Effective factors on interest rate gap in Iranian Banking

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Abstract

The purpose of the present study is to improve the performance and increase bank profitability as effective financial in economic development. So, effective factors on the paid banking spread (the difference between received bank interest rate from facilities and the mean of paid interest rate to deposits) and the effect of legal reserve rate of providence to measures, government economic activities, economic growth, inflation rate, interest rate fluctuations, liquidity growth and borrowing of government sector to interest rate gap were investigated. The research method is applied regarding purpose. Sampling was selected based on subjects since two Iranian banks are population and the sample. The sample size of all statistical data is on variables such as inflation rate, GDP, fluctuation of exchange rate, market structure, legal reserves and the minimum of liquidity from 2000 to 2010. In spite of library studies, analytical report of financial conditions and annual report of Central Bank were used for data collection. The data were analyzed through descriptive-correlational statistics using Eview software. Multiple regression was used to probe the relationships among independent variables and the only research dependent variables simultaneously. The results showed that the highest banking development happened in 2009 (1.7%) and the highest economic growth happened in 2009 (0.179) and the highest legal reserve happened in 200 (0.231) and the highest level of providence happened in 2004 (0.74). The highest inflation rate happened in 2008 (25.4) and the lowest rate in 2005 (10.4). also the highest fluctuations of inflation rate happened in 2008 (366.79) and the highest government borrowing happened in 2009 (0.148) and the highest liquidity growth happened in 2006 (0.148). The lowest government financial activity belonged to 2008 (-6.2) and the highest interest rate gap belonged to 2004 (5.7). The mean of interest rate gap during 2008 and 2009 was 4 and the mean of banking development was 1.190, the mean of economic growth was 0.0911 and the mean of inflation rate was 15.236. also, the fluctuations of interest rate was 15.236 and government sector borrowing was 0.090. the mean of financial activities of government was -3.227 and the ratio of legal reserve was -3.227, the mean of providence in scale was 0.703 and liquidity growth was 28.563. the coefficient of market variables and macroeconomy with interest rate gap were 0.029 in banking development, -.815 in economic growth and -.287 in inflation rate and -.336 in fluctuations of interest rate, 0.501 in government economic activities, 0.480 in the ratio of legal reserve, 0.582 in providence and 0.582 in liquidity growth.

Key words: The ratio of providence legal reserve in scale, government economic activities, economic growth, inflation rate, fluctuations of interest rate, liquidity rate, and government sector borrowing.

1. Introduction

Constant investment is the precondition of growth and development. Banking facilities and credits to applicants of plans and projects is one of the most important domestic resources for investment. So, taking appropriate monetary policy and using proper monetary instruments, the private sector reserves can be equipped efficiently and led to productive activities. The banks are one of the most important financial intermediaries in economic systems taking over the attraction of resources and changing them to the money for investment activities in economic sections. So, efficient banking system will result in economic growth and boost. Interest rate is one of monetary instruments which has an important role in economic activities so that it is considered as the link and transfer of monetary policy to real economic sector. This rate in monetary systems dependent on free economy common banking in supply and demand is determined for borrowable financial resources and economic policies of central bank. However, reaching the environment and conditions of sustainable macro economy need facilitating economic growth and keeping it. So, performing appropriate macro economy policies has an effective role on investment growth where monetary and financial policies have
a special status in sustainability of the economy. Monetary and financial policies in Iran have usually changed which have had fundamental role in orienting the resources in economic structure (Azuji, 2007.P.120).

It is beyond doubt that profit is one of the most important goals of banks and agents to keep the commercial existence and activities in economic course. Gaining profit can be done through the methods of using different strategies in banks, companies and performing the famous income increase transaction and reduction of costs. Presenting the banking services to customers, the banks make profit which is done through attracting people’s capital with low interest rate and giving the facilities with higher rate. The result of the difference between these two rates is bank profit which is called interest margin. So, the more the banks use economic measures, the more will be the interest (Baqeri, 2007).

As the financial and services institutes, banks has a determining role in money circulation and the society’s wealth and possess a special place in economy of every country. So, banks’ desirable and effective activities can have important roles in growth of different economic sectors and increasing the qualitative and quantitative level of products (Lotfi, 2011).

