Investigating the relationship between stock returns and situation of risk management at accepted banks from the perspective of shareholders in stock exchange of Iran

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Abstract

Banks are exposed various risks according to nature of their activities and risk management is one of the essential activities in the management of these institutions. In leading research also has been tried to evaluate the status of risk management in banks member of Tehran Stock Exchange by using the analysis of financial statements and investigate its relationship with stock returns of banks to determine whether capital market participants notice to the status of risk management about pricing of bank stocks in their decisions or not. The results of research show that, indicators of capital adequacy and the margins of reserves taken by the bank has a significant relationship with the bank stock returns. However, net interest margin and net margin of wage income has no significant relationship with stock returns. According to the results of research can be said that the hypothesis of existence a relationship between the status of bank risk management and its stock returns about capital adequacy and the margin of reserves taken by the bank is true.

Keywords: credit risk, the risk of interest rate changes, risk of ability to pay commitments, strategy of natural risk coverage, capital adequacy.
Introduction
Today life continues while that the adumbration the conditions of uncertainty on all affairs for various causes has changed totally decision-making process. Changes in prices of basic commodities, exchange rate change, interest rate change as well as change in stock price are of the cases that today organizations are constantly involving with it (Raie & Saeedi, 2004). Risk in the common language is the danger that arises due to uncertainty about the occurrence of future events and as much this uncertainty is more so-is said the risk is more (Eaeie & Saeedi, 2004). Various sciences, each one explores an aspect of an activity of organization. Financial engineering and risk management control financial risks and by offering new solutions and innovative strategies could create systematic methods, for businesses, products and services companies, as well as commercial banks in this regard (Raeie & Saeedi, 2004).

Although the phenomenon of risk and methods of dealing with it is considered important and is proposed in a comprehensive framework of risk management for all enterprises and organizations but the experiences of the past two decades suggest that this risk management for five groups of institutions has crucial and immediate importance. These five groups of institutions, including banks and non-bank institutions of money market, financial institutions of capital market and stock exchange, insurance companies, pension funds and Social Security and eventually simultaneous settlement of claims and debts.

Studies of researcher show that risk management in Iranian banks outside the regulations that the Central Bank has intended for them, it is not yet systematically and integrated. Since the ultimate goal of this research is to achieve how to look the shareholders at the risk management of the bank, conducted analyzes has been carried out from the perspective of investors and the information they have about Bank. In other words, the importance rate of risk management of bank has been done from the perspective of its shareholders to determine that if the shareholders of banks have recognized the importance of risk management in banks or not?

Theoretical foundations and background of research
A commercial bank deals with five different risks: credit risk, interest rate risk, liquidity risk, Solvency risk, and operational risk. Risk management is said to the overall process that the bank to identify the risks that it encounters with them, quantifying and controlling them. Amirhoseini (2014) in his/her study with the subject of investigation the allocation and optimum combination of resources portfolio and uses of banks based on the profitability in the management of branch of the Agricultural Bank of Kermanshah province, achieved to these results that the ratio of financial facilities to total assets and the ratio total deposits to total assets has no significant relationship with the profitability but there is a significant and inversed relationship between the ratio of costs to total assets and profitability. The optimum combination obtained from attracting deposits and income from trading and net liquidity of management has direct and significant relationship with profitability However, credit risk has no significant relationship with profitability (Amirhoseini 2013).

Wali Jan (2013) has researched about the investigation the effect of macroeconomic variables and especially bank factors on the profitability of public and private banks of Iran. The results of the estimation the research model by Eviews software shows that special factors of bank include the capital of bank, Liquidity risk, the combination of bank activities and ownership of private bank have had a significant and positive impact on the profitability while the size of bank has had a
negative and significant impact on profitability. As well as macroeconomic variables such as gross domestic product and inflation rate have also significant and positive relationship with profitability (Wali Jan 2013).

Nankeli (2011) investigated that banks to determine their capital buffers of their granted facilities basket are interested to calculate the rate of risk posed by each customer or the economic sector which is said the contribution of risk. Determine the contribution of basket risk is an important issue in financial risk management and has been studied more for trading positions such as financial instruments and sub baskets and specifically, had been considered in calculating the marginal contributions. The total risk of the basket in general is a linear function of share risk of trading positions. A linear function necessarily does not loss of effective factors in the level of loan basket of loss Variable, therefore random variable of loss decomposes by using Hafding parsing into influential factors. Linearization the loss is of the most important characteristics of Hafding parsing, but its cost extra is adding sentences to parsing, such as the combined effects of several risk factors. A covering of appropriate risk for each parsing statement can be considered after using of this parsing. Finally, with regards to significant amount of factors, was calculated the risk share of factors of whole stock market index, inflation index and land and housing prices index (Nankeli 2011).

