A study on the relationship between managerial ability and stock price crash risk of the listed firms on the Tehran Stock Exchange (using data envelopment analysis)

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Abstract

The goal of this study is to investigate the relationship between managerial ability and stock price crash risk of the listed firms on the Tehran stock Exchange. To this end, first, using data envelopment analysis, the managerial ability is calculated considering the firm’s selling as output and (inventory and cost of goods sold, selling and administrative expenses, net property, plant and equipment, net study and development expenses, purchased goodwill, and other purchased intangible assets) as input. Further, other measures such as negative skewness of stock return, Down-to-up volatility, and the extreme sigma is used to measure stock price crash risk. The statistical population of the study consists of all the firms listed on the Tehran Stock Exchange and the sample consists of 68 firms listed on the Tehran Stock Exchange that during 2004 to 2013 period studied. Adjusted multiple regression analysis is used to test the hypothesis. The results of the study indicate that there is a negative and significant relationship between the managerial ability and stock price crash risk of the active firms on the Tehran stock Exchange (using negative skewness of stock return, bottom to top volatility criteria) but the relationship between the managerial ability and stock price crash risk (using the extreme sigma criteria) is not significant.

Keywords: DEA, negative skewness of stock return, the extreme sigma, stocks prices crash risk, managerial ability, Down-to-up volatility.
1 Introduction

Considering the Barjam and recent economic sanctions removal against Iran by Europe and USA, the outlook of different people toward the Iranian capital market has changed a lot. Since the engine of the economy of any country is reflected in its capital market, therefore, identifying factors that have effect in determining stock price crash risk is vital because the Iranian stock exchange is young and faces many risks. One of these risks is the reluctance of investors to invest in the capital market. Usually, one of the things that investors, especially risk-averse investors pay much attention to in their decisions, is the probability of huge losses caused by the sudden crash of stock prices. Managers have always played an important role in Organizations. Nowadays, the impact of prominent managers is clear in achieving income, profit, and organizational success. On the other hand, fast response to threats and opportunities in the current era, propose the manager as a vital source to solve the future problems in organizations that even more so makes the need for competent managers evident. Managerial competencies consist of a set of knowledge, Skills and abilities and motives to help the manager perform the assigned tasks (Karami 2007) [1].

As a result, one of the valuable intangible assets of firms is the managerial ability that considering it will lead to better organizational performance and increased Competitiveness in the market (Panayiotis et al, 2013) [2]. A manager must adapt to today’s knowledge and be aware and sensitive toward what occurs around him. In fact, problem-solving for a manager is a continuous improvement process. Nowadays, things are changing and evolving, so the success or failure of an organization and thus the loss of the value of its shares depends on the efforts of its management.

The importance of this study is that it uses a novel approach to quantify and measure the ability of managers as one of the intangible assets and a vital component using data envelopment analysis. Then, in order to achieve the aim of this study we attempt to analyze the impact of managerial ability on stock prices crash risk of firms listed on the Tehran stock exchange.

2 Literature review

Many studies point to the importance of having a set of characteristics for managers. Determining the knowledge, skill and ability of managers, as the important component of human capital in organizations and study their role in the decisions in the organization is very importance and is done to develop the required abilities and characteristics to achieve the managerial position in the organization. One of the most important tasks of managers, i.e. making the correct decision, requires processing information. Sometimes all the required information is available but the manager is not able to process the information and make correct decisions. Therefore, the predicting variables of the ability to process information are vital and if we could identify these abilities using written tests, we could use them to achieve success in organizations (Asgaripoor and Arizi, 2008) [3].

In the new studies carried out recently a new measure of managerial ability introduced based on their productivity. In the newly presented model, factors such the cost of assets, the general and office costs, fixed assets, rental cost, study and development cost and intangible assets
included. In this model we expect the manager have a better understanding of technology trends and industry and have a correct prediction of product demand, invest in a project with higher value and manage their own staff better than other managers. In short, the presented model expects that the manager has the ability to achieve higher revenues given the same resources and or on the contrary, for a fixed level of revenues minimizes the used resources. (Demerjian et al, 2012) [4].

In few previous pieces of study by Demerjian et al (2012), attempted to quantify the managerial ability based on their performance in revenues given the available resources. They showed that their measurements have a significant relationship with stability on managers’ side and the stock price reacts to financial managerial in firms.