However the rate of real interest has been negative in Iran in recent years, it is observed that the interest rate of long term deposits has been more than liquidity rate after performing usurp-free banking showing the attracting of the people to bank deposits which is not necessarily affected by the paid interest level. In fact, other factors such as risk reduction, having tax redemptions, investment security and monthly interest receiving have been effective on investors’ behavior.

The difference between the rate of the received interest of the banking facilities and the paid interest to bank deposits which is called interest rate can show banks’ performance in optimized use of the existing resources. In other words, the more the difference between the received and the paid rates, banks’ profit for paying less interest to investors in higher and the operational costs and allocation of bank resources will be non-optimized. In the present study, the effective factors in interest gap of Iran’s banking industry are investigated. Regarding various problems in financial market and banking system of Iran, it is tried to probe the contributing factors on interest gap. The study aims at improving the performance and increasing the banks’ profits as effective financial sectors in economic development and increase the efficiency level of the performance of banking system through identifying the effective factors on bank spread (the mean difference between the received interest rate from facilities and the paid interest rate to deposits).

The followings are the research hypotheses:

1- The structure and development of bank sector has effects on interest rate gap.
2- The ratio of legal reserve has effect on interest rate gap.
3- Saving to scale has effect on interest rate gap.
4- Government economic activities have effect on interest rate gap.
5- Economic growth has effect on interest rate gap.
6- Inflation rate has effect on interest rate gap.
7- Fluctuations of interest rate have effect on interest rate gap.
8- Liquidity growth has effect on interest rate gap.
9- Government sector borrowing has effect on interest rate gap.

2. Theoretical foundations

2.1. Definition of banking interest rate

Different understandings of the concept of interest has caused different theories of interest. The primary understanding of interest is the income gained by the usurers from money borrowing. It is a special kind of contract interest which is more than the maximum rate determined by the related law for different types pf borrowing (Farhang, 2001.P.2344).

Gradually, a new concept was introduced against the bespoken interest denoting to the income gained through capital (including money) as far as the capital is possessed by the owners. This income is called natural interest (Baron, 2005).

In Fischer’s interest theory (1974), a comparatively complete concept of interest has been presented so that it is a value from community assessment on the current income unit against the future income (usually one year later) (Azvaji, 2007.P.121).
2.2. Determining the interest rate

There is a disagreement between different schools of thought. However, their difference is in the types of markets, it shows the importance of interest rate in market structures and guiding the financial resources. From classic viewpoint, interest rate is determined in capital market where savers and investors are one group which save and invest for one common goal which is interest. Saving is direct function and investment is indirect function of interest rate supposing that there is a complete competition between saving and capital in the market and flexibility of interest rate is tangible. Coincidence of function saving and investment causes the balance between saving rate and investment ($s=1$) and leads to interest rate balance ($i_e$) (Azvaji, 2007.P.121). Kins believed that investors and savers are two different groups saving or investing for different purposes. In his viewpoint, saving is direct function of national income and investment, supposing the fixed final return of investment, is indirect function of interest rate. So, interest rate is not the balancing mechanism of saving and investment but national income does this task. He believes that money market determines interest rate where demand for money are formed based on three transactional, profit-oriented and precautionary motivations. Viksel (2010) also mentioned the role of money factors in determining the interest rate and believed that it depends on money abundance and shortage. In his view there are two types of interest rate including current or market rate determined in money and selection market which is the cost of possession unit in a specific time and the other one is real interest rate where real capital supply and demand are balanced and nearly adapt to the expected return from the capital which has been newly made.

Shaou (1973) regarding the role of deposits as an exchange resource for financial intermediaries believed that higher interest rates will encourage investment and saving emphasizing that investors don’t depend only on financial providing from personal resources and don’t consider money complementation and physical capital. In an economy faced with financial inhibition, investment rate is determined only through supply conditions which are deposits level. In this condition, Fray (1982) supposed that the reduction of the real interest rate of the deposit, real money demand (including saving and long term) and the real credit supply since domestic credit is a primary asset which reduces investment rate, new sustainability and working capital. So, the rate of utilizing the whole capital accumulation capacity is reduced and consequently, the rate of economic growth also reduces. This model mentions that in developing countries, the increase of the real interest rate increases saving and investment and finally the real interest rate will move toward the balance (Azvaji, 2007.P.123).