Motameni, Javadzadeh and Tiz fahm (2010) explained in their study which currently with regards to considerable number of banks and financial and credit institutions in the country, also according to the privatization process of state banks and also transformation the financial institutions to bank, evaluating their performance has found special important. Research results showed that by merely having good financial performance in general cannot be expected to improve bank performance, (Motameni, Javadzadeh, & Tizfahm, 2010).

Dergerigorian Kenaraki (2004) has studied the internal facator affecting on liquidity risk in his study and has offered a model to assess the liquidity risk with regards to these factors. He has used the Multiple Indicators- Multiple Causes model(MIMC) which is a special case of structural equation modeling to design the liquidity risk measurement model in his investigation (Dergrigorian, 2004).

Williams (2014) argued in his study that the impact of the capital increase to risk reduction is saturated in developed countries. Evidence of risk taking observed due to too great impact that is likely too big to fail and as well as the improvement of national sovereignty compensates a part of the moral hazard originated of size in developed countries but this is not true in developing countries (Williams, 2014).

Olivera, Rodriguerz and Crige (2011) studied the risk reporting voluntary in order to increase the legitimacy of organizations and institutions in Portugal banks. They realized that voluntary reporting of credit risk, capital structure and capital adequacy in these banks led to be more their legitimacy among stakeholders and increase their reputation (Oliveira, Rodriguers, & Crige, 2011)

Snsarma and Jayadv (2009) investigated the status of risk management in banks by using data from the analysis of the financial statements of banks in their study and then examined the stocks sensitive of banks to risk management status in the bank. Results of statistical investigations showed that there is a direct relationship between the risk management status of these banks and their stock returns (Sensarma & Jayadev, 2009)
Siddiqui (2009) has studied the Status of financial contracts, risk and performance of Islamic banks in Pakistan and has compared them with the industry average. He investigated the liquidity status, risk of ability to pay commitments, capital adequacy and profitability of these banks through the analysis of financial statements of these two banks. He used two ratios of ROA and ROE to evaluate the performance rate and profitability of banks. His investigations showed that these two Islamic banks have better profitability compared with the industry average and their risk management status is also better than the industry average (Siddiqui, Financial contracts, risk and performance of Islamic banking, 2008).

Bill, Jang and Went (2007) investigated whether banks that have diversified their actions have proper risk situation and profitability in long-term than their more specialized competitors or not. They focused on bank stock returns and risk status of bank for this matter. Their investigations showed that the diversification the activities of bank increases systemic risk and reduces the nonsystematic risk. From the perspective of shareholders, improve the diversification the activities of bank caused to increase bank profits and at the result the stock returns (Baele, De Jonghe, & Vennet, 2007).

Cancer, Ozyildirim and the Ungan (2007) examined the sensitivity of the various stakeholders on the types of risks associated with the bank, and the way of their impact on the risk management of bank. Their investigations showed that if shareholders on the basis of published financial statements and financial data of bank recognize an increased risk in the bank, they expect that the management with the revision in its risk management reduce the bank risk. And of course it will be costly. Analyzes financial statements of bank showed that managers in the revision of their risk management strategies use less expensive methods and generally, will not use the methods such as conversion the assets with less liquidity in assets with more liquidity, which requires a high cost (Caner, Ozyildirim, & Ungan, How Sensitive are Shareholders to Bank Risk ?, 2007).

Research hypotheses

The hypothesis of this research is whether there is the relationship between the state of risk management and bank stock returns or not. In other words, the main hypothesis of the present study is:

"There is a significant relationship between the state of risk management of bank and its stock returns."

As will be described in detail in this article net interest margin, net margin of commission, margin of taken reserves and a capital adequacy ratio have been considered as individual indicators of risk status of bank. Therefore above hypothesis is broken down into the following hypotheses:

First hypothesis: There is a significant relationship between the bank net interest margin and its stock returns
Second hypothesis: There is a significant relationship between the net margin of commission profit of bank and its stock returns
Third hypothesis: There is a significant relationship between the margin of bank reserves and its stock returns.
Fourth hypothesis: There is a significant relationship between the capital adequacy ratio of bank and its stock return.

