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The Effect of Growth Opportunities on the Link between Capital Structure and Abnormal Stock Returns

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ABSTRACT

Growth opportunities are a kind of asset that increases the value of a firm but do not have collateral capability. On the other hand, an optimal capital structure creates a good balance between risk and return, and, in consequence, it leads to an increase in stock prices; however, return not proportional to tolerated risk causes a kind of abnormality in market, which is called abnormal return. The purpose of this study is to investigate the effect of growth opportunities on the relationship between capital structure and abnormal stock return of listed companies on Tehran Stock Exchange. For this purpose, a sample consisting of 212 firms was selected by systematic elimination sampling from 2010 to 2015. The research method is library and correlation. In this research, descriptive statistics and inferential statistics were used to analyze data. To test the hypotheses of the research, multivariate regression was used with pooled data approach by means of Eviews9 and Stata13. The result of the research shows that as growth opportunities and financial leverage increase, so does the possibility of earning abnormal return, but if the interaction between growth opportunities and capital structure increases, the possibility of earning abnormal return will decline.

JEL Classification: G23; H54.

Keywords: Growth Opportunity; Capital Structure; Abnormal Return.

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1. INTRODUCTION

Companies are always trying to develop their activities and spend all their liquidity on ways to increase sales and earn more profit. Therefore, to finance new investments and earn cash flow, one of their leading methods is to turn to capital markets. Invariably most companies are issuing new shares for the development of activities and implementation of development plans, due to limited banking system credit and the complexity of licensing procedures for issuing bonds. On the other hand, investors as suppliers of financial resources needed for economic units embark on investment with different motivations, which includes the use of cash benefits as well as ownership in these units. Therefore, what matters most for major economic units is an increase in shareholder wealth (Ebadi and Hasanpour, 2011). Modern capital structure theory was introduced in 1958 by Modigliani and Miller. The two researchers have shown that, despite a set of limiting assumptions, the value of a company is not affected by capital structure. Therefore, the result of their study suggests that financing method does not have any effect on company's activities because capital structure is irrelevant under these assumptions. Modigliani and Miller published an article in which company's tax free assumption was adjusted somewhat.

The difference in the manner of operation caused financial leverage to bring benefits and encouraged company to use loan. As a matter of fact, the two researchers demonstrated that if all of their assumptions are accepted, it will create conditions that requires 100% of needed cash to be provided from loan (Bulu et al., 2014). In this research, the attempt is to explore the effect of growth opportunities on abnormal return of Tehran Stock Exchange companies in the first place. To this end, Tobin's q is used. Afterward, the effect of capital structure on abnormal returns of the companies is examined.

By doing so, the interactive effect of these two on the companies' abnormal returns will be studied. Thus, the fundamental question of the research is whether growth opportunities affect the relationship between capital structure and abnormal stock returns of listed companies on Tehran Stock Exchange.

2. THEORETICAL BACKGROUND

Capital increase and abnormal stock returns is one of the decisions that always affects shareholders' wealth is decisions on financing, and, consequently, capital increase. The latter is fundamentally achieved by following resources:

1) Accelerate receivables of firm's current shareholders

2) Cash contribution

3) Reserves and accumulated profits

4) Stock premium

The notice of extraordinary general meeting for approval of capital increase as financial news can affect stock prices and, consequently, its returns. For example, newly established companies with limited capital and good growth opportunities will not be of concern to investors if they declare that they will provide the money they need from external resources, while in companies that are maturing or saturated, there are not many opportunities for growth; such a message would be of concern to investors (Myers and Maglev, 1984). Therefore, although asymmetric information affects all companies, its impact on different companies is tested and evaluated. Increasing capital from ordinary shares issuance has always been used as one of the essential ways of corporate financing. Considering that increasing firms' capital under various factors such as size of company, share return variance, capital increase and market conditions can provide different information load for investors (Ebadi and Hasanpour, 2011).

