

Investigating the Growth Opportunities, Intense of Stock Movement, Stock Returns for Listed Firms in Tehran Stock Exchange

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ABSTRACT

The purpose of this research is to study the relation between growth opportunities, intense of stock movement and stock returns of companies. This study is a type of library and analytical- causal and based on analysis of panel data. In this study, the financial data of 109 listed companies in Tehran Stock Exchange is investigated during the period of 2007 to 2012 (654 firms-years). Research results about verifying the first hypothesis showed that there is an inverse and significant relation between the factor of book value to stock market value and stock returns. Also, according to conducted data analysis about verifying second hypothesis, we resulted that there is a direct and significant relation between intensity of stock movement and stock return.

KEYWORDS: book value to stock market value, stock return, intense of stock movement.

INTRODUCTION

1. PROBLEM STATEMENT

In most cases, investors make decisions about their investments and seek to maximize their returns. Therefore, by using any information, we can predict the growth rate of company is an interest of investors (Vassalou, 2000). Growth opportunities are driving forces which create motivation and they are considered as an incentive for investors (Firer et al, 2003). In the meantime, investors should always consider risks in their investment decisions. Because optimum use of available investment opportunities leads to success, and for this purpose, we should identify effective financial policies to create growth opportunities in commercial units. (Doidge et al, 2006). Promoting awareness of new achievements in the field of investment along with communication technology development leads to this situation that suppliers invest their stock funds in companies to earn more profit; so, the funds flow (capital) has a movement more than before and in recent years, investments have grown dramatically. And most accounting changes have down during these years. (Antell and Vaihekoski, 2012). Suppose these changes simple means underdevelopment and lack of success in today's competitive view and it is overly confusing and weakening. (Du and Hu, 2012). What will lead to success is optimal use of available investment opportunities. And for this purpose, we should identify the effective factors on company's growth opportunities. (Ange et al, 2006). One of the main arguments of profit unit is profit return and liquidity volume of that profit unit. And it plays a significant role in growth and survival of profit unit. (Bartram et al, 2010). Creating balance in current liabilities and assets especially cash and short-term debate have utmost importance. So deciding about one of these issues, can influences on another. (Bartram and Bondar, 2005). In Risk office, a commercial unit has different policies. And it is obtained by integrating current liabilities and current assets policies and fluctuations of company stock turnover. (Bornard, Ange, 2003). About stock return and intensity of stock movement in different situation, directors should be able to choose an appropriate policy. So he/she can manage current assets and current liabilities and economic financing. And so they can enhance company return and maximize investor's wealth and ultimately reduce company risk. (Ange et al, 2006). Management of cash assets linked with finding short-term financing sources and investing those resources in short-term assets. And increasing the ratio of cash-assets is a creator of best investment opportunities. (Vassalou, 2000). In this study, we seek to study growth opportunities, intensity of stock movement and stock return on listed companies of Tehran Stock Exchange.

2. RESEARCH LITERATURE

Dichou and Tang (2009) studied in a research to investing the relation between volatility and predictability of short-term and long-term benefits. By investigating the mechanism of the relation between volatility and profit predictability, they considered this relation as a result of economic and accounting factors. The results of this study

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include that profit volatility has a negative relation with profit predictability in short-term and long-term. Minton, Sherand and Walter (2012) in a research entitled as “the role of volatility in anticipation” investigated the relation between volatility of cash flow with future cash flows and profits due to the incentive to invest much less than limit. They concluded that there is a negative relation between volatility of operating cash flows with cash flows and future profits. Shan et al (2014) investigated the relation between non-accounting information and stock return volatility. Due to the use of analysts from non-accounting information in forecasting stock returns, they proved that this information directly effect on the volatility of stock returns.