Research methodology

Present study, is applied research that seeks to identify the relationship between risk management status and stock return of banks member of the Tehran Stock Exchange and the results can be used by investors of stock exchange and managers of banks. The method of this study is correlational, because it studies the relationship between the risk management status of bank and its stock returns. Statistical population includes all banks listed in the Tehran Stock Exchange in the period from 2004 to 2013, which is the number of these banks is equal 15 banks. So In this study, the considered sample is the whole of the statistical population. In the current study is tried to determine the different risk factors by using the financial statements and using the method of analyzes DuPont. In total, the diagram shows how ROE is related to four indicators of risk management that is going to be examined.

Diagram 1: Analysis of return on equity by DuPont method and extraction the indices of various risk management of it

Thus, we consider each of the following ratios that are obtained through analyzes the financial statements of bank as indicator from one of the risks associated with the bank:
- Net bank interest margin ratio on total assets, as an indicator of capacities of bank interest rate risk management of the bank (Price volatility of securities due to bank interest rate change is defined as bank interest rate risk (Nikomram, Roodposhti Guide, & Heybat, 2006).
- The ratio of reserves to total assets of bank as an indicator of bank status against credit risk.
- The ratio of capital adequacy of bank as an indicator of the bank status against the capacity risks of payment the commitments.
- Net margin of commission interest to the total assets of the bank as indicators of strategic status of covering Natural Hedging the bank in front of the other risks.

The main framework of present research is based on the main goal of any company means the maximization of return on equity. Return on equity measured the profitability in terms of equity. At this stage, we use the DuPont equation to analysis the return on equity for banks to operational efficiency (measured by interest margin), asset use efficiency (calculated by asset turnover) and financial leverage (as measured by equity multiplier). The multiplication of operational efficiency and asset turnover can be expressed as return of assets. So:
Equation 1:

\[
\text{Return on equity} = \frac{\text{Net profit}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Equity}}
\]

In the above equation, the net interest ratio to total assets is equal return of assets. Ratio of total assets to equity becomes equity multiplier (ie inversed ratio of capital to assets). In other words, it evokes the concept of capital adequacy that is indicator the ability to pay the commitments by bank. Expected profit in return on assets ratio can be separated in to profit from banking interest and interest resulting from commission. Return on assets of bank will include the sum of two margins of banking interest minus margin of save bad debt of bank (bad debt expense) divided by total assets.

So the return on assets it will break down as follows:

Equation 2:

\[
\text{Return on asset} = \frac{\text{Costs of Bank Interest} - \text{Revenue of Bank Interest}}{\text{Total assets}} + \frac{\text{Commission costs} - \text{Commission Revenue}}{\text{Equity multiplier}}
\]

Equation 2 can be written as follows:

Equation 3:

\[
\text{Return on assets} = \text{Net commission income margin} + \text{net banking interest margin} + \text{ratio of reserves to total assets}
\]

By replacing Equation 3 in Equation 1 the following equality is obtained:

Equation 4:

\[
\text{Return on Equity} = \left( \text{net profit margin} + \text{commission income margin} + \text{the ratio of reserves to total assets} \right) \times \text{equity multiplier}
\]

Equation 4 indicates that a bank can achieve to its goal of maximizing shareholder returns through each of the following methods:

- Maximizing the net banking interest margin
- Maximizing net commission income margin
- Minimizing the ratio of reserves to total assets
- Maximizing the ratio of equity to assets

Increasing in the ratio (assets to equity) increases Return on Equity but in terms of risk by increasing this ratio the risk of the ability to pay commitments will also increase that according to equation 1, can be pointed to the following equation and explain further the above concept.

Equation 5:

\[
\text{Return on equity} = \frac{\text{Net profit}}{\text{Debt} + \text{Equity}} \times \text{Debt} + \text{Equity} / \text{Equity}
\]

Above equation suggests that in order to increase Return on Equity should increase debt that the increasing debt also reduces the profit after tax and on the other hand also is caused to increase the risk, so to reduce the risk, equity assets must be reduced. That is why the central bank is considered a minimum capital adequacy for banks.

