7</b>	0.005	[1.317]	(0.189)	8.434	[0.289]	(0.773)
<b>IND DUM8</b>	0.000	[0.131]	(0.896)	-5.113	[-0.189]	(0.850)
<b>IND DUM9</b>	-0.001	[-0.220]	(0.826)	-10.573	[-0.392]	(0.696)
<b>IND DUM10</b>	-0.003	[-0.786]	(0.432)	-9.978	[-0.276]	(0.782)
<b>IND DUM11</b>	-0.004	[-0.952]	(0.342)	-21.436	[-0.673]	(0.501)
<b>IND DUM12</b>	-0.003	[-1.767]	(0.078)	-14.259	[-0.959]	(0.338)
<b>R square</b>	0.462			0.284		
<b>Adjusted R square</b>	0.436			0.250		
<b>F-Statistics</b>	17.812			8.225		
<b>Prob(F-statistic)</b>	0.000			0.000		
<b>Number of observation</b>	400			400		
<b>Durbin Watson</b>	1.211			1.633		

t- Statistics are shown in the form [ ].

p- Values are in the form ( ).