The Investigation of relationship between Stock Risk and Free Float Shares in Tehran Stock Exchange (TSE)

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Abstract: The aim of this study is to investigate the relationship between stock risk and the free float of listed companies in TSE from September of 2006 to July 2008 for the 129 companies in the Stock Exchange of Tehran. To calculate of the stock risk, the standard deviation of the risk of share capital (the positive square root of the variance of equity return) was used. So using a regression model we saw that free float have significant negative effect on stock risk, in other words, stock risk is decreasing when free float increased. The adjustment Coefficient of determination is equal to 0.80 and indicates that 80 percent of the variability is explained by the independent variables. Also Dorbin - Watson statistics are estimated in models and confirm the fact that there is no autocorrelation in the research model. Finally the validity of the model was verified using CUSUM and CUSUMSQ graphical tests.

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1. Introduction

To achieve sustained and long-term economic growth, providing optimal allocation of resources in the national economy is required and it cannot be easily achieved without the contribution of financial markets, especially the extensive and efficient capital market. In this respect, the stock exchange as a key element of the capital market plays an important role in gathering funds and transferring it to the peoples and units need it. Therefore, the stock exchange is among the instruments to finance corporate. Basically, the successfulness of stock market and its attractiveness for potential investors can be achieved through increasing the returns on stock of listed companies in the stock exchange. One of the factors that have been introduced in the past few years in Iran and should be provided for all investors to move towards efficient market is the amount of free float shares of the company. This concept is defined as a percentage of the total capital of the company that is available for trading on the stock market or a part of the shares of a company that can be traded without any limitation and its amount is the difference between untradeable and total shares of the company. For the first time at 1989, SSBGEI was introduced to calculate the index. According to a definition provided for the index, e total stock price index must determine the real value of the stock market and measure its performance. In addition, the index as a portfolio of all stocks in the market, determines the degree of efficiency of the market. Governmental economy in Iran has been created a multilateral monopolistic market in which privatization is an approach towards a fully competitive market. Hence, the Tehran Stock Exchange, in order to strengthen the market and preventing speculation and manipulation activities in this market, has approved some regulated such as establishing at least 500 shareholders in the second panel of bourse and enforced companies to have at least 20 % free float shares. Since the overall risk on assets is an important factor in the final analysis of investment and decision making for portfolio, according to above, there is a question that, whether investors should consider different free float shares of the companies in order to make a logical relationship between risk and return? And that is there any relationship between the amount of free float shares of the companies and the risk on stock return? Return and risk information is useful for investors in making decisions. In this paper, a hypothesis is proposed:

There is a significant relationship between free float shares and risk on stock return of listed companies in Tehran stock exchange. Many companies report high and growing level of cash holding their balance sheets. Studies of Kim et al. (1998) showed that, approximately eight percent of total assets of the company are allocated to short-term investments and cash holding. Despite the fact that, these assets just provide some minor return and investors do not pay so much attention for them, why companies maintain such a high volume of liquidity? Previous researches suggested Trade off Theory (TOT) and Pecking Order Theory (POT) as mechanisms to explain the behavior of the companies to maintain such cash holding. Kim et al. (1998), Opler et al. (1999), and Harford (2008), studying the

liquidity ratio of companies, investigated the reasons of maintaining high levels of liquidity. Bates et al. (2007) argued that, the increase in cash holdings is a reaction toward increased risk. Concerning the findings of these works, there comes two questions which have received much attention in previous researches: first, what are the determinants of cash and cash assets of the companies? Second, what effects these assets have on company's performance. The answers to these questions can be explained by evaluating the future performance of the company and stock returns.

Keynes (1936) has expressed three main advantages of holding cash assets such as cash, as follows: the ability to conduct regular and routine business transactions (transactions motive), ability to deal with unexpected contingencies, such as significant losses (precautionary motive of holding cash) and internal financial flexibility for future activities and investments when foreign sources are not available or access to them is costly (motivated speculation). From the other hand, holding cash assets has costs. Costs associated with holding cash include the following three cases: obtaining lower returns due to the lack of use of excess liquidity, possible tax losses and greater potential for investment less than optimal amount due to the costs of representation. According to the above remarks, one can consider costs and benefits of holding cash. Therefore, it is possible to determine a level of cash for each company in which, the benefits of holding extra cash are equal to equal to its marginal cost. Technically speaking, this level is called optimal cash level. As noted earlier, cash levels of any company depends on certain factors. To approve the reasons of holding cash, a number of studies have shown that, companies that have greater financial constraints, tend to hold more cash.