3. THEORETICAL LITERATURE

In most cases, investors do their decisions about investments and they seek to maximize their efficiency. Therefore, any information that could be used to predict the growth rate of company and considered by investors is growth opportunities of driving forces and motivate and it is considered as reward for investors. In the meantime, investors should always consider risk, in their investment decisions. Because optimum use of available investment opportunities causes to success, and for this purpose we should identify the effective financial policies to create growth opportunities in commercial units. (Doiadge et al, 2006). Promoting professionals awareness from new achievements along with communication technology development causes to suppliers invest their capital funds in companies that are able to earn more profit; so, cash flow (capital) has a movement in different cases and in recent years, investments have grown, before past. And most accounting changes are created among these years. (Antell and Vaihekoski, 2012). Considering these changes as simplicities is meant underdevelopment and lack of success in today's competitive view and it is overly confusing and weakening. (Du and Hu, 2012). What will lead to success is optimal use of available investment opportunities. And for this purpose we should identify the effective factors on company's growth opportunities (Ange et al. 2006). One of the most important arguments of a profit unit is stock return and liquidity volume of that profit unit. And it plays a significant role in growth and stay-in of profit unit. (Bartom et al, 2010). Creating balance in current assets and current liabilities, especially cash assets and short-term liabilities is so important. So, deciding about one of them influences on another. (Bartom and Bondar, 2005). There are a variety of policies in managing risk of a commercial unit. And it is obtained by combining current assets policies and current liability policies and intensity and fluctuations of stock turnover of companies. (Barnard and Wang, 2003). About stock return and intensity of stock movement in different situations, managers should choose appropriate policies for company to manage current liabilities and assets and economic financing is done, efficiently. And thereby they can enhance company return and maximize investor's wealth and ultimately reduce company risk. (Ange et al, 2006).

4. Research Hypothesis

There is a significant relation between the factor of book value to stock market value and stock return.

There is a significant relation between the factor of intensity factor of stock movement and stock return.

5. RESEARCH METHODOLOGY

The methodology used in this study is a correlation and descriptive research. Reasoning method of this study is an analogical-deductive type. Statistical population of this study is all listed companies in Tehran Stock Exchange for a period of six years from 2007 to 2012 which has the following requirements:

1. According to required information from 2007, companies which were accepted to end of March 2006 in Tehran Stock Exchange and their names are not removed to the end of 2012 from the listed companies.
- 2-during the desired period, their stock are actively traded on stock market.
- 3-to enhance the comparability of surveyed companies, their financial period should be ended to 19 march and they should have no change on financial period.
- 4-they should not be a part of financial intermediation firms (investment, holding, leasing and banking and insurance) because they have different performance.
- 5-required information should be available.

Finally, after using preconditions, 109 companies were selected as statistical sample. In this research, for study theoretical basis and investigating research background, library methods are used by using professional books and articles in Latin and Persian and thesis. Since related information to the variables of this research include all accounting items in audited financial statements of companies. Required data from available financial statement are extracted manually from sites of research management, Islamic development and studies related to security and exchange organization with the address of www.rdis.ir and codal network, informing comprehensive systems with

the address of www.codal.ir and processing center of Iran financial information with the address www.fipiran.com and CDs of Security and Exchange organization. And after gathering needed information of investigated companies, research hypothesis were examined by using correlation analysis and regression and statistical methods; panel data. And first, initial calculations were performed in Excel spreadsheets and data will be prepared to data analysis. So, to perform final analysis, Minitab16, SPSS and EvIEWS 7.20 software were used.

6. Research variables

Operational definitions of dependent variable:

Stock return (r_{it})

Abnormal return means the difference between company return rate and market return. And to determine abnormal return, market-adjusted model (simplified model of market) is used. (Lesmond et al, 1999).

$$AR_{it} = R_{it} - R_{mt}$$

Stock return rate (R_{it}): it is calculated for selected companies, annually:

$$R_{it} = \frac{(P_{it} - P_{it-1}) + DPS + (P_{it} - 1000)A + P_{it}B}{P_{it-1}} * 100$$

In which

P_{it} = is stock price in the end of year t and P_{it-1} is the stock price in the end of year t-1 and DPS is dividend per stock based on the number of stocks at the beginning of period. A=capital increasing percentage of the place of given cash. B=percentage of capital increasing in the place of retained or reserves earnings.

