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THE RELATIONSHIP BETWEEN FIRM SIZE AND GROWTH OPPORTUNITIES, AND COMPARISON OF CHANGES IN DEBT AND RETAINED EARNINGS

***Roya Darabi¹, Reza Ataeizadeh², Behnam Amin Pour Mamaghan¹, Seyyed Mohammad Ali Mirmasoumi¹ and Maghsoud Esmail zadeh³**

¹Department of Accounting, South Tehran Branch, Islamic Azad University, Tehran, Iran

²Department of Researchers and Elite club, Ardabil Branch, Islamic Azad University, Ardabil, Iran

³Department of Management, Germe Branch, Islamic Azad University, Ardabil, Iran

*Author for Correspondence

ABSTRACT

The purpose of this research study the relationship between firm size and growth opportunities, comparison of changes in debt and retained earnings in the company of the stock exchange has been accepted in Tehran stock during the 2006 to 2011 is to collect theory method of library and to collect financial information the financial values of the company and for analysis of method panel has been used. The results show that no meaningful relationship between the agent and company as much as growth opportunity Companies with debt changes and there is profit accumulated.

Keywords: *Growth Opportunities, Firm Size, the Ratio of Debt Changes, Ratio of Changes in Retained Earnings*

INTRODUCTION

The modern theory of capital structure began with the famous proposition of Modigliani and Miller (1958) that described the conditions of capital structure irrelevance. Since then, many economists have been changing these conditions to explain factors driving capital structure decisions. Harris and Raviv (1991) synthesized major theoretical literature in the field, related these to the known empirical evidence, and suggested promising avenues for future research. They argued that asymmetric information theories of capital structure are less promising than control-based or product-based theories. The financial crisis of 2008-2009 forces to look critically at the modern level of capital structure theory. The problems of many companies were related to their financing policies. The role of asymmetric information and agency problems has to be understood better. The market for mortgage-backed securities which many believe was in the core of financial crisis was full of asymmetric information between investors and issuers. Numerous scandals including the Bernie Mad off's one illustrate the depth of agency problems in finance. At the same time, old ideas about the link between taxes, bankruptcy costs and capital structure were not receiving enough attention in theoretical literature until recently while managers' surveys systematically reveal their practical importance. (Miglo, 2010)

Therefore, the debt is one of the main components of the capital structure of most firms, which plays an important role in managing financing of companies. Criteria of company growth are considered a crucial tool for management decisions. Therefore, identifying factors affecting growth of the company is one of the most sensitive and important issues. Most previous researches investigated company's growth factor with a factor, but in this paper, we focus on mentioned issues, we are looking for finding a convenient and effective relationship between several factors influencing the growth of the firm, and its relation to retained earnings and changes ratios in debt. Finally, the main research question of research is that whether its growth parameters have impact on (growth opportunities, firm size) on the changes ratio in debt and retained earnings of companies or not. The main purpose of this study is to find the relationship between various factors of the company's growth and sustainability of firms' capital structure.

Review of Literature

Byoun (2009) has done a study in America entitled "How and when companies change capital structure to the determined targets?" The population consists of all companies in America during the period 1971 to

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2003, which following previous studies, finance companies and utility companies were removed from the sample. The results showed that the majority of changes in capital structure, occurs when companies have excess cash and their debt level is higher than debt capacity specified in the Company, When companies have a cash deficit and their debt level is lower than the debt capacity specified in the Company, or when they have excess cash and their debt is lower than their debt capacity determined by the company, the speed of these changes is reduced. Also, the rate of change in the capital structure of companies that have surplus cash and their debt is higher debt capacity determined by the company is higher than the rate of changes in companies that have a cash deficit and their debt is lower than debt capacity determined of the company and this may be because changes costs resulting from reduced debt is lower than costs which will only use for increase the debt.

Byoun concluded that companies that have the debt lower than capacity in comparison with companies which have higher debt than capacity, use debt for financing.

Makouyra and colleagues (2012) in a study entitled "Capital budgeting, cost of capital and capital structure", investigated the relationship between three variables on the stock exchange in Latin America. They studied Budgeting 290 active firms based on the LATAM method in connection with cost and capital structure. They compared the results of their analysis with previous studies. They have been studied and compared particular characteristics and budgeting differences in the two markets, emerging and SME markets.