3. Interest rate in Iran

The method and the process of determining the interest rates in government banking systems of Iran which is based on the law of usurp-free banking operation is different from common methods of determining the rate and regarding the economic return in the real sector, it is determined with a supportive outlook on behalf of economic sections. In determining the interest rate of deposits it is necessary to adjust the rate in a way that minimally compensates for the reduction of money value and be placed logically in relation to other economic sector. When the interest rate of deposits is lower than indices such as inflation rate, stock interest rate, the minimum of interest in non-monetary market and the paid interest rate to exchange bills, the country’s banking system is faced with numerous problems in attracting deposits and equipping bank resources and its negative side effects in giving facilities to different economic sectors and financial structure of the banks will be very high because depositors’ resource is the most important resource in giving banking facilities (Ekrami, 2012). One of the important issues in assessing profits resulted from bank facilities and changing and allocating them to deposits interest is a very important consideration in determining bank interest rate margin. The margin is determined in a level not only to cover bank operation costs and risks but to consider strong political issues in improving banks financial structures. In other words, legal considerations derived from usurp-free banking operation and the performance of private sector. Also, operational efficiency of the banks and adjusting-regulatory programs to preserve the ratios and common standards to support financial base of the banks are regarded. Determining the interest rate in Iran’s banking system is determined based on the types of the contracts. Stipulated contracts in usurp-free is divided in two types including cooperative and non-cooperative contracts. In non-cooperative or fixed return contracts, the bank can determine the minimum or maximum of the interest (Ekrami, 2012).
4. The mechanism of determining the interest rate in Iran’s banking system

Determining the interest rate in Iran’s banking system is done based on the types of the contracts. Currently, the banks give facilities in the form of cooperative and non-cooperative contracts based on usurp-free banking operation system. In non-cooperative or fixed return contracts the banks can determine the minimum or maximum of the interest. In these contracts, due to transfer of ownership, the relationship between loaner and the capital is cut. So, future changes and probable changes, the activities for profit or loss don’t need to bank’s profit or demands. However, the identity of the cooperation is based on the lack of ownership to the sponsor denoting that the participants and relators don’t give up the ownership but it is continued. So, in common conditions, none of the parties is not in the status of being creditor or debtor. In other words, the bank which provides all or some part of the capital can’t leave the result of the cooperation (Rafii Shamsabadi, 2011).

Investigation of the performance of banks for giving facilities based on Islamic contracts show that about 70% of the facilities is given non-cooperatively. For the remained 30%, however a predetermined rate can’t be fixed, a range of rates should be considered to give the banks a base for accepting or rejecting the projects and provide evidences for the applicant of the facilities to make decision. So, in both cases, the rates should be adjusted to compensate the reduction of money value. In determining the minimum of interest rate expected by the bank from the given facilities is also noticing and emphasizing on the mean of the return and performance of the real sector. Inflation rate and the changes of macro economy measures and political considerations are emphasized in supporting some especial economic sectors.

The rate of deposit accounts of the banks and the minimum of the expected interest of banking facilities, based on the council of usurp-free money and credit, is determined regarding different factors. It doesn’t depend on market mechanism and is not based on supply and demand. So, interest rates may be higher or lower than the balanced point (Rafii Shamsabadi, 2011).

5. Interest rate gap

Financial liberalization is an important element of structure adjusting programs in developing countries. Based on McKinnon and Schau theory (1973), flexibility and efficiency of financial system is an important factor in economic development process. In this theory, the important principle is that government’s supervision and intermediation in financial system limits the performance mechanism of the market leading to financial inhibition and finally slowing down the economic development. In economics and management of financial affairs, not any variable like interest rate has got the attention of different economic theories. In addition, nothing is as important as interest rate or profit for investors and financial institutes. Nowadays, interest rate is the most important criterion of companies’ achievement and bank-customer relationship containing different economic risks from debt repayment to economic structure of the countries. Bank interest rate difference is the difference between received interest from facilities and the interest rate paid for deposits which can show the efficiency of the banks and optimized use of the resources (Abbasi, 2003).

6. The difference in bank interest rate

The difference of bank interest rate is considered as a function of three groups of factors (Abbasi, 2010).
- Special banking variables for the bank
- Special variables of banking industry
- Macro-economy variables.