How to calculate the relationship between stock returns and single indicator of the bank risk management status of bank
Studies of researchers such as research of Lev in 1989 has shown that, many accounting researches have conducted on extraction the information from the financial statements related to stock returns. These researches have shown that income of company is one of the most relevant indicators of accounting. A simple framework to explain this phenomenon has been proposed by Oyo and Penman in 1989 (Sensarma & Jayadev, 2009). Consider the following valuation model:

**Equation 6:**

\[ V = \frac{E(d)}{r} \]

Where in:

- \( V \) = value of the shares (or share price in an efficient market)
- \( E(d) \) = expected future divided interest
- \( r \) = discount rate which involves risks of securities

Thus, to determine the value of the company should obtain the obtained value from the factors of future divided interests that have been discounted by the rate of \( r \). Although the determining factors \( E(d) \) have been investigated largely but determining factors of risk have not been investigated as that much.

Our strategy in this research is that we use of a standard approach to evaluate and calculate the first case \( E(d) \) and of a new and innovative approach to evaluate and calculate the second case \( r \) (Sensarma & Jayadev, 2009).

Investors often consider great importance for accounting profit (EPS) because future dividends are paid based on accounting profit. Although various studies of various indicators have used as a measure criteria of profit but it is the unexpected earnings (UE) that effect on the value of share because expectations in future profits (and not only accounting reported profits) already have affected on the share price. Therefore we will use a simplified model for calculating UE, which is the difference between reported net profits of this year and last. Determined regression of our estimated stock returns will be as follows (Sensarma & Jayadev, 2009).

**Equation 7:**

\[ RET_{it} = \alpha + \beta RET_{market(t)} + \gamma UE_{it} + \delta RISKMGMT_{it} + \varepsilon_{it} \]

Where in:

- \( RET_{it} \): return each bank in the t year
- \( RET_{market} \): market return
- \( UE \): changes in net profit
- \( RISKMGMT \): variable of risk management
- \( \varepsilon \): error term
To select the criteria for placement as RISKMGMT, we refer to four parameters that we determined before.

A stock return has been calculated on a monthly through the following formula:

**Equation 8:**

\[
\text{Returns per month} = \frac{\text{Share price at the end of the month} - \text{Share price the first of month}}{\text{Share price the first of month}}
\]

After calculating the return of share per month return of each year has been calculated by the following formula:

**Equation 9:**

\[
\bar{r} = (1 + r_1) \times (1 + r_2) \times \ldots (1 + r_{12})
\]

The above method has been used to calculate market return.

**Research hypotheses:**

According to the literature of subject associated with the research, major and minor hypotheses have been presented as follows:

**The main hypothesis:**
- There is a significant relationship between stock return of bank and its risk management status.

**Secondary hypotheses:**
- There is a significant relationship between banking net interest margin with its stock return.
- There is a significant relationship between not interest margins with its stock return.
- There is a significant relationship between taken reserves margin by bank and its stock return.
- There is a significant relationship between capital adequacy ratio of bank and its stock return.

**Research findings:**

The following data were extracted of financial statements of banks for any bank in each year:

<table>
<thead>
<tr>
<th>II: interest income</th>
<th>NII: non-interest income</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE: interest expense</td>
<td>NIE: non-interest expense</td>
</tr>
<tr>
<td>TA: total assets</td>
<td>UE: unexpected earning</td>
</tr>
</tbody>
</table>
Then by using these data, were calculated the following variables that in fact each one is one of the indicators of the risk management status in bank with the help of Excel software and according to the described methods:

- **NETIM**: net interest margin
- **PROVTA**: provisions to total assets
- **NONIM**: non interest margin
- **EM**: equity multiplier

The following diagram shows the overall trend of changes in each of these indicators during the studied period:

**Diagram 2: The trend of changes of the risk management status indicators of banks during the years 2004-2013**

As the diagram shows the capital adequacy ratio, net interest margin of banking interest and the ratio of reserves of banks have had downward trend from 2004 to 2006 and then again have been positive. The reason for this occurrence can be that net interest income of banking interest at banks had been reduced during the years 2004 to 2006 and as a result, banks were forced to allocate more resources to this area in order to not to reduce their profits so much. And therefore the capital adequacy ratio had been reduced in banks.

According to meeting dated 21.02.2010, the Money and Credit Council appointed that minimum capital required for the establishment of private banks is 4,000 milliard rails that's why it is observed that the capital adequacy average of banks has experienced significant growth during this period.

