Abstract

The purpose of this study is to examine the internal and external factors affecting the profitability of banks inside country. The observations in the research include 100 year-firm. These observations are due to the combination of data from 20 banks listed in the exchange, as a sample of over 9 years (2004 to 2012), as the test period. It should be noted that, since the sample banks gradually entered the exchange since 2004, and during some years, all banks have not been active in the stock market, data has been combined through unbalanced panel. Based on our findings, there is an inverse relation between the amount of banks’ cash and their profitability. These findings potentially reflect the free cash flow theory and the consequences of the accumulation of cash reserves in the profit sectors and show that unused cash reserves reduce the profitability of banks in the sample. Also, according to the results, there is a direct relationship between GDP and the profitability of the banks. Thus, changes in macroeconomic indices affect the performance of banks in terms of profitability.

Keywords: Profitability of banks, Liquidity of banks, GDP, Macroeconomic indices

Introduction

Due to the important role of banks in the economy, identifying the effective factors on their performance is an issue that is increasingly being considered by the investigators. Banks collect the capital resources available in the community and put them in the various sectors of the economy. Strategies that bank managers are concerned are potentially influenced by their understanding of the factors affecting the efficiency and profitability (Fadzlan, 2009).

The previous literature about the profitability of banks explains profitability through internal and external variables. Internal factors are specific features of banks that are under the control of the bank manager. However, external factors reflect the impact of the macroeconomic environment on the performance and, generally, beyond the control of the bank manager. Short (1979) and Bourke (1989) conducted research on the profitability of banks for the first time. In line with these studies, other researchers attempted to investigate the profitability of banks in certain countries (Ben Naceur, 2003; Kosmidou, 2006). The group of research, using data from banks of a country assessed the profitability structure and the factors affecting it. Some other research considered the profitability of banks in a number of countries and assessed the factors affecting it. Some other research considered the profitability of banks in a group of countries and applied a compilation of data from several different countries in their research (Abreu and Mendes, 2001; Hassan and Bashir, 2003; Goddard and et al., 2004). The results of the study, due to environmental changes and data difference, are significantly different from each other. However, some general factors affecting the profitability of the banks that have been identified in previous research have typically been considered in most research (Davydenko, 2010).

The subject of this study is to evaluate the internal and external factors affecting the profitability of banks of the country. In the following, the theoretical basis, literature review, hypotheses, methodology, findings of statistical analysis and conclusions of testing the research hypotheses will be presented.

Theoretical basis of formulating research hypotheses
Previous empirical evidence reviews the effectiveness of the bank's performance using comprehensive data of financial statements and tries to identify the factors affecting the profitability of the banks (e.g., research by Abreu and Mendes, 2001; Bikker and Hu, 2002; Goddard et al., 2004). These studies explain profitability of banks based on internal and external variables. Internal variables include the specific characteristics of banks and external variables associate with macroeconomic conditions that may affect the profitability of banks (Davydenko, 2010).

What is considered in this paper is to explain the factors affecting the profitability of banks based on existing literature in this field. In this regard, the size of the bank and the bank's liquidity have been considered as internal factors. Bikker and Hu (2002) and Goddard (2004) showed that there is a direct relationship between the size and profitability of banks and banks’ size, because of its contribution to reducing the cost of financing, improves the profitability. They believed that public trust on banks with a larger size is greater and these banks can absorb the resources and assets through savings. In addition, larger banks take advantage of returns to scale and their tendency toward cost-saving project to equip and allocate resource is economic (Davydenko, 2010). Accordingly, in this study, it is assumed that there is a direct relationship between the size of banks and their profitability.

Inadequate liquidity is one of the main reasons of crisis and bankruptcy of banks. However, maintaining high cash reserves creates an opportunity cost, and the existence of free cash flow reduces the profitability of banks. But in periods of high volatility and those of high uncertainty, it is possible that banks maintain high cash reserves in order to avoid liquidity risk. In this regard, Burke (1989) and Molyneux and Thornton (1993) concluded that there is an inverse relation between liquidity and profitability of banks (Davydenko, 2010). Accordingly, in this study, it is assumed that there is an inverse relation between the liquidity of banks and profitability.