Panayiotis et al et al (2013) tried to study the relationship between the ability of managers and the performance of firm during the world financial crisis using the data of 2344 firms between 2008-2011 and shown that the managerial ability has a positive and significant relationship with firms performance i.e. firms with competent managers during the period financial crisis made more investment and thus more profits, and in case of not making enough money tried to attempt Issuance of debt papers.

Many investors’ losses in the capital market, attracted the attention of many studyers and university professors to the issue of the stock price crash. By stock price crash risk we mean the probability of sudden decrease of stock prices on a large scale. Despite that the existence of negative skewness in the output of stock market and sudden drop in stock prices is generally accepted by pundits, but the economic mechanisms that lead to the outbreak of this phenomenon is still not clear. In accounting literature, many theories and opinions present that try to explain the phenomenon of the stock price crash.

Kim and Zhang (2013) [5] in another study, entitled "will accounting conservatism reduces stock price crash risk?" tried to examine the relationship between accounting conservatism and risk of stock prices crash. The results showed that conservatism limits managers’ incentives to performance overstatement and not disclosing bad news and therefore, decrease the risks of price take the stock crash. Hamm et al (2012) [6] in another study, examined the relationship between the profit management guidelines and stock price crash risk. The results of this study showed that guideline lead to more transparency and reducing stock price crash risk.

2.1 Study hypothesis

The first hypothesis: there is a significant relationship between the future stock price crash risk using stock returns negative skewness measure and managerial ability.

The second hypothesis: there is a significant relationship between the future stock price crash risk using Down-to-up volatility measure and managerial ability.

The third hypothesis: there is a significant relationship between the future stock price crash risk using the extreme sigma measure and managerial ability.

3 Study methodology

This study is a quantitative study that uses the scientific method of constructing and experimental verification and carried out based on pre-defined hypotheses and study design. This category of study is used when the data measure is quantitative and to extract results statistical
methods used (Namazi, 2003) [7]. To collect data and information, the library study method is used. The collected data and theoretical study Persian and Latin books, magazines and specialized sites have been used. The firms’ data is also collected through the Tadbir-Pardaz software application from the official website of the stock exchange. Finally, the data prepared using the Excel software and then according to the outputs obtained from DEA Frontier software and using the DEA pattern, the efficiency score of managers is calculated and then using the SPSS software, version 19, and Eviews, version 7, we carried out the hypothesis test.

3.1 The statistical population and study sample

The study period, is a ten years period based on financial statements from 2004 to 2013. The listed firms on the Tehran stock exchange constitute the study sample. In this study sampling is not used, but the following criteria are placed to select the samples:

1. The fiscal year of the firm end at May of each year.
2. By the end of 2003 fiscal year be listed on the Tehran stock exchange.
3. Is not among the banks and financial institutions (investment firms, financial intermediaries, holding and leasing firms), because the financial information disclosure and corporate governance structure is different among them.

According to the survey, 68 firms in the 2004-2013 period meet the above conditions and has been studied.

3.2 Variables

3.2.1 The independent variable

In this study, the managerial ability is the independent variable. To measure the managerial ability, similar to the study by Demerjian et al (2013) [8], Baik et al(2012) [9], Panayiotis et al(2013) [10] and in accordance with the Demerjian et Al model (2012), the efficiency score of each of these firms listed on the Tehran stock exchange is calculated using data envelopment analysis.

According to the Demerjian et Al study (2012), using data envelopment analysis, each firm’s efficiency is predicted by comparing its sales on the condition of the inputs used by each of the firms (including inventory and cost of goods sold, selling and administrative expenses, net property, plant and equipment, net study and development expenses, purchased goodwill, and other purchased intangible assets).

The DEA technique is used to solve the following problem:

\[
\text{Max}_\theta \theta = \frac{v_1 \text{CoGS} + v_2 \text{SG&A} + v_3 \text{PPE} + v_4 \text{R&D} + v_5 \text{Goodwil} + v_6 \text{OtherIntan}}{\text{Sales}}
\]

A number between 0 and 1 will be assigned to the measured efficiency, according to above model that the higher value reflects the firm’s ability to use cheap resources and selling their goods and services more efficiently. Thus, firms that have efficiency score less than 1, should act to reduce costs or increase revenues in order to access their required efficiency.