The second part of the research is about the effect of the cash level on company's fundamental performance. If companies have an optimal cash level, thus preserving more (surplus) or less (insufficient) cash than this optimize balance will have a reverse effect on future stock returns and fundamental performance. The criterion used in this study to assess fundamental performance is the future return on net operating assets (RNOA). Harford (1999) stated that, the balance of extra cash represents the accumulated excess free cash flow. According to Jenson (1986), a company with large amounts of excess cash will be faced with many agency problems. Mikkelson and Partch (2003) examined companies that consistently have been holding high cash balances from 1986 to 1991 and concluded that, the excess cash has no obvious relationship with operational performance in their case. Trading incentives proposed by Keynes (1936) showed that, firms with inadequate cash holding will have lower performance due to the additional costs incurred in order to handle the operations. These costs consist of two parts. Higher interest rates because of the view of creditors toward companies faced with a shortage of liquidity and considering them as high risk companies and, the administrative costs associated with attracting liquidity from external sources due to the lack of access to domestic sources. In addition, firms facing liquidity problems have less ability to take on new projects that will improve the rate of return on net operating assets of the future. It is expected that, these problems will reduce the rate of return on net operating assets.

Hirshleifer and Teoh (2003) have provided an analytical model based on the fact that, some investors have limited accuracy and processing power. In such an environment, balanced price is the weighted average of thoughts of two groups of conscious and unconscious investors. If the market shows such inefficiencies, it is possible that, prices do not fully indicate the functional consequences of the company's cash balances. Excess cash level is a vague symptom of for the market since cash has both positive and negative effects. One reason for the high levels of cash balance is that, the company earned high cash flows from operations of the company. Investors, considering past performance, may predict operating cash flows more than real amount. Another reason for firms to hold excess cash is to convince investors that, they have a high future potential and are capable of increasing their liquidity by issuing shares or depts. It is also possible that, the high levels of cash to be considered as a sign of lower risk of the company, since it is capable of getting rid of future financial problems. However, basically, it is possible that firms with excess cash, due to the high and growing costs of agency, have lower performance than optimum. In addition, there are evidences that, the market is not able to completely anticipate the amount of costs of potential agencies. For example, Dopler have shown that, future returns for buyer firms that are rich, in terms of cash, is significantly lower than other buyers. Given the above, it may be difficult for investors to identify and distinguish time between the benefits and costs associated with high levels of cash. Asgari and Iranpak (2010) in their study entitled "The effect of free float shares on the fluctuations of stock prices of companies listed in Tehran Stock Exchange and its solutions" used panel analysis and simple linear regression to test the hypotheses. The study conducted in a 4-year study period between the years 2005 to 2008 in Tehran Stock Exchange. They determined the conditions of the samples and 45 and 12 companies were selected to test the first and second hypothesis,

respectively. The results indicated that, the relationship between the amount of free float shares and stock price fluctuations in companies listed in stock exchange is positive and significant and the relationship is different for various industries.

2. Material and Methods

The Khorram and Sinayi (2011), in an article entitled "The relationship between financial leverage and systematic risk of common stock (B) in public companies in Iran" used linear regression with combination of all industries to test first hypothesis. Results showed that, there is no significant linear and positive relationship between financial leverage and systematic risk. In order to test the second hypothesis, first, the sample firms were classified based on business risk index using LSD test and then the validity test of presence of different financial leverages in each risk class (using ANOVA) was conducted. Finally, the relationship between financial leverage and systematic risk of firms in each of the groups and classes of risk, was investigated using comparison test. Similarly, their results indicated on the lack of significant scattering in systematic risk of firms, after the increase in debt than before the increase in debt. The statistical population includes all companies listed on the Tehran Stock Exchange regardless of their geographical location in various cities of the country. According to the objectives, the study period is from August 2006 to June 2008. This study investigates the relationship between risk on stock return and the amount of free float shares of listed companies in Tehran stock exchange. The information used in present article is divided into two categories. First, the information on theoretical foundations and literature that gathered from, domestic and foreign articles, theses, journals as well as internet. Second, the data of the variables that collected through referring audited financial statements of listed companies in Tehran Stock Exchange (in the Library of the Tehran Stock Exchange) and Tadbir Pardaz software containing information of listed companies in Tehran Stock Exchange such as financial statements, prices, various indices, etc.