Inflation rate and GDP have been presented as external factors affecting the profitability of the bank. GDP is a measure for total economic activity in each country. Theoretical and empirical evidence suggests that production growth of GDP has a positive effect on profitability of economic sectors. Accordingly, it is expected that there is a direct relationship between GDP and the profitability of banks (Davydenko, 2010). In addition, the rate of inflation is often described as one of the factors affecting the Bank's financial performance. According to Perry (1992), the relationship between inflation and bank profitability depends on that fact that, to what extent, bank managers predicted inflation and its rate before they occur. If managers predict inflation correctly and on time, they can raise revenues faster than costs through adjusting interest rates. In this regard, Molyneux and Thornton (1993) reported a direct correlation between the profitability of banks and inflation rate (Davydenko, 2010). Accordingly, in this study, it is assumed that there is a direct link between GDP and inflation rate.

In practice, there are different criteria for evaluating performance. Some of these measures are based on accounting models and some other on economic models. In this research, return of assets (ROA) and return on equity (ROE) indices are mostly used (for example, research by Kosmidou et al., 2007; Ben Naceur and Guide, 2008).

**Literature Review**

**Related studies done outside the country**

Sufian (2009) studied Malaysia's banking sector efficiency in Asian financial crisis, using data envelopment analysis. In his analysis, he used variables such as banks, profitability, and ownership. The findings clearly showed a high degree of inefficiency of Malaysian banking sector, particularly a year after the East Asian crisis. Flamini et al. (2009) studied the factors affecting the performance of banks which are active in the Africa continent. Using data from 389 banks in 41 countries, they found that, regardless of credit risk, bank's return on assets have a direct relationship with bank size, diversification of activities, and real ownership. The results also showed that the returns of banks are affected by macroeconomic variables and suggested that those economic policies that cause inflation and make GDP stable improve financial markets.

Gulet et al. (2011), in a research, examined the factors affecting the profitability of banks in Pakistan. In their research, they focused on economic factors and the specific characteristics of banks as factors affecting the profitability of banks. In this study, the researchers have used the combined data method to evaluate the effects of the amount of assets, loans, investments, deposits, economic growth, inflation, and investment on return on assets and return on equity. The results indicate the significant impact of the factors on the profitability of banks.
banks. In this respect, the findings showed that the amount of assets, deposits, and economic growth have a direct relationship with profitability indices. Also, loan and inflation has a negative impact on profitability. Polodoo(2011) studied the role of small and large investments in the bank’s profitability. The results showed that the investments do not have an impact on bank performance. The findings suggest that banks, in financing large projects, have many concerns because providing credited collateral in these trades highly increases their financial risk. Accordingly, Polodoo(2011) argued that the most important factor in the profitability of banks is their credited risk.

Alessandriand Nelson (2012) examined the impact of changes in interest rates on bank’s profitability. Through presenting a monopoly in the financial markets, they effectively predicted the performance of the banks. The findings showed that large banks creates a safety margin against interest rate changes, and this causes that the fluctuations, in the long run, have a positive impact on bank’s profitability. However, in the short term, creating a safety margin against changes in interest rates is not possible for banks.

Song (2013) surveyed the impact of improved capital structure of banks and their ability to compete in the market on profitably. The findings indicated that bank managers and their shareholders prefer a high level of financial leverage because high financial leverage improves return on assets. Also, according to the results, high financial leverage improves adjusted returns based on risk. Song (2013) believes the optimal role of financial leverage in the banks to be due to operational nature of banks and the dependence of their capital structure to financing through resources outside the bank.

Related studies conducted inside the country

Darabi and Molae (2011) studied the effects of liquidity, inflation, and GDP on the profitability of MellatBank. Results indicate that there is a significant positive relationship between MellatBank's liquidity and its profitability. However, there is no significant relationship between inflation and GDP and profitability. These authors argued that, due to the fact that control system in our country is governmental, it is important that it can affect most industries and firms in case of increasing and decreasing.