But the calculated efficiency in accordance with the above model is not limited to managers and covers the entire firm. For example, while competent managers, regardless of firm size, are able to predict process trends in the firm, but managers in large firms usually communicate with
suppliers of resources better. Therefore, to neutralize the effects of the firm, using equation (2) and the calculated total competent in the equation (1), the remaining amount is considered as the managerial ability (efficiency).

\[
\text{Firm Efficiency} = \alpha_0 + \alpha_1 \ln(\text{Total Assets}) + \alpha_2 \text{Market Share} + \alpha_3 \text{Positive Free Cash Flow} + \alpha_4 \ln(\text{Age}) + \alpha_5 \text{Year Indicators} + \varepsilon_0
\]

Total assets: total assets, market share: market share, positive free cash flow: positive free cash flow, age: age of business unit and Year indicators: indicators of year

3.2.2 The dependent variable

In the present study, the stock price crash risk of firm criteria is considered the dependent variable. To measure the stock price crash risk of firm criteria, the negative skewness of stock returns, extreme sigma, and Down-to-up volatility is used. In this regard, using the equation (1) first the monthly return of a particular firm is calculated (Hutton et al, 2009 [11]; Bradshaw et al, 2010 [12] Kim et al, 2011 [13] Andreou et al, 2012 [14] Andreou et al, 2013 [15]):

\[
W_{j,t} = \ln (1 + \varepsilon_{j,t})
\]

(1)

In the above equation:

\(W_{j,t}\) is the t month’s return of a particular firmj shares during the fiscal year;

\(\varepsilon_{j,t}\) is the remaining t month’s return of a particular firm j shares and it is the remaining of model in equation (2):

\[
r_{j,t} = \alpha_j + \beta_{1,j} r_{m,t-2} + \beta_{2,j} r_{m,t-1} + \beta_{3,j} r_{m,t} + \beta_{4,j} r_{m,t+1} + \beta_{5,j} r_{m,t+2} + \varepsilon_{j,t}
\]

(2)

In this regard:

\(r_{j,t}\) is the return of shares of firm j in month t during the fiscal year;

\(r_{m,t}\) is the return of market in month t. To calculate the monthly returns of the market, the beginning of month index is deducted from the end of the month index and the resulting divided by the beginning of month index.

Then using specific monthly returns of the firm, the negative skewness of stock return and crash is calculated as the following:

3.2.3 Negative skewness of stock return:

Chen et al (2001) [16] believe that the signs of stock prices crash takes shape a year before this phenomenon and one of these signs is the negative skewness in stock returns. So the firms that last year experienced negative skewness of stock return, are more likely t face stock prices crash phenomenon the next year. To calculate the negative skewness of stock return equation (3) is used (Chen et al, 2001; Bradshaw et al, 2010; Kim et al, 2011; Andreou et al, 2012; Andreou et al, 2013)
NCSKEW_{j,t} = - \left( \frac{n (n - \gamma) \sum w_{j,t} \gamma}{(n - \gamma)(N - \gamma)(\sum W_{j,t})]} \right)

(3)

In the above equation:
NCSKEW_{j,t} is the negative skewness of monthly returns of shares of firm j during the fiscal year t.
W_{j,t} is the specific month t’s returns of firm j.
N: number of months that the return were computed for.

3.2.4 Extreme sigma:
Bradshaw et al (2010) have stated that extreme Sigma is used as a quantitative and continuous measure in order to measure stock price crash risk. Also, extreme sigma is defined as outlier returns considering the standard deviation of a particular firm. To calculate the variable, the equation (4) is used (Chen et al, 2001; Bradshaw et al, 2010; Kim et al, 2011; Andreou et al, 2012; Andreou et al, 2013)

Extr\_sigma = - \text{Min} \left[ \frac{w - \bar{w}}{\partial_w} \right]

(4)

In this regard:
\bar{w} is the average monthly returns of a particular firm
\partial_w is the standard deviation monthly returns of a particular firm

3.2.5 Down-to-up Volatility (DUVOL):
Chen et al (2001) have stated that Down-to-up volatility, controls the asymmetric volatility of return. Also, the higher the value of this measure in accordance with the distribution is more skewed to left. To calculate this variable the equation (5) is used (Chen et al, in 2001, Kim et al, 2011; Andreou et al, 2012):

DUVOL_{j,t} = -\text{Log} \left( \frac{(n_u - \gamma) \sum w_{j,t} \gamma}{(n_d - \gamma)(\sum W_{j,t})]} \right)

(5)

In this regard:
n_d and n_u are the number of down and up months during the fiscal year t

3.2.6 Control variables
Firm size: the natural logarithm of the firm's stock market value is used as the firm size measure.
Financial leverage: that is measured by the ratio of total debt to the book value of total assets.
The ratio of market value to book value: is the ratio of market value to book value of equity.
Profitability: to measure the profitability of firms the return of total assets measure is used that is obtained by dividing net profit by total assets of the firm.