They observed that companies with budgeting structure use LATAM method and standard capital, but there is not specific weight which analyzes liquidity and capital rationing.

Bagheri (2009) has investigated the impact of financing methods on the yield and price of shares of listed companies in Tehran Stock Exchange. In this study, to find how effect of financing methods on prices and Stock returns in listed companies in Tehran Stock Exchange, three hypotheses have been designed. The first hypothesis, financing through retained earnings more than borrowing on the stock price of listed companies (cement industry) is effective.

The second hypothesis, financing through retained earnings (reserves) more than borrowing on stock returns is effective. The results of the first and second hypothesis suggest that the impact of financing method through retained earnings more than borrowing on stock returns and price is effective. In the second hypothesis, the average annual total returns of companies which have financed through retained earnings (reserves) are more than the average annual total returns of firms that have financed through borrowing.

Ahangar (2009) studied the various methods of financing of listed companies in Tehran Stock Exchange on the stock return. In this study, the effect of external sources of financing (issuing ordinary shares and receiving loan) on companies listed on stock returns between (2002 -2007) was examined. In this study, the effect of increasing investment and getting a Loan on the annual returns of 156 firms that use both the financial resources (issuing ordinary shares and receiving loan), were compared with each other. Statistical analysis showed there is no significant relationship between stock issuing and stock returns, but there is relationship between getting a loan and stock return. Meanwhile, there is no significant relationship between two methods of getting a loan and stock issuing.

Theoretical Literature of Research

According to the theory of stable equilibrium, growing companies in bankruptcy more than other lose their value. Several theories which have been proposed in the theory of agency costs, have confirmed this negative relationship. In contrast, the hierarchy theory of financing options suggests that we expect firms with high investment projects, over time, have accumulated a lot of debt (Kimiagari *et al.*, 2008).

Theoretically, the relationship between firm size and financial leverage is not clear. According to ISNA balance model, larger firms have greater debt capacity. Also, larger companies usually have more diversity, and therefore, have more stable cash flows. Stability of cash reduces the risk and their bankruptcy. They also during the use of debt, have more bargaining power, and can reduce transaction costs associated with the release of long-term debt. Another possibility is that larger companies have more diverse shareholders causing less control over the management of the company. Thus it is likely that

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managers for reducing the risk of personal loss arising from bankruptcies use more debt. However, when the size of the company as a risk default variable, is considered, where the costs of financial distress is trivial, should not there is a significant positive relationship between financial leverage and firm size (Kordestani and Najafi, 2008).

The Hypothesis of the Research

1. There is a significant relationship between company's growth opportunities and debt changes ratio of companies.
2. There is a significant relationship between Changes in firm size and the ratio of debt changes of companies.
3. There is a significant relationship between growth opportunities of the company and changes ratio in retained earnings of companies.
4. There is a significant relationship firm size and the ratio of the changes in retained earnings of the companies.

MATERIALS AND METHODS

Methodology

Present study in terms of nature and content is Correlation study, and in terms of type of work is a research study and in terms of purpose in a applicable study, and as well as in terms of the method for doing research is in the framework of deductive-inductive reasoning.

To study theoretical foundations and literature review, the library method with using books and papers and theses have been used, and information needed is extracted from financial statements of listed companies on the Stock Exchange.

The population of the study is all listed companies in Tehran Stock Exchange during the period of 2006-2011, of the 520 companies listed in Tehran Stock Exchange, which meet all of the following criteria:

- 1 - To March 2006 are listed, and their names until the end of March 2012 from the list of listed companies are not removed.
- 2 - During the desired period, their shares are traded actively on an exchange.
- 3 - Their financial period must be ended 29 March, and in the course of the study, the financial terms have not changed.
- 4 - They are not among financial intermediation companies (investment, holding, leasing, and banking and insurance) because of their different performances.
- 5 - The information you need is available.

In this study, 101 companies as sample are selected.

In this study, to evaluate and determine the appropriate model, panel data method of Chow test using, Hausman test is used and to test the significance of the model, the F statistic and for significance of the coefficients, T-statistics and for normalizing variables, Kolmogorov-Smirnov test is used and software Spss 20, Eviews7 and Minitab16 are used for analysis.

Variables of Research

Independent Variable

Opportunities for growth: the ratio of market value to book value (Cheng *et al.*, 2009)

$$M/B_{i,t} = \frac{\text{The value of stock market}}{\text{Book value of total assets}}$$

Firm Size ($\text{Size}_{i,t}$): is equal to the natural logarithm of the book value of total assets (Wu and Xu, 2005).