Lashkari and Hojabrossadati (2012), in a research on the privatization of banks and its impact on increasing efficiency and improving the performance of banks, argued that by increasing performance weaknesses of state-owned enterprises in the final decades of the twentieth century, governments and economists turned to privatization. Prevailing attitude in this case is that the privatization, through different ways, can improve the efficiency and performance of different economic enterprises. Although it seems that divesting ownership of banks to the private sector can overcome the deficiencies affecting the performance and efficiency, the research done in this area indicates that to attain these goals, governments should consider improving space business, reducing investment risk, encouraging foreign investment, divesting maximum bank ownership, divesting management and control of the bank along with their divesting their ownership and show their serious attemptsto establish new private banks.

Research Methodology

Regarding purpose, the present study is an applied one in which the determinants of bank performance are focused the most important sectors of the economy in country. This research is a field-post event research. In the field research, the goal is to study present and previous positions or actions and reactions of a single community or an individual or a group. The purpose of post event study is to study the causal relationships by studying the results of the previous field, hoping to find the cause of action. In this research, the correlation and regression methods were used to explain the relationship between variables. In terms of data collection, this is a descriptive study and the historical data of banks, collected in a library method, has been used.

Data needed to carry out research was collected from databases, Rahaer-e-novin and Tadbir Pardaz software, related websites, DVDs issued by the Securities and Exchange.

Research Hypotheses

1. There is a direct relationship between the size of banks and their profitability.
2. There is an inverse relationship between the amount of banks’ liquidity and their profitability.
3. There is a direct relationship between GDP and profitability of banks.
4. There is a direct correlation between the rate of inflation and banks’ profitability.

**Statistical Sample and the Method of Data Collection.**

Research sample includes all the banks listed in Tehran Stock Exchange. In this research, the classified and audited financial data of banks listed in Tehran Stock Exchange has been used. Due to the limited number of banks listed in Stock Exchange, to test hypotheses, the data based on unbalanced panel has been used. This method is done based on the most data available. In other words, the condition of the banks being active in exchange during all the years of the research has been ignored. Therefore, at the final year of study, the most number of banks have been active in the stock market; and the banks that are included in the investigation were chosen based on the last year (2012). The sample consists of companies that meet all the following conditions.

<table>
<thead>
<tr>
<th>The number of banks that were present in the stock in 2012.</th>
<th>20 banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of banks that were present in the stock in 2011.</td>
<td>19 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2010.</td>
<td>18 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2009.</td>
<td>11 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2008.</td>
<td>10 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2007.</td>
<td>5 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2006.</td>
<td>5 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2005.</td>
<td>5 banks</td>
</tr>
<tr>
<td>The number of banks that were present in the stock in 2004.</td>
<td>5 banks</td>
</tr>
<tr>
<td>The total number of statistical sample whose data has been collected (final sample).</td>
<td>98</td>
</tr>
</tbody>
</table>

The final volume of the sample was 98 year-bank.

**How to Calculate Variables**

**Dependant Variable (s) of Study**

The dependent variable in this study is the profitability of sample banks calculated by return on assets and return on equity. How to calculate these variables is as follows.

1) **Return on assets (ROA)**
ROA reflects the efficiency of the company in using the resources and is calculated through the ratio of net income to total assets (Noravesh and Deilami, 2005).

\[
\text{Return on assets} = \frac{\text{net income}}{\text{total assets}}
\]

1) **Return on equity (ROE)**
ROE reflects the efficiency of the company in using the capital and is obtained through the ratio of the net income to book remaining of equity (Noravesh and Deilami, 2005).

\[
\text{Return on equity} = \frac{\text{net income}}{\text{book remaining of equity}}
\]

**Independent Variable (s) of Research**

The independent variables in this study are separated into two groups. The first group includes internal factors affecting the profitability of banks, including the banks’ size and the amount of cash. The second group
is external factors affecting the profitability of banks, which include GDP and inflation rate. Amounts related to external factors have directly been extracted and collected from the website of the Central Bank; and the way to measure variables relating to internal factors is as follows.

1. **Bank Size**  
This variable obtained from the natural logarithm of the bank's market value (The number of stocks* market value of per share).

\[
\text{Size} = \ln (\text{Mv})
\]

2. **Banks’ Liquidity**  
This variable is obtained from the ratio of cash to total assets.

\[
\text{Liq} = \frac{\text{book remaining of cash}}{\text{total assets}}
\]

**Control variables**  
In this study, four variables of loans, bank capital, credit risk and investment amount were considered as the control variables and entered in testing hypotheses model. How to calculate these variables is as follows.