Hypothesis test method

The Initial data extracted from the listed sources Excel software to perform some calculations and prepare the variables needed to test the hypotheses. Then, according to the outputs from the DEA Frontier software and using DEA pattern the efficiency score of managers is calculated and then using the SPSS software version 19 and Eviews 7 we test the hypothesis.

To test the study hypothesis, the following regression model is used:

\[ \text{crash} = \alpha_0 + \alpha_1 \text{Mg Ability} + \sum_{n=2}^{5} \beta_n \text{Control Variables} + \varepsilon_{it} \]  

In the above equation:
- Crash is the dependent variable (stock price crash risk criteria)
- \( \alpha \): the intercept
- \( \alpha_1 \): independent variable coefficient
- Mg ability: managerial ability.
- And \( \varepsilon \): the error of model.

4 Findings of the study
4.1 Descriptive statistics

Table 1 shows the calculated descriptive statistics including the average, the standard deviation, maximum and minimum values of managerial ability variables, negative skewness of stock return, extreme sigma, Down-to-up volatility, firm size, financial leverage, the ratio of market value to book value and profitability.

<table>
<thead>
<tr>
<th>Variable name</th>
<th>MIN</th>
<th>Max</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial ability</td>
<td>0.6190</td>
<td>0.492</td>
<td>0.00001</td>
<td>0.240</td>
</tr>
<tr>
<td>Negative skewness of stock return</td>
<td>24.3731</td>
<td>15.2276</td>
<td>-8.3038</td>
<td>9.8964</td>
</tr>
<tr>
<td>Extreme Sigma</td>
<td>0.3877</td>
<td>3.1754</td>
<td>2.1593</td>
<td>0.7164</td>
</tr>
<tr>
<td>Down-to-up Volatility</td>
<td>-3.4017</td>
<td>2.4488</td>
<td>-0.8328</td>
<td>1.0335</td>
</tr>
<tr>
<td>Size of the firm</td>
<td>9.4780</td>
<td>17.2864</td>
<td>12.9168</td>
<td>1.3273</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>0.0200</td>
<td>0.9300</td>
<td>0.6654</td>
<td>0.2482</td>
</tr>
<tr>
<td>The ratio of market value to book value</td>
<td>0.3809</td>
<td>40.7581</td>
<td>3.5365</td>
<td>5.0128</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.2614</td>
<td>1.8691</td>
<td>0.1623</td>
<td>0.1631</td>
</tr>
</tbody>
</table>

According to table 1 the negative skewness of stock return variable has the highest and the variable profitability has the lowest dispersion among the study variables. The Statistics relating to the variable of the ratio of market value to book value suggests that on the Tehran stock exchange the average market value is about 3.5 times of their book value. Moreover, financial leverage statistics show that on the Tehran stock exchange, more than half of the firm's assets have been financed out of debt. Statistics Related to profitability variable shows that the firms' annual net profit is equal to 16% of their assets.
4.2 The reliability results for variables

In order to ensure that the regression model is valid, we studied the variables stability. The reliability results of the test are presented for the variables in table 2. According to this table, in all of the variables the significance level in the Levin-Lin-Chu unit-root test (2002), is smaller than 0.05 which indicates that the variables are stable.

\begin{table}
\centering
\caption{results of a reliability test variables}
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
Variables & Crash & Mg ability & Size & Lev & MB & ROA \\
\hline
Levin-Lin-Chu unit-root test (Sig.) & -20.7560 (0.0000) & -15.111 (0.0000) & -14.5506 (0.0000) & -11.3146 (0.0000) & -35.3299 (0.0000) & -13.7548 (0.0000) \\
\hline
\end{tabular}
\end{table}

4.3 Inferential statistics

The results of regression models used for analysis of hypotheses is presented here. Table 3 shows the results of regression model used to test the first hypothesis.