Dependent Variables

The ratio of changes in retained earnings ($\text{GRE}_{i,t}$): This formula is derived from the research of Graham and Harvey (2001):

$$\text{GRE}_{i,t} = \frac{\text{retained earnings at end of year } t - \text{retained earnings at end of year } (t-1)}{\text{Book value of total assets}}$$

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$$GRE_{i,t} = \frac{\text{retained earnings at end of year } t - \text{retained earnings at end of year } (t-1)}{\text{Book value of total assets}}$$

Control Variables

Tangible Assets Ratio: The net ratio of property and machines and equipment over book value of assets (Pastor and veronesi, 2003)

$$Tang_{i,t} = \frac{\text{Net property of machines and equipment}}{\text{Book value of total assets}}$$

Investment Policy: According to the following formula is obtained: (Wu and *et al.*, 2005).

$$INV_{i,t} = \frac{\text{Capital expenditure}}{\text{Book value of total assets}}$$

Dividend: It is dummy variable that if the company has paid a cash dividend, it is equal to 1, and otherwise equal to zero. (Baker and Wurgler, 2002)

The ratio of cash assets: Cash assets divided by book value of total assets is calculated by the following formula (Stein, 1996).

$$CashHolding_{i,t} = \frac{\text{Cash assets}}{\text{Book value of total assets}}$$

Sales growth rate of company (SG_{i,t}): This formula is derived from the research of Cooney *et al.*, (1993).

$$SG_{i,t} = \frac{S_{i,t} - S_{i,t-1}}{S_{i,t-1}}$$

SG_{i,t}: Sales growth of firm i in year t

S_{i,t}: Net sales of firm i in year t

S_{i,t-1}: Net sales of firm i in year t-1

Descriptive Statistics for Research Variables

In this section, using Pearson's correlation coefficient, the relationship between variables of research and the correlation between them is examined. Matrix of correlation coefficients between variables is presented in table 4. Based on the results of the Pearson statistic, the ratio of changes in debt of companies has significant and positive correlation with firm size, and the ratio of cash assets has significant and negative correlation with investment policy. The ratio of changes in retained earnings also has significant and positive correlation with dividend and has significant and negative correlation with the investment policy. Growth opportunities have significant and positive correlation with and the ratio of tangible assets. Tangible assets ratio also has significant and negative correlation with investment policy, and the ratio of cash assets and the investment policy also has significant and positive correlation with the ratio of cash assets.

Table 1: Descriptive statistics of variables of Research

Elongation	Skewness	The maximum amount	The Minimum amount	Standard deviation	Average	Number of observations	Variable
56.029	-4.253	0.8985	-2.8086	0.2114	0.0507	606	The ratio of changes in the debt
16.168	-1.701	0.5119	-0.9446	0.1069	0.0052	606	The ratio of changes in retained earnings
9.387	-2.231	4.5546	-3.0076	1.0068	1.0068	606	Growth opportunities
0.145	0.499	2.0781	1.5383	0.1018	0.1018	606	Company size
0.391	0.859	0.8786	0.0008	0.1889	0.1889	606	Tangible assets ratio
46.689	4.616	0.4803	0.0000	0.0348	0.0348	606	Investment policy

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-0.474	-1.226	1.0000	0.0000	0.4259	0.4259	606	Dividend
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According to table 1, the average ratio of changes in debt and the ratio of changes in retained earnings of sample companies has been 0.0507 and 0.0052, and minimum and maximum values, respectively, has been -2.8086 and 0.8985. Evaluation of sleekness and elongation of this variable, which should be 0 and 3, to variable has normal distribution indicates that this variable does not has normal distribution. Based on the descriptive statistics presented in table 1, the average variables of growth opportunities and firm size, sample companies during the positive period, respectively are 1.0068, and 0.1018. The positive mean the ratio of Tangible assets, investment policy, dividend, ratio of cash assets and the growth rate of sales respectively are 0.1889, 0.0348, 0.4259, 0.2179 and 2.0804.