1. **Loans**  
This variable is obtained through the ratio of bank loans to total assets.

\[
\text{Loan} = \frac{\text{loans}}{\text{total assets}}
\]

2. **Bank Capital**  
This variable is obtained through the ratio of book remaining of equity to total assets.

\[
\text{Capta} = \frac{\text{book remaining of equity}}{\text{total assets}}
\]

3. **The credit risk**  
This variable is obtained through the ratio of the cost of doubtful receivables to total assets.

\[
\text{CreditRisk} = \frac{\text{cost of doubtful receivables}}{\text{total assets}}
\]

4. **The investment Amount**  
This variable is obtained through the ratio of the sum of short-term and long-term investments to total assets.

\[
\text{Invest} = \frac{\text{sum of short- term and long- term investments}}{\text{total assets}}
\]

**Hypothesis testing Method**  
Research hypotheses testing model in current study have been adapted from the research done by Davydenko (2010). In this regression models, profitability indices (including return on assets and return on equity) have been identified as the dependent variable and a function of internal and external factors that determine the profitability of the banks. These models are as follows.

**Model (1)**  
\[
\text{ROA}_{it} = \beta_0 + \beta_1 \text{Size}_{it} + \beta_2 \text{Liq}_{it} + \beta_3 \text{GDP}_{it} + \beta_4 \text{Infl}_{it} + \beta_5 \text{Loan}_{it} + \beta_6 \text{Capta}_{it} + \beta_7 \text{CreditRisk}_{it} + \beta_8 \text{Invest} + \beta_9 \text{Rate}_{it} + \varepsilon_{it}
\]

**Model (2)**  
\[
\text{ROE}_{it} = \beta_{10} + \beta_{11} \text{Size}_{it} + \beta_{12} \text{Liq}_{it} + \beta_{13} \text{GDP}_{it} + \beta_{14} \text{Infl}_{it} + \beta_{15} \text{Loan}_{it} + \beta_{16} \text{Capta}_{it} + \beta_{17} \text{CreditRisk}_{it} + \beta_{18} \text{Invest} + \beta_{19} \text{Rate}_{it} + \varepsilon_{it}
\]

In this study, the hypotheses were tested onby Model 1 and another time by Model 2. Model 1 reflects the relationship between the factors affecting the performance of banks with ROA. Model 2 shows the relationship between these factors and return on equity.

**The results of testing research hypotheses**

Descriptive statistics of research variables  
The observation of the study includes 98year-company. These observations are due to combined data of 20 banks listed in the Stock Exchange as a sample of over 9 years(2004 to 2012), as testing period. It should be noted that since the sample banks gradually entered the market since 2004 and, in some years of research, all banks have not been active in the Stock Market; the data have been combined as unbalanced panel. Table
(2) shows the descriptive statistics of the variables used in the model to test hypotheses. Descriptive statistics presents useful information about the distribution of the collected data and calculated variables for the researchers. For example, the results presented in Table 2 show that the standard deviation of the return on assets and return on equity variables (as the dependent variable) is lower than the mean of these variables. This finding suggests low volatility of these variables and show that their distribution is relatively close to the normal distribution. The obtained mean is positive for both variables, which indicates that, on average, sample banks have been profitable during the investigation. The standard deviation of the bank size variable is far below the average of the variable. This finding suggests low volatility of this variable indicating that the sample banks, in terms of size, are in the specified range. The gained mean for banks liquidity variable is 0.012. This finding suggests that, on average, 1/2% of bank assets are in the form of cash. Descriptive statistics of capital variable suggests that 12% of bank assets are supplied through equity loans. Also, during the study period, about 53% of the assets of the sample banks are in the form of loans. The most amount of loans was from Ghavamin Bank in the year 2012, equal to 0.797. The findings of macroeconomic variables suggest that the average GDP per capita during the period of investigation, 1363 percent, inflation 1931 percent, and interest rates was 14%. Results of credit risk show that the average amount of variable is 0.076, indicating that the banks have saved about 8 percent of loans in the form of doubtful demands.