The company's capital structure is influenced by several internal and external factors. Internal factors are factors that influence the capital structure decisions of the company, and external factors are those factors that affect the capital structure decisions of the external environment (Sinai, 2007). The financing required to make firm's future plans or to improve firm's financial structure can be obtained from debt or equity. Excessive use of equity will increase shareholders' expected returns as well as the cost of corporate finance. In contrast, excessive use of debt in short or long term can increase company's financial risk and reduce its financial flexibility. Decision about determining the structure of a company's capital is not only shaping firm's personality, but it also has a significant impact on corporate managers' performance. Managers need to examine different financing methods according to company's risk and return, so that they can measure the impact of different financial structures on shareholders' wealth (Frank & Goyal, 2003). Various factors and variables can affect the efficiency and profitability of an enterprise by influencing the choice of optimal capital structure. Thus, the study of the influence of the structure of corporate financial resources, as well as the importance of companies in terms of the rate of performance, profitability, growth opportunities, size and type of activity that determines their diverse financial needs can determine the position of firm performance in financing markets and make managers aware of internal and external opportunities and threats that they face in these activities (Eriotis et al., 2007).

Lopez and Vecente (2010) showed that there is a negative relationship between profit sharing and company value in case of growth opportunities. They believe that the division of profits by company can reduce internal resources, increase the need for foreign resources, and ultimately reduce company value by assuming that information is symmetrical and growth opportunities exist. Therefore, it is expected there is a negative relationship between dividend and company value if growth opportunities exist. Vinh Vo and Ellis (2016) investigated capital structure and firm value in Vietnam. Their findings indicate that there is a negative relationship between financial leverage and companies' stock value. Their research also shows that only companies with small leverage can create value for shareholders. In a study entitled "information asymmetry and capital structure", Patachi (2015) concluded that companies with a high level of information asymmetry increase their debt levels compared with companies with a low level of information asymmetry. These results also suggest that managers adjust the ratio of target debt with higher reliance on the amount of debt with higher capital costs. James and Manikas (2014) studied the effect of dividend and its growth on cross-sectional data of abnormal return of potential stock.

Using the econometric technique Vector Autoregressive (VAR), they conclude that dividend per share growth is correlated with future changes in dividend yield, and there is the possibility that shocks recorded in a market affected the significant relationship between dividend per share and cross-sectional data of abnormal stock returns, making radical changes in their variances. Basu (1997) examined the relationship between cash flow management and financial performance in 1233 manufacturing companies in the United States during 2004-2011. The results of their research showed that the cycle of cash change has a significant negative relationship to Tobin's q ratio as firm's financial performance.

Foroughi and Rajavi Dastjerdi (2016) investigated market abnormalities and abnormal returns. For this purpose, four hypotheses were developed in this research and a sample of 74 companies listed on Tehran Stock Exchange was selected and reviewed during 2003-2013. The results show that the variables accruals of working capital, direction of stock returns, external financing and asset returns were able to significantly predict future earnings and future returns and growth in future returns in one direction. This suggests that the returns predicted by these variables are not abnormal returns and are fully consistent with rational expectations. Malekian and Salmani (2015) investigated the relationship between capital structure, dividend policy and cash holding. The results of the research show that there is a significant relationship between capital structure, dividend policy and cash holdings on Tehran Stock Exchange. Maleki and Jannani (2015) examined abnormal returns generated by annual earnings announcements regarding growth opportunities in companies listed on Tehran Stock Exchange. The results show that there is no significant relationship between abnormal returns and annual earnings announcements with regard to growth opportunities. Bulu et al. (2014) examined the relationship between abnormal returns and conservative accounting on Tehran Stock Exchange.

Basu (1997) in asymmetric timeliness of gain and loss criterion was used to measure conservatism and capital asset pricing models (CAPM) for the estimation of abnormal returns. Likewise, in order to adjust the main variables of the research, the criteria purchase and sale price gap of shares representing the effect of information symmetry on conservativism and percentage of institutional owners representing the influence of corporate governance on conservativism contributed to the study. The results of the research hypothesis test indicate that there is a significant negative relationship between abnormal returns and conservatism level. Moreover, the study of the effect of time lags on the research variables in successive years suggests that there is a cause and effect (reciprocal) relationship between the two main variables of the research, which suggests the significant contribution of the design of accounting standards in the performance of capital markets, adjustment of financing costs and, accordingly, the creation of a dynamic economy in the country. According to the research done and theoretical foundations, the research hypotheses were formulated as follows to answer the research questions:

H1: there is a significant relationship between growth opportunities and abnormal returns of stock companies.