Test for Normal Distribution of The Dependent Variable Of Research

In this study, this issue through Kolmogorov-Smirnov (KS) is investigated. H1 and null hypothesis in this test is as follows:

- { H_0 : Normal Distributon
- { H_1 : Not Normal Distribution

Of the level of significance of the test statistic is more than 0.05 (Prob> 0.05), H0 hypothesis based on normal variable distribution will be accepted. In table 2, the K-S Statistics results for factors of the ratio of changes in debt and changes in retained earnings ratio of companies in the sample are provided.

Table 2: The results of normality test of dependent variable of research

Significance level (Sig)	Statistics (KS)	Number (N)	Variable
0.000	2.507	606	The ratio of Changes in the debt
0.000	4.322	606	The ratio of changes in retained earnings

Given that, for a variables of ratio of changes in debt and the ratio of changes in retained earnings, significance level of K-S Statistics is less than 0.05, therefore, H0 hypothesis based on normal variable distribution is rejected at the 95% confidence level, indicating that the variables of the ratio of changes in debt and the ratio of changes in retained earnings don't normal distribution. Being normal of dependent variable is necessary condition for regression models, so it is necessary that before hypothesis test, this variable is normalized. In this study, for normalizing data, Johnson's Transformation function is used, and it is analyzed by software Minitab16. The results of the K-S test, after normalizing the data, are provided in table 3

Table 3: The results of normality test of Dependent variables after normalization process

Significance level (Sig)	Statistics (KS)	Number (N)	Variable
0.967	0.495	606	The ratio of Changes in the debt
0.812	0.637	606	The ratio of changes in retained earnings

According to table 3, since after normalizing data, significance level (Sig) of statistic Kolmogorov - Smirnov for the dependent variable is greater than 0.05 (0.967, 0.812), thus the hypothesis at 95% confidence level is confirmed and indicates that the variables of ratio of changes in debt and ratio of changes in retained earnings, after normalization process, have normal distribution.

The Investigation of Correlation Variables

In this section, using Pearson's correlation coefficient, the relationship between variables of research and the correlation between them is examined. Matrix of correlation coefficients between variables is presented in table 4. Based on the results of the Pearson statistic, the ratio of changes in debt of companies has significant and positive correlation with firm size, and the ratio of cash assets has

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significant and negative correlation with investment policy. The ratio of changes in retained earnings also has significant and positive correlation with dividend and has significant and negative correlation with the investment policy. Growth opportunities have significant and positive correlation with and the ratio of tangible assets. Tangible assets ratio also has significant and negative correlation with investment policy, and the ratio of cash assets and the investment policy also has significant and positive correlation with the ratio of cash assets.

Table 4: The matrix of Pearson correlation coefficients between variables

Rate of sales growth	The ratio of cash assets	Dividend	Investment policy	The ratio of Tangible assets	Firm size	Growth opportunities	The ratio of changes in retained earnings	The ratio of changes in debt
								1
							0.043	The ratio of changes in retained earnings (P-Value)
						1	(0.291)	(P-Value)
							0.025	Growth opportunities (P-Value)
					1		(0.541)	(0.753)
							-0.005	Firm size (P-Value)
					1		(0.899)	(0.852)
							-0.045	The ratio of Tangible assets (P-Value)
				1			0.090	(0.398)
							-0.132	Investment policy (P-Value)
			1				(0.001)	(0.000)
							0.030	Dividend (P-Value)
		1					(0.463)	(0.274)
							0.075	The ratio of cash assets (P-Value)
		1					(0.063)	(0.032)
							0.200	The ratio of sales growth (P-Value)
							((0.000)	(0.000))
							(0.000)	(0.090)
							-0.026	
		1					(0.525)	
							0.004	
							(0.920)	
							-0.043	
							(0.290)	
							0.002	
							(0.952)	
							0.052	
							(0.203)	
							-0.019	
							(0.641)	
							0.064	
							(0.114)	
							0.014	
							(0.722)	

Results of Hypothesis Testing

Test Results of the First Research Hypothesis

The aim of the test of the first hypothesis is to investigate relationship between firm growth opportunities and the ratio of changes in debt of companies, and its statistical hypothesis is defined as follows:

H_0 : There is no significant relationship between growth opportunities and the ratio of changes in debt of companies.

H_1 : There is a significant relationship between growth opportunities and the ratio of changes in debt of companies.