**Checking the normality of the dependant variable (s)**

In this research, the Jarque–Bera test is used for data normalization.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Jarque–Bera statistics</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Assets (ROA)</td>
<td>56.287</td>
<td>0.000</td>
</tr>
<tr>
<td>Return on Equity (ROE)</td>
<td>4.097</td>
<td>0.128</td>
</tr>
</tbody>
</table>

In this study, to normalize the return on asset variable, Johnson Transformation function was employed and the results of the Jarque–Bera test, after the process of normalization of the data, are shown in table (3).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Jarque–Bera statistics</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Equity (LnROA)</td>
<td>2.04</td>
<td>0.36</td>
</tr>
</tbody>
</table>

According to the results, the obtained significance from Jarque–Bera test for returns on assets variable is more than the test error ($\alpha = 0.05$), and the normality of this variable has been accepted as one of the basic assumptions of the regression about these variables.

Table (4), descriptive statistics of the normalized variable is presented.
Table 4: descriptive statistics of normalized variables

<table>
<thead>
<tr>
<th>Abbreviation of Variables</th>
<th>Return on Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.086563</td>
</tr>
<tr>
<td>Medium</td>
<td>0.105116</td>
</tr>
<tr>
<td>Max</td>
<td>2.414784</td>
</tr>
<tr>
<td>Min</td>
<td>-1.614176</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.905490</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.182494</td>
</tr>
<tr>
<td>Expansion</td>
<td>2.394559</td>
</tr>
<tr>
<td>Number of Views</td>
<td>98</td>
</tr>
</tbody>
</table>

The correlation matrix of Normalized variables

Table 5: correlation matrix of variables used in hypotheses testing model

<table>
<thead>
<tr>
<th>Return on Assets</th>
<th>Return on Equity</th>
<th>Bank Size</th>
<th>Bank Capital</th>
<th>Liquidity</th>
<th>Loans</th>
<th>GDP</th>
<th>Inflation</th>
<th>Interest Rate</th>
<th>Credit Risk</th>
<th>Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>0.383722</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.061531</td>
<td>0.163514</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPTA</td>
<td>-0.128832</td>
<td>-0.061355</td>
<td></td>
<td>-0.413836</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIQ</td>
<td>0.509061</td>
<td>-0.331194</td>
<td></td>
<td>-0.183078</td>
<td>-0.076981</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOAN</td>
<td>0.125683</td>
<td>0.382900</td>
<td></td>
<td>-0.037709</td>
<td>0.173029</td>
<td>-0.209719</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>0.076069</td>
<td>-0.249724</td>
<td></td>
<td>0.031366</td>
<td>-0.041240</td>
<td>0.180258</td>
<td>-0.128799</td>
<td>1.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFL</td>
<td>0.066811</td>
<td>-0.178585</td>
<td></td>
<td>-0.017741</td>
<td>0.120721</td>
<td>-0.060789</td>
<td>0.205005</td>
<td>1.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RATE</td>
<td>0.181574</td>
<td>-0.008590</td>
<td></td>
<td>-0.102543</td>
<td>-0.101603</td>
<td>0.190602</td>
<td>-0.125035</td>
<td>0.326552</td>
<td>0.286349</td>
<td>1.000000</td>
</tr>
<tr>
<td>CREDIT</td>
<td>0.141947</td>
<td>0.072510</td>
<td></td>
<td>0.123292</td>
<td>-0.043800</td>
<td>0.007838</td>
<td>0.063422</td>
<td>0.283715</td>
<td>0.165645</td>
<td>0.299443</td>
</tr>
<tr>
<td>INVEST</td>
<td>0.050476</td>
<td>-0.098696</td>
<td></td>
<td>-0.101581</td>
<td>0.200308</td>
<td>0.041018</td>
<td>-0.144756</td>
<td>0.093083</td>
<td>0.164893</td>
<td>0.177323</td>
</tr>
</tbody>
</table>

indicate that this variable is inversely related to the variables of bank capital, liquidity, GDP, inflation rate, loans and investments. However, the relationship of this variable with the bank size, loans, and credit risk is indirect. Since the variables with correlation higher than 0.5 in the regression model causes linearity between them, studying these relations, in the form of correlation matrix, in order to achieve reliable regression model, is useful. The findings suggest that the relationship between the two is not higher than 0.5 between any of the variables of the research. Therefore, they can be used in a collaborative model.