Return rate of market portfolio (R_{mt})

In this study, the return rate of market portfolio will be calculated based on total return of stock index of available companies on Tehran Stock Exchange. Accordingly, annual return rate of market portfolio will be calculated by using the following equations:

$$R_{mt} = \frac{TEPIX_t - TEPIX_{t-1}}{TEPIX_{t-1}} * 100$$

In which R_{mt} is market portfolio return. TEPIX=Exchange index (Price and cash return) at the end of year = $TEPIX_t$ is the stock return (price and cash return) at the end of year t-1.

Operational definitions of independent variables:

The book value to market value (MKT_t)

The difference between the averages of stock portfolio returns with the ratio of book value to market value is high and stock portfolio of companies with the ratio of book value to market value is low. And commonly it is referred as value factor and it is shown with HML. (Huron, 2011).

$$HML = \frac{(S/H + B/H)}{2} - \frac{(S/L + B/L)}{2}$$

In this formula, we have:

S/H: companies that are small in size and their ratio of book value to market value is high.

B/H: companies that are large in size and their ratio of book value to market value is high.

S/L: Companies that are small in size and their book value to market value is low.

B/L: Companies that are large in size and their book value to market value is low.

Intensity factor of Stock movement (VOL_t)

The intensity factor of stock movement can be calculated by using the following formula by Shangan and Zuhu research (2007):

$$VOL_t = (BP_t + SP_t / 2) - (BN_t + SN_t / 2)$$

Where

BP_t : is equal to great and positive sensitivity of returns.

SP_t : is equal to small and positive sensitivity of returns

BN_t : is equal to great and negative sensitivity of return

SN_t : is equal to small and negative sensitivity of returns

Operational definitions of control variables:

The factor of firm size (SMB_t)

Firm size is equal to the product of stocks numbers in company flow at the end of period and it is calculated in the final price of stock market of that period (the value of stock market at the end of March). Fama and French (1992)

Liquidity volume of company fluctuations (HML_t)

In this study, liquidity volume raised by company's fluctuations is calculated as follows according to saber aminam (2009):

$$IMV = \frac{(I/L/S+I/M/S+I/H/S+I/L/B+I/M/B+I/H/B)}{6} - \frac{(V/L/S+V/M/S+V/H/S+V/L/B+V/M/B+V/H/B)}{6}$$

Note: in the present study to calculate r_{jt} , excess return from portfolio- a set of asset j and R_{mt} , excess return of market from ImV_t , portfolio of related factors to illiquidity factors of company and α_j

Shows intermediate portfolio factor of j and β_{jm} , β_{jsmb} , β_{jhml} , β_{jimv}

Which show the related factors to risk. And variable coefficients of regression model are tested by using T-student test. Negative (positive) and significantly coefficient α_j indicates that by increasing size and liquidity of the company, company value will increase. According to this fact that market value of company represents demand depth for company's share and it is considered as a determining factor for company's stock. Usually, companies that have high value, their stock market has a good depth. And frequency of their stock trading is high and so, they have a high liquidity. Increasing the volatility of stock return is considered as a measure of risk and lead to reduce the liquidity risk and also increase the price difference between suggested stock buy or sell.

The average return risk of total equity (WML_t)

To calculate this variable (Lischeski and Vorokca, 2013), we will use the variable as follows:

J represents the studied companies and t represents years. B is the market risk premium and it is the first beta

factor represented by CAPM. This factor is measured by the following formula. $WML_t = R_{mt} - R_{ft}$

β_{jm} = is the sensitivity of asset j to market value, β_{mt} = sensitivity of market value to time t.

β_{jmrmt} = the sensitivity of asset j to market value in sensitivity of market value to time t according to the return of company return.

ε_{it} = random error of firm I at the end of year t.

7. Research model

To test first to second hypothesis, we will use research model as follows.

In this model, if the coefficient β_i is significant in 95% confidence level (coefficients related to independent variables). First to second hypothesis will be confirmed, respectively.