\begin{table}
\centering
\caption{summary of statistical results of the first hypothesis}
\begin{tabular}{|c|c|c|c|c|}
\hline
Variables & Coefficients & Standard error & t Statistics & Significance level \\
\hline
Constant value & -21.0710 & 4.2969 & -4.9037 & 0.0000 \\
Managerial ability & -0.009 & 0.006 & -1.501 & 0.0004 \\
firm Size & 0.9996 & 0.3055 & 3.2722 & 0.0011 \\
Financial leverage & -2.4724 & 1.5510 & 1.5940 & 0.0111 \\
The ratio of market value to book value & 0.0583 & 0.0790 & 0.7387 & 0.4603 \\
Profitability & 3.5057 & 2.2960 & 1.5268 & 0.1273 \\
R2 & R\textsuperscript{2} adj & Durbin-Watson statistic & F statistic & Significance level \\
0.0638 & 0.0555 & 1.8113 & 7.6521 & 0.0000 \\
Chow test & 1.1772 & Significance level & 0.3065 \\
Kolmogorov-Simonov z statistic & 0.653 & Significance level & 0.901 \\
\hline
\end{tabular}
\end{table}

According to this table, chow test results indicate that between the fusion model and panel model of data for testing the first hypothesis we should use fusion data model. The F statistic in all the firms listed in table 3, which is equal to 7.6521, indicates that the significance of model at 95 percent level. Moreover, according to the Durbin- Watson statistic in all the firms listed in table 3, which is equal to 1.8113, the presence of serial autocorrelation in the regression elements is rejected. The significance Level of z-statistic of Kolmogorov-Simonov suggests that the regression model residuals in table 3 have a normal distribution. The R2 adj is equal to 0.0555.
therefore, accordingly, we can predict 5.05 percent of the dependent variable by independent and control variables.

Table 3 shows the coefficients of the regression model and also shows the significance levels. According to the findings presented in the table, the significance level related to the managerial ability variable indicates that there is a significant negative relationship between negative skewness of stock returns variable and of the managerial ability at 95% confidence level. The results of the control variables show that there is a significant positive relationship the negative skewness of stock returns and firm size and at the 95% confidence level but the relationship between financial leverage, the ratio of market value to book value and profitability with negative skewness of stock return is not significant at 95% confidence level.

Table 4 shows the results of regression model used to test the second hypothesis. According to this table, chow test results indicate that between the fusion model and panel model of data we should use panel data model. Also, Hausman test results indicate the necessity of using fixed effects model for this model The F statistic in all the firms listed in table 4, which is equal to 4.1170, that indicates the significance of model at 95 percent level. Moreover, according to the Durbin-Watson statistic in all the firms listed in table 4, which is equal to 1.6748, the presence of serial autocorrelation in the regression elements is rejected. The significance Level of z-statistic of Kolmogorov-Simonov suggests that the regression model residuals in the table below

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>Standard error</th>
<th>t Statistics</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant value</td>
<td>-1.5176</td>
<td>0.4762</td>
<td>-3.1868</td>
<td>0.0015</td>
</tr>
<tr>
<td>Managerial ability</td>
<td>-0.099</td>
<td>0.043</td>
<td>-2.302</td>
<td>0.00005</td>
</tr>
<tr>
<td>firm Size</td>
<td>0.0580</td>
<td>0.0341</td>
<td>1.7011</td>
<td>0.0894</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>0.2527</td>
<td>0.1632</td>
<td>-1.5483</td>
<td>0.1220</td>
</tr>
<tr>
<td>The ratio of market value to book value</td>
<td>0.0110</td>
<td>0.0089</td>
<td>1.2274</td>
<td>0.2201</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.1675</td>
<td>0.2394</td>
<td>0.6996</td>
<td>0.4844</td>
</tr>
<tr>
<td>R2 adj</td>
<td>0.0644</td>
<td>1.6748</td>
<td>4.1170</td>
<td>0.0000</td>
</tr>
<tr>
<td>Chow test</td>
<td>3.2139</td>
<td>Significance level</td>
<td>0.0008</td>
<td></td>
</tr>
<tr>
<td>Hausman test</td>
<td>20.3287</td>
<td>Significance level</td>
<td>0.0024</td>
<td></td>
</tr>
<tr>
<td>Kolmogorov-Simonov z statistic</td>
<td>0.562</td>
<td>Significance level</td>
<td>0.910</td>
<td></td>
</tr>
</tbody>
</table>
have a normal distribution. The R2 adj is equal to 0.0644, therefore, accordingly we can predict 6.44 percent of the dependent variable by independent and control variables.