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This hypothesis using the model (1) as the panel data is estimated, and if the coefficient β_1 is significant at a confidence level of 95%, it will be confirmed.

$$GD_{i,t} = \beta_0 + \beta_1 M / B_{i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \quad (1)$$

To determine that whether the use of panel data in estimation of the model would be effective or not the Chow test or F-bound and in order to determine which method (fixed effects or random effects) to estimate is more appropriate (for detection Fixed or random differences of sectional units) Housman test is used. The results of these tests are presented in table 5.

Table 5: The results of Chow and Housman test for model (1)

P-Value	Degrees of freedom	Statistics value	Statistics	Number	Test
0.0000	(100.499)	1.8799	F	606	Chow
0.0000	6	78.6082	χ^2	606	Hausman

According to the results of the Chow test and its P-Value (0.0000), the hypothesis H_0 is rejected at the 95% significance level, indicating that panel data method can be used. Also according to the results of the Hausman test and its P-Value (0.0000) which is less than 0.05, is the hypothesis H_0 is rejected at the 95% significance level, and the hypothesis H_1 is accepted, so, it is necessary that model using fixed effects be estimated. Jarque-Bera test results indicate that the remaining obtained from evaluation of research model at 95% confidence level, have normal distribution, so that the probability of this test (0.18541) is greater than 0.05. Another classical regression assumption is consistency of variance of the remaining. If, variances are dissimilar, then estimator doesn't have the least variance. In this study, to investigate the homogeneity of variances, test Breusch-Pagan was used.

Given the significance level of the test which is less than 0.05 (0.0412), H_0 hypothesis based on homogeneity of variance is rejected, and can be said that this model has variance anisotropy problem. In this study, to solve this problem, generalized least squares estimation (GLS) is used. In this study, to test not correlated residuals which is one of the assumptions of regression analysis, and is called Autocorrelation, the Durbin-Watson test (D-W) is used.

According to preliminary results from the model, whereas the Durbin-Watson statistic is 2.38, and since it is between 1.5 and 2.5, it can be concluded that the residuals are independent. In addition, to test whether the model has linear relationship and whether this model in terms of being linear or not, is explained properly, Ramsey test is used.

Given that confidence level of the Ramsey test (0.1574) is greater than 0.05, so the hypothesis H_0 of this test about model's linearity is confirmed and the model does not have clear error. Summary results of these tests are presented in table 6.

Table 6: The results of test related to the statistical assumptions of the model (1)

Jarque-Bera statistic		Breusch-Pagan test		Durbin-Watson statistic	Ramsey test	
χ^2	P-Value	F	P-Value	D	F	P-Value
1.3810	0.1854	2.2031	0.0412	2.38	4.9412	0.1574

According to the results of Chow and Hausman test, and also the results of test the assumptions of the classical regression, model (1) using panel data and as fixed effects be estimated. The results are presented in table 7. The model is estimated using Views 7 software as follows:

$$GD_{i,t} = -0.1971 + 0.0147M / B_{i,t} + 0.2944Tang_{i,t} - 2.6609Inv_{i,t} - 0.0279DivPayer_{i,t} + 0.5208CashHolding_{i,t} + 0.0013SG_{i,t} + \varepsilon_{i,t}$$

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Table 7: Results of first hypothesis testing using fixed effects

The dependent variable: the ratio of changes in debt				
Number of views: 606 companies- year				
Variable	Coefficient	Statistics t	P-Value	Relationship
Fixed component	-0.1971	-2.9400	0.0034	Negative
Growth opportunities	0.0147	2.3643	0.0184	Positive
The ratio of Tangible assets	0.2944	3.9259	0.0001	Positive
Investment policy	-2.6609	-7.4392	0.0000	Negative
Dividend	-0.0279	-2.4018	0.0167	Negative
The ratio of the cash assets	0.5208	6.1182	0.0000	Positive
Rate of sales growth	0.0013	0.2424	0.8086	Meaningless
The determination coefficient of model				0.3013
StatisticsF				2.0308
(P-Value)				(0.0000)

In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 30.13 percent of ratio of changes in debt of companies is explained by the variables entered in the model. In investigation of being significant of coefficients given the results presented in table 7, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0184), therefore, it is confirmed that there is significant relationship between growth opportunities and ratio of changes in debt at the 95 percent confidence level. A positive coefficient for this variable (0.0147), indicating that there is a direct relationship between growth opportunities and the ratio of changes in debt of companies.