Barajas (2000) found reasons for the important and positive relation between liquidity reserve and the difference of interest rate in banking system of Colombia. Sanderz (2000) found evidences for Latin America countries and some developing countries that legal deposit acts like tax for banks leading to higher interest rate. Broun (2010) findings showed that liberalization of interest rates and obviation of credit supervisions may face the banks with probable risk. The banks which are not under the law pressure may lean to risky investment to gain higher portions of the market. This act may decrease the quality of the assets; so, higher portion of non-
receivable loans and the banks consider a part of their demands doubtful. The bank wants to cover the costs of demands or the cost of losing the chance of interest income through the rate of higher interest (Barajas, 2010). There are lots of findings that verify high non-financial costs are important factors for the difference of high interest rate in developing countries. High non-financial costs may be the result of incapacity of bank operations taken over to the customers (especially in deficit markets). To prevent credit dangers which are expensive, the banks usually keep a capital more than what is needed.

7. Bank interest rate difference

The experience of developing countries in the last 50 years which have taken financial repression Policy shows that before defeat of these policies, they have moved toward the reforms of financial structure. The known feature and the common chapter of these policies is stopping the policy of financial repression and liberating the interest rate which their results are known in studies of McKinnon, Schaw, Mascol and Terloal. Financial liberalization emphasizes on removing the roofs of interest rate and credits and expanding the competitive environment through reduction of supervision on the environment and ownership. However, reaching to competitive structure doesn’t emphasize on the absence of the difference between interest rates.

Demirgog (2009) investigated the determining factors of the difference of bank interest rate using cross-sectional data of 2005-2008 for eighty countries. The set of factors include several accounting variables for bank features, macro-economy conditions, covert and overt taxing, the rules of deposits insurance and generally the financial structures, official measures and legal guarantees. They found that the difference of bank interest rate is directly influenced by the net ratio of assets to entire assets, the ratio of loans to entire assets, bank size measured by entire bank’s assets, the ratio of non-productive assets to entire assets, inflation rate and short-term interest rate. The ratio of non-interest income of the assets to entire assets has inversely relationship with difference margin or bank interest. In seems that production growth doesn’t have any effect on interest rate difference. Another line of research has considered the adjustment of bank interest rate by market interest rate. The studies show that in long term, the hypothesis that bank interest rate doesn’t follow market interest rate can’t be rejected. In short term, however the changes of bank interest rate is related to market interest rate, there are some evidences that long-term adjustment is asymmetrical (Atabaki, 2010).

8. Central bank and monetary policies

One of duties of central banks is performing the monetary policies. The purposes of monetary policies as the set of affairs that money authorities (central bank) used to control the economic activities of the society can be abridged in facilitation of economic growth, creating full employment, fixing the general level of the prices and creating balance in foreign payments. Central banks and money authorities of the countries use the following tools for performing the monetary and credit policies;
1- The ratio of legal reserve of deposits
2- Facilities of re-decadence and its rate
3- Open market operations
4- Direct control of credits
5- Determining the ratio of banks’ liquidity (Shirinbakhsh, 2011.P.21).

Fray (2007) also used the validity of the models of McKinno Shaw based on annual mixed data for seven Asian countries (Burma, India, Korea, Malaysia, Philippine, Singapore and Taiwan) resulting that domestic interest rate had a positive effect on domestic saving ratio and GDP and supposing the fixity of other conditions, a 10% increase of real interest rate will increase the ratio of saving to GDP about 1.2% to 1.4% which verifies McKinno Shaw theory that financial liberalization finally increases investment rate and saving and economic growth.