**Stock return and market**

The following diagram shows the status of stock return and market return.

**Diagram 3: The trend of changes of stock return at banks and market return during the years 2004 to 2013**

As the diagram 3 shows the stock return of banks with market return shows similar trends, that indicates significant impact of market on the stock of banks. Of course, it should be stated that in the years 2008 to 2013, although the return trend of banks had been similar to market return but market return had been more than the return of banks.

**The investigation of the relationship between indicators of risk management status and stock return**

The investigation of descriptive statistics of research variables

First, descriptive statistics include central indicators (including the middle and average, dispersion indicators (including standard deviation) and calculated deviation from symmetry (including Skewness and elongation) that the average of variables are representing the central tendency and the standard deviation, variance, Skewness and elongation, the dispersion of the
distribution. Standard deviation shows data distribution, Skewness and symmetry of the data and ultimately a long elongation of data and has presented in the below table.

Table 1: Descriptive statistics of data

<table>
<thead>
<tr>
<th></th>
<th>UE Percentage of changes in net income</th>
<th>RETM Market returns</th>
<th>PROVITA Reserves to total assets</th>
<th>NONIM Net commission Profit Ratio to total assets</th>
<th>NETIM Ratio of net profit to total assets with fixed rate</th>
<th>CAR Capital adequacy</th>
<th>RETI Bank stock returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.56965</td>
<td>0.253175</td>
<td>0.008042</td>
<td>0.015587</td>
<td>0.027757</td>
<td>0.154857</td>
<td>0.209847</td>
</tr>
<tr>
<td>Median</td>
<td>0.3029</td>
<td>0.10435</td>
<td>0.00705</td>
<td>0.00625</td>
<td>0.0238</td>
<td>0.10935</td>
<td>0.090950</td>
</tr>
<tr>
<td>maximum</td>
<td>11.072</td>
<td>0.9855</td>
<td>0.0247</td>
<td>0.1429</td>
<td>0.1428</td>
<td>1.227</td>
<td>1.887</td>
</tr>
<tr>
<td>minimum</td>
<td>-0.864</td>
<td>-0.231</td>
<td>0.0001</td>
<td>-0.0014</td>
<td>-0.0407</td>
<td>0.0507</td>
<td>-0.484</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.32494</td>
<td>0.394575</td>
<td>0.005046</td>
<td>0.029989</td>
<td>0.024294</td>
<td>0.171039</td>
<td>0.431906</td>
</tr>
<tr>
<td>Skewness</td>
<td>6.12446</td>
<td>0.536825</td>
<td>1.132915</td>
<td>3.157416</td>
<td>1.487032</td>
<td>4.431858</td>
<td>1.664684</td>
</tr>
<tr>
<td>Elongation</td>
<td>47.9486</td>
<td>2.060572</td>
<td>4.368944</td>
<td>12.20726</td>
<td>8.769939</td>
<td>24.69729</td>
<td>6.019445</td>
</tr>
<tr>
<td>Jarek statistics for</td>
<td>7686.88</td>
<td>12.72030</td>
<td>26.27999</td>
<td>467.4403</td>
<td>158.0147</td>
<td>1968.46</td>
<td>65.65567</td>
</tr>
<tr>
<td>Probability</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Total</td>
<td>48.421</td>
<td>37.9762</td>
<td>0.7238</td>
<td>1.4028</td>
<td>2.4981</td>
<td>13.3177</td>
<td>16.3681</td>
</tr>
<tr>
<td>Sum of squares of observations</td>
<td>147.460</td>
<td>23.19772</td>
<td>0.002266</td>
<td>0.80042</td>
<td>0.052528</td>
<td>2.486632</td>
<td>14.36379</td>
</tr>
<tr>
<td>Number of Views</td>
<td>85</td>
<td>150</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>86</td>
<td>78</td>
</tr>
</tbody>
</table>

Respectively, the three indicators that have highest average number are indicators of changes in net interest, market return and stock return of banks. Jarek Bara statistic shows that the statistic is not normal, but because of much data can be used of parametric statistics.