The research model:

$$r_{it} = \alpha_i + b_i MKT_t + c_i VOL_t + s_i SMB_t + v_i HML_t + m_i WML_t + \varepsilon_{it}$$

In this model, we have:

I: indicates company (sectional units) and t represents year.

$\varepsilon_{i,t}$: Random error of firm I in year t.

Research finding:

Descriptive statistics for variables

In descriptive statistic section, data analysis is done by using core index such as mean, median and standard deviation, skewness and elongation. Summary of descriptive statistic is related to model variables after screening and remove outlier data by helping Spss 20 software in table (1).

Table (1): descriptive statistics of research variables

Variable	Number	mean	Standard deviation	Minimum	elongation	Maximum	skewness
Stock return	654	0/4899	0/3132	0/0025	3/185	2/7323	0/891
The factor of book value to stock market value	654	0/3539	0/2852	0/0018	1/846	1/6444	1/242
Intensity of stock movement	654	0/3415	0/3570	0/0000	14/275	2/8594	3/117
Company size	654	0/7689	0/0433	0/6791	0/124	0/9025	0/445
Liquidity volume caused by violates	654	0/5517	0/2288	0/0763	13/401	2/6592	1/791
Total return risk of total equity	654	0/9478	0/2843	0/0589	0/719	1/8100	-0/575

According to table 1, the average of company return is 0.4899 and minimum and maximum amounts are equal to 0.0025 and 2.7323. The skewness and elongation of this variable should be respectively 0 and 3 to be a normal distribution variable. And its investigation shows that this variable is not normally distributed. Based on presented descriptive statistics presented in table 1, the average of book value to market value of stock and intensity market movement of sample companies during research period is positive and they are equal to 0.3415 and 0.3539, respectively. And finally, the average of return risk of total equity which are based on minimum and maximum, are respectively equal to 0.9478.

Normality test of distributing variable dependent to research

It is necessary to control the dependent variable before parameters estimation and in the case of not establishing these conditions; we can use a good solution to normalize them (such as transferring). In this study, this issue is examined by Kolmogorov-Smirnov (K-S). Null hypothesis and against hypothesis for this test is as follows:

$$\begin{cases} H_0 : \text{Normal Distribution} \\ H_1 : \text{Not Normal Distribution} \end{cases}$$

If the significance level of this statistic is greater than 0.05, (Prob>0.05)

H0 hypothesis is accepted based on normal distribution of variable. In table 2, test results K-S are provided for the variable of stock return of sample companies.

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

variable	Number(N)	Statistic (K-S)	Significance level (Sig)
Stock return	654	1/530	0/019

According to this issue that for the variable of stock return, significance level of statistic K-S is lower than 0.05, so the hypothesis H0 is rejected based on normal distribution in 95% confidence level and it shows that the variable of stock return is not normally distributed. Normality of dependent variable, is another prerequisite for regression models, so it is necessary to normalize this variable before testing hypothesis. In this study to normalize data, Johnson transfer function was used and it was analyzed by using Minitab 16 software. (Appendix 2). The obtained results from test K-S after data normalization process in table 3 are described.

Table 3: the results of be normal of dependent variable after normalization process

Variable	Number(N)	Statistic (K-S)	Significance level (Sig)
Stock return	654	0/600	0/865

According to table 3, since after data normalization, significance level of Kolmogorov-Smirnov statistic for dependent variable is greater than 0.05. (0.865). so hypothesis H0 is confirmed in 95% confidence level and indicates that the variable of stock return after normalization process have a normal distribution.

Investigated Correlation between variables

In this section, by using Pearson correlation coefficient, we investigate the relation between research variables and correlation between them

The matrix of correlation coefficients is presented between research variables in table 4.

Based on obtained results of Pearson statistic, the return of company stock indicates a positive and significant correlation with total average return of total equity. The factor of book value to stock market value has a significance and positive correlation with liquidity caused by fluctuation. About the liquidity volume caused by fluctuations, this variable indicates a negative and significance correlation with the average of risk of equity return.