The results of research hypotheses testing

Table 6: Chow test results for the regression model of research hypotheses testing

<table>
<thead>
<tr>
<th>Model</th>
<th>F statistics</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.06</td>
<td>0.127</td>
</tr>
<tr>
<td>2</td>
<td>0.762</td>
<td>0.636</td>
</tr>
</tbody>
</table>

Since significance level of the test is higher than the level of error (0.05), the H0 hypothesis is accepted. Accordingly, using the combined method for the fitting of regression models is recommended. The results of fitting models using combination method are presented in table 7.

Table 7: Results of research hypotheses testing
Determining factor of fitting regression models are 0.25 and 0.239, respectively, and show that these model could explain about 25% of the changes in ROA and 24% of the changes in return on equity of sample banks through the independent and control variables. Also, the results show that Durbin-Watson statistic for both models is between 1.5 to 2.5; therefore, there is not a strong auto-correlation between regression model errors and the lack of auto-correlation between the errors is accepted as one of the basic assumptions of the fitted regression model. The significance level of F statistics for both models is less than the test error level (α = 0.05), therefore, H0 is rejected and the estimated regressions are statistically significant and the relationships between variables are linear.

Decisions regarding the first hypothesis

First hypothesis: there is a direct relationship between the size of banks and their profitability.
In model 1, the estimated coefficient for the variable Size is 0.09, with a significance level of 0.105. The estimated coefficient for this variable in model 2 is 0.008, with a significance level of 0.262. These findings suggest that, statistically, there is no significant correlation between the size of banks and their profitability.
measures. These findings are inconsistent with the claims of the first hypothesis; thus, this hypothesis is rejected at 95 percent confidence level. The results of the first hypothesis are inconsistent with the claims. Also, these results are inconsistent with the results of the research done by Davydenko(2010) and Flamini et al. (2009) because Davydenko (2010) reported a significant inverse relationship between variables. However, Flamini et al. (2009) found that, regardless of credit risk, return on asset has a direct relation with bank size, diverse activities, and real ownership. These researchers argued that banks with larger size are able to devote a larger share of the competitive market, and, thereby, improve their profitability.

Decisions regarding the second hypothesis

Second hypothesis: there is an inverse relationship between the amount of cash and their profitability. In model 1, the estimated coefficient for the variable Liq is - 4.948, with a significance level of 0.03. The estimated coefficient for this variable in model 2 is - 0.432, with a significance level of 0.004. These findings suggest that there is an inverse significant correlation between the amount of cash and their profitability. These findings are inconsistent with the claims of the second hypothesis; thus, this hypothesis is accepted at 95 percent confidence level. These results are consistent with the results of the research done by Davydenko (2010) and Lee and Powell (2010). The researchers found evidence that, based on it, firms which consistently have excess cash, in contrast to companies that periodically face with this problem, have lower profitability. They argued that additional cash resources cause recession of capital and reduces operational efficiency.

Decisions regarding the third hypothesis

Third hypothesis: there is a direct relationship between GDP and the profitability of banks. In model 1, the estimated coefficient for the variable GDP is 0.041, with a significance level of 0.004. The estimated coefficient for this variable in model 2 is 0.07, with a significance level of 0.027. These findings suggest that there is a significant and direct correlation between GDP and the profitability of banks. These findings are consistent with the claims of the third hypothesis; thus, this hypothesis is accepted at 95 percent confidence level. The results of the third hypothesis testing suggest that there is a direct correlation between GDP and the profitability of banks. These results are inconsistent with the results of the research done by Davydenko (2010). Davydenko (2010) reported an inverse and significant relationship between the variables. However, these findings are consistent with the theoretical basis if the research and are consistent with the results found by Flamini et al. (2009). These researchers found that the return of banks is influenced by macroeconomic variables and suggested that those economic policies that cause inflation and stabilize GDP improve the financial markets.