The research model is expressed as follows:

$$R_{it} = \alpha + \beta S_{it} + \varepsilon_{it}$$

The variables in the above equation are defined as follows:

S_{it} : Returns on free float shares for firm i at period t

R_{it} : Stock risk for firm i at period t

3. Results

First, 129 companies were selected from 378 samples of population which quarterly declared the amount of their free float shares (percent) from August 2006 to June 2008. In order to calculate the stock risk, standard deviation (the positive square root of the variance of stock return on equity) was used.

In this section we will review the correlation between variables. This is performed by Eviews software. The results are shown in Table 1.

Table 1: Correlation between variables

	The amount of free float shares	Stock risk
The amount of free float shares	1	-0.89699218
Stock risk	-0.89699218	1

According to the results of the correlation between variables, it is observed that, there is a strong and negative correlation between the risk factors and the amount of free float shares. Therefore, it can be inferred that, the increase in one variable will reduce the other. To investigate the certain effect of variables on each other, we will use the regression model in the next step.

The results of estimation are presented in Table 2.

Table 2: The coefficients of estimated model for companies

Stock Risk			
Variable name	Coefficient	Statistic of t	P-Value
Intercept	2.8542	65.9918	0.0000
The amount of free float shares	-3.6866	-22.8677	0.0000

Source: research results (output of Eviews software)
The significant level is set at 95% of confidence level.

According to the results, the intercept was significant and the amount of free float shares has a negative and significant impact on stock risk, i.e. by increasing the amount of free float shares, the stock

risk will be reduced. The adjusted coefficient of determination was equal to 0.80 indicating that, 80 percent of the variability of dependent variables is explained by independent variables. Furthermore, Durbin-Watson statistic is estimated in the model and indicated that, there is no autocorrelation in the model.

In order to investigate the stability of the estimated coefficients in the model, we can use CUSUM and CUSUMSQ graphical tests for the residual terms of the model. These tests, which are presented in graphical form, are presented below.

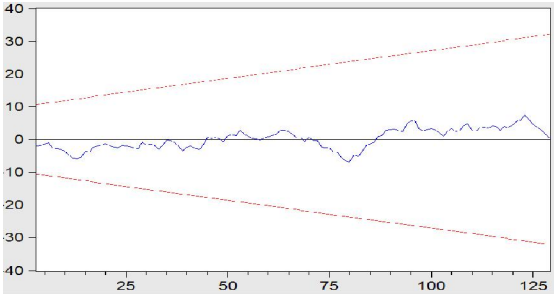

Figure 1: CUSUM test for estimated model

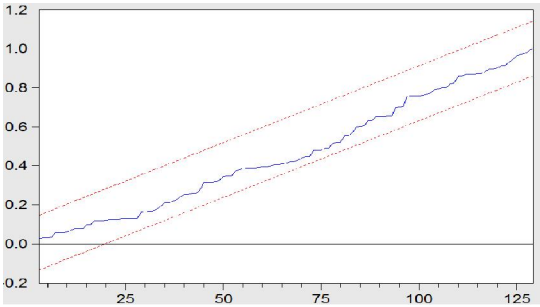

Figure 2: CUSUMSQ test for estimated model
Source: search results

As you can see from the figures above, the CUSUM and CUSUMSQ graphs are placed in the area between two critical lines at 5% level. These results indicate that the stability of this model is verifiable.

4. Discussions

Freedom of managers and founders of financial firms operating in the stock market using the principles of realization and matching principles as well as estimation and prediction are among the factors influence the associated return and risk. Higher free float shares of the company grants investors better feelings on the effectiveness and interfere on financial affairs and therefore, the attractiveness of the companies with higher free float shares is more than companies with lesser free float shares. This increased attractiveness can lead to increased efficiency and confidence on returns on stock. In this study, one hypothesis was proposed.

This hypothesis was based on the presence of significant relationship between free float shares and stock risk of companies listed in Tehran Stock Exchange.

Estimating the model, it was observed that, there is a negative and reverse relationship between stock risk and free float shares.

The suggestions for future research are as follows:

1. Since the stock risk in this research was used as dependent variable, it can be done for other variables such as stock prices and return.
2. The model used in this study was Panel Data. If a research needs to investigate these variables only for one company or just for a year, it can be done by other econometric methods.
3. Given that, in present study, variables were considered for the total stock market, it can be done for separated industries which are active in stock market.
4. In this study, the macro variables and their influence on the dependent variable were not used. If necessary, the effect of macro variables such as inflation and liquidity volume on returns on stock can be studied.
5. Since, in present study, the variance was used as risk indicator, other factors can also be used for this purpose.

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