Table 4: Pearson correlation coefficient matrix between research variables

	Stock return	Book value to stock market value	Intensity factor of stock movement	The factor of firm size	Liquidity volume caused by fluctuations	Average risk of equity return
Stock return (P-Value)	1					
Book value to stock market value (P-Value)	0/053 (0/174)	0 1				
Intensity factor of stock movement (P-Value)	0/074 (0/057)	0/018 (0/644)	1			
firm size (P-Value)	-0/054 (0/170)	-0/021 (0/584)	-0/067 (0/088)	1		
Liquidity volume caused by fluctuations (P-Value)	-0/036 (0/363)	0/129 (0/001)	-0/059 (0/130)	-0/001 (0/985)	1	
Average risk of equity return (P-Value)	0/135 (0/001)	-0/005 (0/892)	0/004 (0/909)	0/044 (0/265)	-0/087 (0/025)	1

The results of research hypothesis

The results of first test hypothesis

The purpose of testing first hypothesis is to investigate the relation between book value to stock market value and firm's stock returns and statistical hypothesis is defined as follows:

H0: there is no significance relation between book value to stock market value and stock return.

H1: there is significance relation between book value to stock market value and stock return. This hypothesis is estimated by using model (1) as panel data and if the coefficient is significance in 95%, it will be approved.

$$r_{it} = \alpha_i + b_i MKT_t + c_i VOL_t + s_i SMB_t + v_i HML_t + m_i WML_t + \varepsilon_{it}$$

In order to determine that whether using panel data model will be effective to estimate the model, Chow test of F is used to identify this approach, which method (fixed effects or random effects) is better to estimation (fixed or random variation detection of sectional units) and for this aim, Hausman test is used. The results of these tests are presented in table 4-5.

Table 5: the results of Chow and hausman test for model (1)

test	number	statistic	Statistic value	P-Value
Chow	654	F	1/5884	0/0005
Hausman	654	χ^2	1/5830	0/0033

According to the results of Chow test and its P-Value (0.0005), the hypothesis is rejected in 95% confidence level and indicates that we can use panel data method. Also, according to the results of Hausman test ANF P-Value (0.0033) which is lower than 0.05, hypothesis test is rejected in 95% confidence level. And hypothesis is accepted, so, it is necessary to estimate model by using fixed effect method. To check the validity of model and investigating the assumptions of classic regression, it is necessary in addition to assess the absence of multi collinearity between entered independent variables in model, test the normality of remained, variance consistency, independence of residuals and absence of clear error model (linearity of model). To test the normality of error terms, various tests can be used. One of these tests is Jarkiv-bera test. And in this research, this test is used. The results of Jarkiv-beta show that obtained residues of model estimating in 95% confidence level has a normal distribution, so the probability of this test (0.7421) is larger than 0.05. One of other statistical assumptions is the consistent classic regression and residual variance. If variances are non-consistent, linear estimator is unbiased and will not have the minimum variance. In this study, to test the consistency of variances, cut pegan test is used. Due to the importance level of this test which is smaller than 0.05 (0.0052). Null hypothesis is rejected based on consistency and we can say that model has a non-consistency of variance problem. In this study, to address this problem, generalized least squares estimation method (GLS) is used. Also, in this study to test the non-correlation of residuals which is one of the assumptions of analysis and regression analysis, and it is called autocorrelation and camera Watson test (D-W). According to the initial results of model, the value of Watson camera statistic is equal to 2.40 and since it is between 1.5 and 2.5, we can conclude that residuals are independent of each other. In addition, to test that this model has a linear relation and whether the desired model is correct in term of linearity or non-linearity relation and for this purpose, encoded test is used, due to this fact that significance level of encoded test (0.6196) is greater than 0.05, so

null hypothesis of this test is confirmed based on model linearity and model error is not specified, the summarizes of above tests is presented in table 6.