H2: there is a significant relationship between capital structure and abnormal returns of companies.

H3: growth opportunities affect the relationship between capital structure and abnormal stock returns.

3. METHODOLOGY

Considering that the purpose of this research is to study the effect of a moderator variable and estimate the coefficients of the research variables, a forecasting model was presented, and panel data and multivariable regression were used to test the hypotheses. Collected data was prepared using Excel software and then used by Eviews and Stata software programs. The statistical sample of this study includes all companies (during 2010-2015) in the statistical population whose information needed for checking and testing the research hypothesis about them are available. The sample of the statistical population was selected by systematic exclusion method according to the following criteria:

1- companies must be listed on the stock exchange by March 20, 2009.

2- fiscal year of companies must end on March 19th.

3. companies should not change their fiscal year over the course of the study period.

4. information needed about companies should be made available.

5. they should not be part of companies active in intermediary, banking and insurance industry.

In the present study, considering the limitations mentioned, 212 companies were selected and studied as statistical sample.

To test the research hypotheses, the following multivariate regression model is used:

$$abret_{\text{it}} = \beta_0 + \beta_1 Lev_{it} + \beta_2 QT_{it} + \beta_3 Lev * QT_{it} + \beta_4 Salse_{it} + \beta_5 Size_{it} + \beta_6 Roa_{it} + \beta_7 Cfo_{it} + \varepsilon_{\text{it}} \quad (1)$$

Where:

R_{it}: stands for stock return

R_{mt} : stands for market return

$abret_{\text{it}}$: stands for abnormal stock return

Lev_{it}**:** stands for financial leverage

QT_{it}: stands for growth opportunity

Sale; stands for natural logarithm of sales divided by fixed assets

$Size_{it}$**;** stands for natural logarithm of asset

Roa_{it}; stands for asset

Cfo_{it}; stands for operating cash flow to fixed assets

Dependent variables are:

1- Abnormal return (abret)

In order to calculate abnormal stock returns, an adjusted market model is used. In this model, it is assumed that market returns (mr) are the result of the expected process of company stock return in each time period, so the difference between the real returns of company *i* in period *t* and market returns in the same period represents abnormal returns of company *i* in period *t*, which is derived from the remainder of the following model of market returns.

$$R_{\text{it}} = \beta_0 + \beta_1 R_{\text{mt}} + \varepsilon_{\text{it}} \quad (2)$$

2- Growth opportunities:

Tobin's q ratio is used for calculation of growth opportunities.

$$QT_{i,t} = \frac{BD_{i,t} + ME_{i,t}}{BA_{i,t}} \quad (3)$$

GO= growth opportunities

BD= book value of debts of company *i* in time *t*

ME= market equity value of company *i* in time *t*

BA= book value of total assets of company *i* in time *t*

3- Capital structure (Lev):

Capital structure is usually measured by the ratio of debt to total assets, the ratio of equity to total assets, the ratio of debts to equity, and the ratio of equity to debt. In this research, the ratio of debt to total assets is used:

$$Lev = \frac{Debt}{Assets} \quad (4)$$

Control variables are:

1- Firm size: includes natural logarithm of total assets

$$Size = Log(Assets) \quad (5)$$

2- Return on assets (ROA): this is obtained by dividing net income by total assets.

$$ROA = \frac{NetIncome}{Assets} \times 100 \quad (6)$$

CF: is the ratio of company's operating cash flow to company's total fixed assets.

Sales: is the ratio of natural logarithm of sales to company's total fixed assets.

4. RESULTS AND DISCUSSION

In this part before doing hypothesis test, descriptive statistics about research variable are presented in (Table 1).

Table 1. Research Descriptive Statistics

Variables	Variable symbol	mean	Standard deviation	max	min
Abnormal stock return	$abret_{it}$	0/023	3/920	4/913	-2/303
Normal stock return	R_{it}	1/218	0/950	4/231	0/991
Growth opportunity	QT_{it}	1/768	0/950	7/665	0/460
Financial leverage	Lev_{it}	0/650	0/307	3/060	0/012
Asset return	Roa_{it}	0/105	0/165	2/100	0/771
Size	$Size_{it}$	13/913	1/154	1/153	9/802
Operating cash flow	Cfo_{it}	0/115	0/131	0/642	0/336
Sales	$Salse_{it}$	0/842	0/560	0/605	0/0011

The mean and standard deviation of abnormal returns of shares are 0.023 and 3.0920, respectively, which indicates that abnormal returns in the capital market of Iran have a high fluctuation based on the market model. The mean and standard deviation of the growth opportunity are 1.768 and 0.950, respectively. The mean and standard deviation of the financial leverage are 0.650 and 0.307, respectively, indicating that an average of 65 percent of financing of the sample companies is fulfilled through debt.