Decisions regarding the fourth hypothesis

Fourth hypothesis: there is a direct relationship between inflation rate and the profitability of banks. In model 1, the estimated coefficient for the variable Infl is - 0.115, with a significance level of 0.919. The estimated coefficient for this variable in model 2 is - 0.239, with a significance level of 0.121. These findings suggest that, statistically, there is not a significant correlation between inflation rate and the profitability of banks. These findings are inconsistent with the claims of the fourth hypothesis; thus, this hypothesis is rejected at 95 percent confidence level. The results of the fourth hypothesis testing suggest that there is not a significant correlation between inflation rate and the profitability of banks. These results are inconsistent with the results of the research done by Gulet al. (2011) and Davydenko (2010). These researchers found that there is an inverse relationship between inflation rate and the profitability of banks. They suggested that in periods which the economy faces with inflation, bank loans’ interest does not respond inflation rate and makes bank’s lending become a disadvantageous activity for banks.
Table 8: The summary of research hypotheses testing

<table>
<thead>
<tr>
<th>Summary of variables</th>
<th>Dependant variable</th>
<th>The main independent variable coefficient</th>
<th>Significance level</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a direct relationship between the size of banks and their profitability.</td>
<td>ROA</td>
<td>0.09</td>
<td>0.105</td>
<td>Rejected</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>0.008</td>
<td>0.262</td>
<td></td>
</tr>
<tr>
<td>There is an inverse relationship between the amount of cash and banks’ profitability.</td>
<td>ROA</td>
<td>-4.948</td>
<td>0.03</td>
<td>Accepted</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>-0.42</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>There is a direct relationship between GDP and profitability of banks.</td>
<td>ROA</td>
<td>0.041</td>
<td>0.004</td>
<td>Accepted</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>0.07</td>
<td>0.027</td>
<td></td>
</tr>
<tr>
<td>There is a direct correlation between the rate of inflation and banks’ profitability.</td>
<td>ROA</td>
<td>-0.115</td>
<td>0.919</td>
<td>Rejected</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>-0.239</td>
<td>0.121</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

The findings, regarding the lack of a significant correlation between the size of banks and profitability, can be considered based on scale economies. This means that bank managers are likely not to pay attention to scale economies and do not believe the expansion of resources and loans to be as an advantage for profitability. Such a procedure causes the bank size to have any role in profitability. Also, it is possible that as banks get bigger, operational and non-operational expenses go up and blur the role of the bank size in performance.

The findings about the inverse relationship between liquidity and profitability of the bank, based on the theory of free cash flow, can be explained. This theory states that additional cash flow reduces the return of the profit sector. Extra cash flow is excess cash required for projects with positive present net value. In other words, it is important that a profit sector keeps the cash in a level to be able to use the investment opportunities in projects with present positive net value. This cash is very important because it allows the company to seek opportunities to increase stock’s value. Accordingly, increasing the level of cash reserves means not using a portion of the assets, which is proposed as one of the weaknesses of the manager in right investment of resources.

The third hypothesis test results showed that there is a direct relationship between the profitability of the banks and GDP. In this study, GDP is introduced as one of the external factors influencing the profitability of banks. In this regard, it can be concluded that, through increasing the level of GDP, manufacturing activities in the country increases. It can be used in two ways to help the profitability of domestic banks. First, creating and sustaining a productive activity needs financing, which is the main activity of banks; through financing such projects, they improve their profitability. Second, the banks, themselves, directly invest in some projects. Improvement in GDP can increase their profits in their investments.

The fourth hypothesis test results showed that there is not a significant relationship between inflation and profitability of banks. In this study, inflation is introduced as one of the external factors affecting bank's profitability. Theoretical basis emphasized that to avoid the consequences of macroeconomic changes and efficient use of these threats, it is important that managers predict them before they happen. About the findings of the fourth hypothesis test results, it is argued that managers of the sample banks are not likely to be able to predict or estimate the changes in the level of inflation; hence, they failed to find ways to take advantage of it and improve the profitability of banks.

Recommendations arising from the research findings

1. The managers of domestic banks are recommended that, before deciding to extend and enlarge the body of the bank, they do full cost-benefit assessments before taking such decisions.
2. The managers of domestic banks are recommended to refuse storing banks’ cash resources, and try to avoid maintaining extra cash and spend them on profitable investments.
3. The managers of domestic banks are recommended that, through reviewing and analyzing macroeconomic data of the country, try to predict the future trend of economic criteria, and try to use this information to take appropriate financial decisions in order to increase the profitability of their companies.

Resources