Pre-tests related to estimate the mixed regression model

Results of study the correlation between the independent variables has shown in the below table:
Table 2: Investigation the independence of the independent variables (investigate the linearity)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Solidarity of t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Analysis of variance: Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number of Views: 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR</td>
<td>NETIM</td>
<td>NONIM</td>
<td>PROVITA</td>
<td>RETM</td>
<td>UE</td>
<td></td>
</tr>
<tr>
<td>1.000000</td>
<td>0</td>
<td>-----</td>
<td>1.000000</td>
<td>-----</td>
<td>1.000000</td>
<td>-----</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.01921</td>
<td>-1</td>
<td>0.17078</td>
<td>-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.100125</td>
<td>-1</td>
<td>0.91647</td>
<td>-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.057648</td>
<td>8</td>
<td>0.51323</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.026547</td>
<td>7</td>
<td>0.23603</td>
<td>4</td>
</tr>
<tr>
<td>1.000000</td>
<td>0</td>
<td>0.199587</td>
<td>0.694754</td>
<td>0.315911</td>
<td>2.959431</td>
<td>0.008749</td>
</tr>
<tr>
<td>1.810397</td>
<td>1.494257</td>
<td>0.601739</td>
<td>0.227694</td>
<td>0.009124</td>
<td>0.077763</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.016167</td>
<td>-0.263076</td>
<td>-0.404966</td>
<td>0.008749</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.143719</td>
<td>-2.423641</td>
<td>-0.400070</td>
<td>0.008749</td>
</tr>
</tbody>
</table>

If the absolute value of the t-Statistic is greater than 1.96 indicates the relationship between these two variables. But it is considered that the relationship is not enough that correlation causes to co-linearity.

The Chow test
To see that the width of the elevations provided for each year, statistically have significant differences with each other or not, we will use this test. In Chow test the hypothesis H0 is placed, being same the intercept (Pool data) to the opposite hypothesis H1, inconsistency intercept (Panal
data). According to accept the hypothesis H0 data does not have fixed effects and as a result, the model of combining ability data is accepted and the fixed effects are not checked.

Table 1: The Chow test for study the fixed effects

<table>
<thead>
<tr>
<th>Probability</th>
<th>Distribution function</th>
<th>Statistic</th>
<th>Effects test</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6617</td>
<td>(14.56)</td>
<td>0.803404</td>
<td>Cross section of F</td>
</tr>
<tr>
<td>0.4428</td>
<td>14</td>
<td>14.093342</td>
<td>Cross-section of Chi- square</td>
</tr>
</tbody>
</table>

As can be seen, the F probability amount was greater than 0.05, and H0 hypothesis means the absence of fixed effects and so the model of combining ability data is accepted and random effects is not checked.

The implementation the combinatorial regression model

Table 2: The implementation the combinatorial regression model

<table>
<thead>
<tr>
<th>Probability</th>
<th>T Statistic</th>
<th>standard error</th>
<th>Coefficient</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6658</td>
<td>0.435306-</td>
<td>0.038123</td>
<td>0.016595-</td>
<td>C</td>
</tr>
<tr>
<td>0.0000</td>
<td>5.591235</td>
<td>0.092586</td>
<td>0.517671</td>
<td>RETM</td>
</tr>
<tr>
<td>0.0096</td>
<td>2.728920-</td>
<td>0.019757</td>
<td>0.053916-</td>
<td>UE</td>
</tr>
<tr>
<td>0.0174</td>
<td>2.485804-</td>
<td>0.076561</td>
<td>0.190315-</td>
<td>CAR</td>
</tr>
<tr>
<td>0.8669</td>
<td>0.168740-</td>
<td>1.088555</td>
<td>0.183683-</td>
<td>NETIM</td>
</tr>
<tr>
<td>0.4458</td>
<td>0.770492-</td>
<td>1.102658</td>
<td>0.849589-</td>
<td>NONIM</td>
</tr>
<tr>
<td>0.0238</td>
<td>2.354383</td>
<td>3.529619</td>
<td>8.310073</td>
<td>PROVTA</td>
</tr>
<tr>
<td>0.0006</td>
<td>3.763780-</td>
<td>0.283665</td>
<td>1.067654-</td>
<td>AR(1)</td>
</tr>
<tr>
<td>0.0000</td>
<td>6.446842-</td>
<td>0.113616</td>
<td>0.732466-</td>
<td>AR(2)</td>
</tr>
</tbody>
</table>