Table 4 shows the coefficients of the regression model and also shows the significance levels. According to the findings presented in the table, the significance level related to the managerial ability variable indicates that there is a significant negative relationship between down to up volatility variable and the managerial ability at 95% confidence level. The results of the control variables show that there is a significant positive relationship the down to up volatility and firm size and at the 90% confidence level but the relationship between financial leverage, the ratio of market value to book value and profitability with down to up volatility is not significant at 95% confidence level.

Table 5 shows the results of regression model used to test the third hypothesis. According to this table, chow test results indicate that between the fusion model and panel model of data we should use fusion data model. Also, The F statistic in all the firms listed in table 5, which is equal to 3.4645, that indicates the significance of model at 95 percent level. Moreover, according to the Durbin- Watson statistic in all the firms listed in table 5, which is equal to 1.8710, the presence of serial autocorrelation in the regression elements is rejected. The significance Level of z-statistic of Kolmogorov-Simonov suggests that the regression model residuals in the table below have a normal distribution. The R2 adj is equal to 0.0213, therefore, accordingly we can predict 2.13 percent of the dependent variable by independent and control variables.

Table 5: summary of statistical results for third hypothesis

<table>
<thead>
<tr>
<th>The Dependent Variable: Extreme Sigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>Constant Value</td>
</tr>
<tr>
<td>Managerial Ability</td>
</tr>
<tr>
<td>Firm Size</td>
</tr>
<tr>
<td>Financial Leverage</td>
</tr>
<tr>
<td>The Ratio Of Market Value To Book Value</td>
</tr>
<tr>
<td>Profitability</td>
</tr>
<tr>
<td>R 2</td>
</tr>
<tr>
<td>0.0299</td>
</tr>
<tr>
<td>Chow Test</td>
</tr>
<tr>
<td>Kolmogorov-Simonov Z Statistic</td>
</tr>
</tbody>
</table>
Table 5 shows the coefficients of the regression model and also shows the significance levels. According to the findings presented in the table, the significance level related to the managerial ability variable indicates that there is not a significant relationship between extreme sigma variable and the managerial ability at 95% confidence level. The results of the control variables show that there is a significant negative relationship the extreme sigma and firm size and at the 95% confidence level but the relationship between financial leverage, the ratio of market value to book value and profitability with extreme sigma is not significant at 95% confidence level.

5 Discussion and conclusion

Knowledge, skills and abilities of managers, is most important aspect of the human capital in organizations and studying their role in the factors affecting the organization is very important and is done to develop skills and characteristics needed to establish a management position in the organization. The results of tests first and second hypothesis showed that there is a significant negative relationship between stock price crash risk (using negative skewness measure of stock returns and down to up volatility criteria) and the managerial ability of listed firms on the Tehran stock exchange and so, do we cannot reject the first and second hypothesis of this study with an acceptable confidence level. We can state that the performance of managers or the managerial ability is effective in using corporate resources to prevent a decline in stock price. One of the most important tasks of management is making correct decisions. Sometimes all the information needed is available, but the manager’s inability to process information correctly lead to incorrect decisions. Thus, a competent manager is able to use resources and make decision correctly to protect the interests of the organization and, accordingly, all the firm's stakeholders. Competent managers are able to use resources better and have better overall performance and therefore will prevent the declining of the firm's stock price.

The Results of the third hypothesis showed that there is no significant relationship between the stock price crash risk (using extreme sigma standard maximum) and the managerial ability of the listed firms on the Tehran stock exchange. It is possible that the reason that these findings are not consistent with the literature is that one of the reasons that this relationship is not significant, may be related to the criteria selection for measuring stock price crash risk. In other words, the extreme sigma is not a good indicator for stock price crash risk in Iran.

5.1 Practical suggestions

1. Due to the negative relationship between the managerial ability and stock price crash risk, we recommend that the shareholders of listed securities on the Tehran stock Exchange when electing board members, investigate the history of managers to see whether they have the ability to use firm resources according to the presented model in this study so by electing competent managers to avoid the risk of crashing firm's stock prices to and provide the context to improves the firm.

2. Considering the reverse relationship between the managerial ability of and stock prices crash risk, we recommend that the investors and creditors on the Tehran stock exchange
to consider this relation in their analysis and decisions and consider the ability of firms in use of resources.
6 References