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

statisticRamsey		statisticDurbin-Watson		statisticBreusch-Pagan		Statistic Jarque-Bera	
P-value	F	D		P-value	F	P-value	χ^2
0/6196	0/4789	2/40		0/0052	1/8285	0/7421	1/8251

According to the results of Chaw and Hausman tests and also the results of statistical assumptions of classical regression model, model(1) is estimated by using panel data model and as the fixed effects. The results of model is presented in table 7. The estimated figure of model, by using Eviews 7 software will be as follows:

$$r_{it} = 1.4527 - 0.0518MKT_t + 0.0680VOL_t - 1.5366SMB_t - 0.0187HML_t + 0.1979WML_t + \varepsilon_{it}$$

Table 7: the results of test first hypothesis by using fixed effect method

				Dependent value: stock return
				The number of observation=109 companies
variable	Coefficient	Statistic T	P-Value	relation
Fixed part	1/4527	1/7608	0/0788	Not-significance
Book value stock market value	-0/0518	-1/3718	0/0107	negative
Intensive of stock movement	0/0680	1/9888	0/0472	positive
Firm size	-1/5366	-1/4208	0/1559	Non-significance
Liquidity volume of fluctuation	-0/0187	-0/3983	0/6905	Non-significance
Average return risk of equity return	0/1979	4/2261	0/0000	positive
Model of determination coefficient				0/5821
statistic F				1/8786
($P-Value$)				0/0000)

In investigating the significance of total model, due to this fact that the value of F statistic is lower than 0.05 (0.0000), with a 95% confidence level, the model significance is confirmed. The determination coefficient of model says that 58.21 percent of stock return of firms is determined according entered variables. In investigating the significance of this coefficients and according to presented results in table 7, since the probability of statistic T for the variable coefficient of book value to stock market value is lower than 0.05. (0.0107).

As a result, the presence of a significance relation between book value to the value of stock market and stock return in 95% significance level is approved. So the first hypothesis of research is accepted and by 95% percentage we can say that there is a significance relation between the factor of book value to stock market value and return of company stocks. The negative coefficient of the variable (-0.0518) implies the existence of inverse relation between stock market value to stock market value and company's stock performance.

The results of first hypothesis test

The purpose of test second hypothesis is to investigate this issue that is there a significance relation between intensity factor of stock movement and stock return of companies? And statistical hypothesis can be expressed as follows:

H0: there is no significance relation between intensity factor of stock movement and stock return.

H1: there is a significance relation between intensity factor of stock movement and stock return.

This hypothesis is estimated by using model (1) as panel data and if c_i coefficient is significance in 95% confidence level, and it will be approved.

$$r_{it} = \alpha_i + b_iMKT_t + c_iVOL_t + s_iSMB_t + v_iHML_t + m_iWML_t + \varepsilon_{it}$$

In investigating the significance of coefficients presented in table 7, since the probability of t-statistic for the coefficient of intensity factor of stock movement is lower than 0.05 (0.0472). as a result, there is no significance relation between intensity factor of stock movement and stock return in 95% significance level is confirmed. The second hypothesis is accepted and by 95% confidence level we can say that there is a significance level between intensity of stock movement and stock return. The positive coefficient of this variable (0.0680) indicates the presence direct relation between intensity factor of stock movement and stock return.

8. CONCLUSION

The main goal of this research is to study the growth opportunities, intensity of stock movement and stock return in accepted companies in Tehran Stock Exchange in listed companies during time period of 2007 to 2012. And to gathering the theoretical basis of this research, library method was used and to gathering statistical data, financial statement and appendix notes were used and to analysis, Panel data method was tested. And obtained results from this research about approving first hypothesis of research show that there is a significance and inverse relation between book value to stock market value and stock return. The results of first hypothesis is consistent with the results of Ange et al (2006) , Bertrom andbondar (2005) and Bernrad and Wang (2003) and Antell and Hikoski (2012) and is in conflict with the results of Bertrom and et al researches (2010).It means that our results are inconsistent with the results of these thinkers. Also, about second hypothesis we can say that there is a significance and direct relation between intensity of stock movement and stock return. And it is consistent with the results of Bertrom and Bondar (2005) and Diadge et al (2006) and Du and Hu (2012) researches and it is in conflict with the results of Bartrom et al (2010) researches. It means that the results of our research are inconsistent with the results of these thinkers.

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