Test Results of the Second Research Hypothesis

In the second hypothesis, the relationship between firm size and the ratio of the changes in debt of companies are also studied, and its statistical hypothesis is stated as follows:

H_0 : There is no significant relationship between Firm size and the ratio of changes in debt of companies.

H_1 : There is a significant relationship between Firm size and the ratio of changes in debt of companies.

This hypothesis using the model (2) as the panel data is estimated, and if the coefficient β_3 is significant at a confidence level of 95%, it will be confirmed.

$$GD_{i,t} = \beta_0 + \beta_3 LnSize_{i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \quad (2)$$

The results of the Chow test (to determine the use of panel data or hybrid data method) and Hausman (to determine the use of fixed or random effects in the method of panel data) for model (2), are presented in Table 8.

Table 8: The results of Chow and Hausman test for model (2)

P-Value	Degrees of freedom	Statistics value	Statistics	Number	Test
0.0000	(100.499)	2.1058	F	606	Chow
0.0000	6	94.2436	χ^2	606	Hausman

According to the results of the Chow test and P-Value, panel data methods can be used, and also according to the results of Hausman test and P-Value, it is necessary to estimate the model using fixed effects. In investigation of assumptions of the classical regression, the results of Jarque-Bera indicate that, the remaining of the research model at 95% confidence level have normal distribution, and Breusch-Pagan test results based on this issue that model has problem of non-homogeneity of variance. In this study, to solve this problem, generalized least squares estimation (GLS) is used. Statistic of Durbin-

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Watson also indicates that the residuals are independent (because Durbin-Watson Statistics is between 1.5 - 2.5). In addition, Ramsey test results indicate that the model does not have clear error. Summary results of these tests are presented in Table 9.

Table 9: The results of test related to the statistical assumptions of the model (2)

Jarque-Bera statistic	Breusch-Pagan test	Durbin statistic	Watson	Ramsey test		
χ^2	P-Value	F	P-Value	D	F	P-Value
1.5111	0.3254	2.1456	0467/0	2.39	3.7755	0.2235

According to the results of Chow and Hausman tests, and also the results of test the assumptions of the classical regression, model (2) using panel data and as fixed effects be estimated. The results are presented in Table 10.

Table 10: The results of the second hypothesis test using fixed-effects method

The dependent variable is the ratio Changes in debt

Number of views: 606 years - now

Variable	Coefficient	Statistics t	P-Value	Relation
Fixed component	-2.8400	-7.5335	0.0000	Negative
Growth opportunities	1.5280	609159	0.0000	Positive
The ratio of Tangible assets	0.2535	3.4479	0.0006	Positive
Investment policy	-2.6715	-7.6429	0.0000	Negative
Dividend	-0.0172	-1.5060	0.1327	Meaningless
The ratio of the cash assets	0.3902	4.5103	0.0000	Positive
Rate of sales growth	0.0014	0.2513	0.8016	Meaningless
The determination coefficient of model				0.3478
Statistics F				2.5109
(P-Value)				(0.0000)

The model is estimated using E views 7 software as follows:

$GD_{i,t} = -2.8400 + 1.5280LnSize_{i,t} + 0.2535Tang_{i,t} - 2.6715Inv_{i,t} - 0.0172DivPayer_{i,t} + 0.3902CashHolding_{i,t} + 0.0014SG_{i,t} + \varepsilon_{i,t}$ In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 34.78 percent of ratio of changes in debt of companies is explained by the variables entered in the model. In investigation of being significant of coefficients given the results presented in Table 10, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0000), therefore, it is confirmed that there is significant relationship between Firm size and ratio of changes in debt at the 95 percent confidence level. A positive coefficient for this variable (1.5280), indicating that there is a direct relationship between Firm size and the ratio of changes in debt of companies.

Test Results of the Third Research Hypothesis

In the third hypothesis, the relationship between growth opportunities and the ratio of Changes in retained earnings of companies is studied, and its statistical hypothesis is stated as follows:

H_0 : There is no significant relationship between growth opportunities and the ratio of Changes in retained earnings of companies.

H_1 : There is a significant relationship between growth opportunities and the ratio of Changes in retained earnings of companies.

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This hypothesis using the model (4) as the panel data is estimated, and if the coefficient β_1 is significant at a confidence level of 95%, it will be confirmed.

$$GRE_{i,t} = \beta_0 + \beta_1 M / B_{i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \quad (4)$$

The results of the Chow test (to determine the use of panel data or hybrid data method) and Hausman (to determine the use of fixed or random effects in the method of panel data) for model (4), are presented in Table 11.