The results of autocorrelation were evaluated using Wooldridge test. The results of the research in Table (2) show that there is no first-order autocorrelation in the research model.

Table 2. Results of Autocorrelation Test

Details	Test statistic	Significance level	Test result
First model	3/427	0/06	No autocorrelation
Second model	1/01	0/31	No autocorrelation

In order to test variance heterogeneity, Likelihood Ratio (LR) test was used. The results of this test in Table (3) show that in all research models there is variance heterogeneity. Therefore, in order to solve this problem, all research models were estimated using generalized least squares regression (GLS) method.

Table 3. Results of Variance Heterogeneity Test

Details	**Test statistic**	**Significance level**	**Test result**
First model	1628/85	0/00	heterogeneity is detected
Second model	668/88	0/00	heterogeneity is detected

Chow's F-test was used to select a suitable method for estimating these models in different times and periods of panel data. If F statistic is greater than critical value, fixed effect model is accepted; otherwise, for appropriateness of research data, integrated panel data method is used to test the hypotheses. In order to choose a model estimation method, two F-Limer and Hausman tests were used. The results of F-Limer Test and Hausman Test are presented in Table (4). The results of F-Limer Test indicate that the method of estimating research data is panel method, so it is not necessary to perform Hausman Test.

Table 4. Results of Choosing Research Model

Chow test			
Details	**F-Limer test**	**Significance level**	**Test result**
First model	0/99	0/64	panel
Second model	0/99	0/69	Panel

In this research, the market model was used to derive abnormal return of share, the result of which is presented in Table (5). The remainder of the market model was used as dependent variable in examining research hypotheses.

Table 5. Results of Market Model Test

$R_{it} = \beta_0 + \beta_1 R_{mt} + \varepsilon_{it}$				
Variable details	coefficient	Standard error	t-student statistic	Significance level
y-intercept	1/278	0/010	116/226	0/00
Market return	-0/189	0/018	-10/467	0/00
Fischer's F-statistic	109/565			0/00
Adjusted coefficient of determination	0/0004			
Durbin-Watson statistic	2/39			

The coefficient of market return variable is -0.189, which is significant at 5% error level. The above results show that market return makes a difference to stock return.

As shown in Table (6), F statistic of the mode is significant with a 95% confidence level. Therefore, the research model is generally significant and the independent and control variables have the ability to explain the dependent variable. Durbin-Watson test was used for checking autocorrelation of the regression model residuals. The results of this test with 2.348 statistic indicate a lack of autocorrelation in the values of model errors. In the first research hypothesis, it was suggested that growth opportunities have an effect on abnormal stock returns. The coefficient and t-student statistic of growth opportunity variable in Table (6) are 0.348 and 23.233, respectively, which has a positive and significant effect at 5% error level. Therefore, the first hypothesis of the research is not rejected. That is to say, growth opportunities have an impact on abnormal stock returns. This suggests that as growth opportunities increase, so does the likelihood of gaining abnormal returns. In the second hypothesis of the research, it was proposed that capital structure affects abnormal stock returns. The coefficient and t-student statistic of capital structure variable in Table (6) is 0.195 and 2.770, respectively, which has a positive and significant effect at 5% error level. Therefore, the second hypothesis of the research is not rejected. That is to say, capital structure makes a difference to abnormal stock returns. These results indicate that as financial leverage increases, so does the likelihood of gaining abnormal returns. In the third hypothesis of the research, it was proposed that growth opportunities affect the relationship between capital structure and abnormal returns.