0.300338 Dependent variable of Average 0.727130 R square

0.431991 Dependent variable Standard 0.669683 R-square adjusted

0.221891 AIC criterion 0.248279 SD Regression

0.576174 Schwarz criterion 2.342415 Sum of squared of residual

0.355210 Kueintryayer -Hannan 3.785571 Log-likelihoods

1.897867 Watson camera Statistic 12.65753 F Statistic

0.000000 Probability (F i67.+ 53.- 0.000000 Inverted AR Roots
Model has been resolved by using white correction, variance heterogeneity and auto regression variable of first order and second order is significant so the model is auto regression. Self-explanation process of first order AR (1) a univariate time series pattern that explains the behavior of a variable based on past values of that variable. In the mentioned model the autocorrelation coefficient rate of first order is equal to 0.0006 and 0.0000 respectively, which because it is smaller than the amount of 5% so it is steady model.

The rate of F statistic is equal to 12.65753 with a significance level of 0.000. This amount also represents this point that there is a significant relationship between the dependent variable and the independent variable. So the estimated model is achieved as:

\[
RETI = -0.016595 + 0.517671\text{RETM} - 0.053916\text{UE} - 0.0190315\text{CAR} - 0.018363\text{NETIM} + 0.849589\text{NONIM} + 8.310073\text{PROVTA} + C_i
\]

In the above table, if the probability is smaller than 5% can be said that at a confidence level of 95% and also, the t-statistic is greater the unity or impact is greater and if signs are positive indicates a direct relationship.

**Conclusion and discussion:**
Test results show that the net margin of banking interest and non interest margin has not significant relationship with stock return. According to results can be said that the hypothesis of existence a relationship between risk management status of bank and its return equity in the case of net interest margin and net commission income margin of the bank is not true as a status indicator of risk management but is true about the other status indicators of risk management calculated in this study.

The lack of relationship between the two risk management and stock returns indicators can be because of this reason that, market participants and investors who are buying and selling stock of bank in exchange only to dividends, the proportion of reserves taken (directly effects on the dividends of bank) and capital adequacy not to net banking interest margin and net commission income margin and of course, also overall market atmosphere is effective on them.

It should be noted that there is a significant relationship between stock return of bank and bank capital adequacy, but this relationship has been inverse and. In other words, by increasing the capital adequacy of bank, the capital return of bank has increased. The reason of this relationship can be seen in Equation 5 that it is true that with increasing the capital adequacy, risk in decreased but on the other hand, Return on Equity is reduced and Perhaps the reason is that stock return by increasing capital adequacy also has been reduces. Of course, a close examination of this issue does not fit in this field of research and requires its own investigations.

In this study, the relationship is inversed between the percentage of changes in net interest of bank and return on equity. Perhaps the reason of this relationship can be explained through pre-reaction of shareholders to tangible and intangible information that of course a close examination of this issue does not fit in this field of research and requires its own investigations. Considering that the aim of this study is providing a criterion for making decision for investor on the stock of
bonds until can decide about buying and selling stocks of banks and valuation based on assessment of risk management status in a bank and its relationship with stock return, along with consideration the other factors affecting on stock return, each above variables can be considered as a measure of the risk management status of bank. But investors should those variables that have confirmed the relationship between risk management and stock return of bank consider in their decisions in buying or selling stocks of bank.

A comparison of the results of research with our research has been shown in the following table:

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Snsarma and Jayadv</th>
<th>This research</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Market returns (RETM)</td>
<td>There is a significant relationship</td>
<td>There is a significant relationship</td>
</tr>
<tr>
<td>Changes in net income (UE)</td>
<td>There is a significant relationship</td>
<td>There is a significant relationship</td>
</tr>
<tr>
<td>(Capital adequacy (CAR)</td>
<td>There is no significant relationship</td>
<td>There is a significant relationship</td>
</tr>
<tr>
<td>Ratio of reserves to total assets (PROVTA)</td>
<td>There is a significant relationship</td>
<td>There is a significant relationship</td>
</tr>
<tr>
<td>Net bank profits margin (NETIM)</td>
<td>There is no significant relationship</td>
<td>There is no significant relationship</td>
</tr>
<tr>
<td>Net commission income margin (NONIM)</td>
<td>There is no significant relationship</td>
<td>There is no significant relationship</td>
</tr>
</tbody>
</table>
Persian References

5. Darigrigirian, Siuneh. "Liquidity risk measurement model designed for private banking system of Iran, the Saman bank." MA thesis Shahid Beheshti University, Faculty of Administrative Sciences, 2004.

English References