Table 11: The results of Chow and Hausman results for model (4)

P-Value	Degrees of freedom	Statistics value	Statistics	Number	Test
0.0087	(100.499)	1.6054	F	606	Chow
0.0495	6	6.4038	χ^2	606	Hausman

According to the results of the Chow test and P-Value, panel data methods can be used, and also according to the results of Hausman test and P-Value, it is necessary to estimate the model using fixed effects. In investigation of assumptions of the classical regression, the results of Jarque-Bera indicate that, the remaining of the research model at 95% confidence level have normal distribution, and Breusch-Pagan test results based on this issue that model has problem of non-homogeneity of variance. In this study, to solve this problem, generalized least squares estimation (GLS) is used. Statistic of Durbin-Watson also indicates that the residuals are independent (because Durbin-Watson Statistics is between 1.5 - 2.5). In addition, Ramsey test results indicate that the model does not have clear error. Summary results of these tests are presented in Table 12.

Table 12: The results of test related to the statistical assumptions of the model (4)

Jarque-Bera statistic		Breusch-Pagan test		Durbin statistic	Watson	Ramsey test	
χ^2	P-Value	F	P-Value	D		F	P-Value
3.3482	0.1874	6.4049	0.0000	2.18		23.9161	0.1132

According to the results of Chow and Hausman tests, and also the results of test the assumptions of the classical regression, model (4) using panel data and as fixed effects be estimated. The results are presented in Table 13.

Table 13: The results of the third hypothesis test using fixed-effects method

The dependent variable ratio of Changes in retained earnings

Number of views: 606 years - now

Variable	Coefficient	Statistics t	P-Value	Relation
Fixed component	-0.0298	-1.1400	0.2548	Meaningless
Growth opportunities	-1.0006	-1.4349	0.0038	Negative
The ratio of Tangible assets	-0.0123	-0.4360	0.6630	Meaningless
Investment policy	-0.5377	-4.4987	0.0000	Negative
Dividend	0.0469	10.2654	0.0000	Positive
The ratio of the cash assets	0.0355	1.1074	0.2686	Meaningless
Rate of sales growth	0.0023	1.0319	0.3026	Meaningless
The determination coefficient of model				0.2870
Statistics F				1.8955
(P – Value)				(0.0000)

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The model is estimated using E views 7 software as follows:

In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 28.70 percent of ratio of Changes in retained earnings is explained by the variables entered in the model.

In investigation of being significant of coefficients given the results presented in Table 13, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0038), therefore, it is confirmed that there is significant relationship between Growth opportunities and ratio of Changes in retained earnings at the 95 percent confidence level.

A negative coefficient for this variable (-1.0006), indicating that there is an inverse relationship between Growth opportunities and ratio of Changes in retained earnings.

Test Results of the Fourth Research Hypothesis

The purpose of the fourth hypothesis is to examine asymmetric relationship between cash flows due to Firm size and the ratio of changes in retained earnings of the companies, and its statistical hypothesis is stated as follows:

H_0 : There is no significant relationship between Firm size and the ratio of changes in retained earnings of the companies.

H_1 : There is a significant relationship between Firm size and the ratio of changes in retained earnings of the companies.

This hypothesis using the model (6) as the panel data is estimated, and if the coefficient β_3 is significant at a confidence level of 95%, it will be confirmed.

$$GRE_{i,t} = \beta_0 + \beta_3 LnSiz_{e,i,t} + \beta_4 Tang_{i,t} + \beta_5 Inv_{i,t} + \beta_6 DivPayer_{i,t} + \beta_7 CashHolding_{i,t} + \beta_8 SG_{i,t} + \varepsilon_{i,t} \quad (6)$$

The results of the Chow test (to determine the use of panel data or hybrid data method) and Hausman (to determine the use of fixed or random effects in the method of panel data) for model (6), are presented in Table 14.

Table 14: The results of Chow and Hausman test for the model (6)

P-Value	Degrees of freedom	Statistics value	Statistics	Number	Test
0.0016	(100.499)	1.6749	F	606	Chow
0.0199	6	6.8950	χ^2	606	Hausman

According to the results of the Chow test and P-Value, panel data methods can be used, and also according to the results of Hausman test and P-Value, it is necessary to estimate the model using fixed effects. In investigation of assumptions of the classical regression, the results of Jarque-Bera indicate that, the remaining of the research model at 95% confidence level have normal distribution, and Breusch-Pagan test results based on this issue that model has problem of non-homogeneity of variance.