Table 6. Results of Testing Research Hypotheses

$abret_{it} = \beta_0 + \beta_1 Lev_{it} + \beta_2 QT_{it} + \beta_3 Lev * QT_{it} + \beta_4 Salse_{it} + \beta_5 Size_{it} + \beta_6 Roa_{it} + \beta_7 Cfo_{it} + \varepsilon_{it}$				
Variable details	coefficient	Standard error	t-student statistic	Significance level
y-intercept	-1/795	0/090	-19/784	0/00
Growth opportunity	0/384	0/017	23/233	0/00
Financial leverage	0/195	0/070	2/770	0/00
Interaction between growth opportunity and financial leverage	-0/273	0/026	-10/202	0/00
Return on asset	-1/395	0/071	-19/482	0/00
size	0/096	0/005	17/295	0/00
Operating cash flow	1/300	0/070	18/397	0/00
Sales	-0/037	0/014	-2/561	0/01
Fischer's F-statistic	235/993			0/00
Adjusted coefficient of determination	0/007			
Durbin-Watson statistic	2/348			

The coefficient and t-student statistic of the variable growth opportunities interaction with capital structure in Table (6) is -0.273 and -10.202, respectively, which has a negative and significant effect at 5% error level. Therefore, the third hypothesis of the research is not rejected. That is to say, the interaction between growth opportunities and capital structure affects abnormal returns. The results of the research indicate that if the interaction between growth opportunities and capital structure increases, the likelihood of gaining abnormal returns will decrease. This suggests that financed funds were used for the purpose of growth opportunities, thereby reducing the possibility of gaining abnormal returns. That is to say, company perceives growth opportunities and, through financing, has been trying to operate opportunities, and capital market has shown a good response to this as it perceived the subject.

5. CONCLUSION

The purpose of this study is to investigate the effect of growth opportunities on the relationship between capital structure and abnormal stock return of listed companies on Tehran Stock Exchange. Maximizing firm value is determined by its optimal capital structure, which is identified as a target. Company will achieve such a goal by achieving new capital over a given time. Therefore, optimal capital structure creates a good balance between risk and return, resulting in an increase in stock prices. Returns which are not proportional to sustained risks are considered sort of abnormal in market. Some researchers such as Mashruwala et al. (2006), and Shleifer & Vishny (1997) referred to the mentioned returns as "abnormal returns," which has been cited as market mistake in pricing and investors' arbitrage transactions in market. The purpose of this study was to investigate the effect of capital structure and growth opportunities on abnormal returns. With a look at (Table 6), it is observed that as growth opportunities and financial leverage increase, so does the likelihood of gaining abnormal returns; in other words, optimal capital structure as well as company's growth opportunities (Tobin's q ratio) can increase the abnormal returns of the sample companies, but if the interaction between growth opportunities and capital structure increases, the likelihood of gaining abnormal returns will decrease. This suggests that companies will understand market position and use financial resources to develop and grow company by increasing financial leverage and hence avoid market abnormalities.

According to the forecast of static trade-off theory, companies that lack investment opportunities should proceed to issue debt in order to limit agency costs associated with management according agency theory. Therefore, static trade-off theory predicts a negative relationship between the amount of debt utilization and company's growth opportunities (Chen, 2004). In addition, growth opportunities are a kind of asset that increases the value of company but it does not have collateral ability, which is why there is a negative relationship between growth opportunities and debt ratios. In other words, the greater the opportunity for a company to grow, the greater its risk, and the higher the cost of financial distress (Titman & Weselz, 1998). According to this theory, this negative relationship modifies the incremental effects of the above two variables on abnormal returns. Therefore, this research provided evidence on the usefulness of accounting information in the field of investment and showed that these findings could encourage investors to select appropriate portfolios based on gained return, on the one hand,

and encourage users of accounting information to pay attention to the importance of accounting information on the other hand. According to the results of this research, the following suggestions are presented:

1. The results of the study showed that high leverage ratio and the use of debt and borrowing in capital structure are not necessarily bad and could lead to an increase in abnormal returns. It is recommended that shareholders and creditors pay attention to company's performance, as well as debt and leverage ratios.

2. Given the positive and significant impact of growth opportunities on company's abnormal returns, it is suggested that shareholders and investors should invest in companies with more growth opportunities.

3. According to the results of the study, it is suggested that investors, analysts and other users of financial information pay attention to factors such as capital structure and growth opportunities in their assessments and predictions, because the interaction between these two has a negative effect on future stock returns with regard to static trade-off theory.

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