In this study, to solve this problem, generalized least squares estimation (GLS) is used. Statistic of Durbin-Watson also indicates that the residuals are independent (because Durbin-Watson Statistics is between 1.5 - 2.5).

In addition, Ramsey test results indicate that the model does not have clear error. Summary results of these tests are presented in Table 15.

Table 15: The results of test related to the statistical assumptions of the model (6)

Jarque-Bera statistic		Breusch-Pagan test		Durbin statistic	Watson	Ramsey test	
χ^2	P-Value	F	P-Value	D		F	P-Value
3.1077	0.2114	5.8643	0.0000	2.01		22.4094	0.1612

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According to the results of Chow and Hausman tests, and also the results of test the assumptions of the classical regression, model (6) using panel data and as fixed effects be estimated. The results are presented in Table 16.

Table 16: The results of the fourth hypothesis test using fixed-effects method

The dependent variable ratio of Changes in retained earnings				
Number of views: 606 years - now				
Variable	Coefficient	Statistics t	P-Value	Relation
Fixed component	-0.3730	-2.9809	0.0030	Negative
Growth opportunities	1.1995	2.8131	0.0051	Positive
The ratio of Tangible assets	-0.0132	-0.4643	0.6426	Meaningless
Investment policy	-0.5200	-4.3414	0.0000	Negative
Dividend	0.479	10.6815	0.0000	Positive
The ratio of the cash assets	0.5844	0.5473	0.5844	Meaningless
Rate of sales growth	0.0020	0.8856	0.3762	Meaningless
The determination coefficient of model				0.2964
Statistics F				9
(P-Value)				(0.0000)

The model is estimated using Eviews 7 software as follows:

$GRE_{i,t} = -0.3730 + 1.1995LnSize_{i,t} - 0.0132Tang_{i,t} - 0.5200Inv_{i,t} + 0.0479DivPayer_{i,t} + 0.0178CashHolding_{i,t} + 0.0020SG_{i,t} + \varepsilon_{i,t}$ In investigation of being significant of model, given that the probability of F-statistic is smaller than 0.05 (0.0000), with 95% confidence, being significance of the model is confirmed. Determining coefficient of model also indicates that, 29.64 percent of ratio of Changes in retained earnings is explained by the variables entered in the model. In investigation of being significant of coefficients given the results presented in Table 16, since the possibility of t-statistic for variable coefficient of growth opportunities is smaller than 0.05 (0.0051), therefore, it is confirmed that there is significant relationship between Firm size and ratio of Changes in retained earnings at the 95 percent confidence level. A positive coefficient for this variable (1.1995), indicating that there is a direct relationship between Firm size and ratio of Changes in retained earnings.

CONCLUSION

In this study, we have examined the relationship between various measures of company growth and sustainability of the capital structure of listed companies in Tehran Stock Exchange with a total of 101 samples in 2006 to 2011. To gather information, the library method, and also for extracting statistical information, the audited financial statements of listed companies in Tehran Stock Exchange are used, and for analysis, panel data method is used. Using the first hypothesis can be concluded that there is a direct relationship between company's growth opportunities and the ratio of changes in debt. The result of the first hypothesis is in accordance with the significant relationship between the independent variable and dependent of research of Alti (2006), but in terms of the type of relationship (direct or inverse), it is related to the results of Cheng *et al.*, (2009) and it is inconsistent with the research of Graham and Harvey (2001). In relation to confirmation of the second hypothesis, it can be concluded that there is significant and direct relationship between Firm Size the ratio of changes in debt of companies. In relation to confirmation of the third hypothesis, it can be concluded that there is significant and inverse relationship between growth opportunities for the company and the ratio of changes in retained earnings of companies. In relation to confirmation of the fourth hypothesis, it can be concluded that there is significant and direct relationship between Firm size and the ratio of changes in retained earnings of companies. The results of fourth hypothesis of our study in terms of relationship are consistent with the results of some studies such

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as Liu (2009) and pastor and veronesi (2003), and it is inconsistent with the results of other research such as: Kachik and colleagues (1990).

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