Yusef (2004) in evaluating a function of South Korea saving function found that there is a meaningful and positive relationship between real interest rate and long-term deposits and saving.
Hanss (2005) investigating the financial reforms and economic stability programs of Uruguay found that financial liberalization and economic stability improved economic performance (especially in comparison with the primary conditions). Financial liberalization caused increase of domestic saving, increasing the tendency to preserving the real financial assets, increasing the input flow of the capital and the improvement of investment efficiency. Geuvaniny (2008) showed that if country is not developed regarding financial markets, the increase of interest rate canalizes the funds in financial markets and their efficiency. This process influences the capital accumulation and finally increases the economic growth. Linderman found that effectiveness of interest rate of financial and economic variables depends on the identity of financial markets and components of these markets. Dernaboshen emphasized on more efficient use of selection resources, superior technique, removal of instability and deviations in financial regimes. King (2013) investigated the experimental relationship between financial development and economic growth showing that in 77 developing countries measures of financial development including the ratio of cash debts to GDP, the ratio of bank domestic assets to entire bank assets, the ratio of private sector non-financial section to reduction of allocated credits and the ratio of private sector non-financial section to GDP were positively effective on economic growth. Haslak (2008) studied experimental financial repression, financial development and economic growth using inflation rate and legal reserve as financial repression. The results of the study showed that there is a negative relationship between the measures of financial repression and economic growth denoting that those countries with high levels of legal reserve have relatively less developed financial systems in relation to countries with low legal reserve. The relationship between inflation and financial development was linear and negative denoting that if inflation is higher than optimized level, the relationship between inflation and financial development is negative.

9. A review of domestic research

Khatyayi (2008) in line with King and Lin study (1993) showed that financial development indices including the volume of commercial banks credit ratio to entire commercial and central bank credits and the ratio of bank system demand form private non-financial sector to entire bank credit had a positive relationship with economic growth. Khatyayi and Saifipour (2010) showed that the effect of bank system demand logarithm from private sector on economic growth is positive. Logarithm of bank system demands from governmental sector has a negative relationship with economic growth. The results of this study also showed the positive effect of stock market on economic growth but the effect is very weak which shows stock market under-development. Komayjani and Saifipour (2006) studied the effects of financial repression on Iran’s economic growth and found that based on Kapour’s model, financial repression can be annulled and increase economic growth with increasing deposits interest rate and reduction of liquidity growth rate. Mojtabah (2004) investigated the relationship between the differences of interest rate with efficiency of banking system. The results showed that the main factors in determining the interest rate were inflation rate include bank high costs and the costs of doubtful demands. In other words, increase of commercial banks doubtful demands, increase of the costs of commercial banks to entire assets and also the increase of products and services’ measure led to the difference of bank interest rate (the difference of the paid and the received interest rate). To decrease this difference, competitiveness of banks’ activities, reduction of multitasking facilities, increase of bank service incomes (non-interest incomes) and liberalizing Iran’s banking system were suggested. Baser (2003) showed that investment in long term showed weak but meaningful changes to real deposit interest rate response and increase of this variable in Iran’s economic system causes economic instability in the form of inflation making, reduction of investment and reduction of economic growth rate. Khaledi et al (2004) showed that the reduction of banking facilities interest rate caused the improvement of trade balance and liquidity volume, GDP and had a positive significant effect on investment and consumption of private sector and increase of employment level, increase of inflation rate and interest rate in non-monetary made market.
So, the findings of the previous studies showed a deep relationship between liberalization and development of financial market and the changes of interest rate. However this relationship can be direct or indirect, noticing to financial development in monetary and economic structure of the countries has provided the conditions for more GDP growth and investment. In line with financial reform, in spite of removing some controls and the roofs, the reforms in the observing regulations and codes of credit and monetary policies which provides the conditions for domestic saving equipping and providing more facilities to non-governmental applicants have been noticed by countries’ money policy makers and planners (Azvaji, 2007.P. 927).

10. Research method

The present study is an applied research regarding the purpose because the results of the study can be sued in considering the effective factors in interest rate gap in Iran’s banking industry. To do this research, variables such as inflation rate, GDP, exchange rate fluctuations, market structure, legal reserve, the minimum of liquidity were considered as independent variables and using panel data, interest rate was investigated. Iran’s central bank annual reports from 2000-2010 were used. The sample size includes all statistical data on variables such as inflation rate, GDP, exchange rate fluctuations, market structure, legal reserves and the minimum of liquidity from 2000 to 2010.

Data collection instruments include:

a) Library studies which is one of the most stages of data collection methods. Library studies were used or understanding theoretical foundations of the research, literature review and previous studies. To this end, accessible sources such as internet sites and the required content and information.

b) Analytical report of financial status and annual report of central bank

To collect the required information on analytical report of financial status of the banks and annual report of central bank during 2000-2010 and a part of data was collected from stock exchange regarding financial reports of some banks.

Data analysis

Data analysis method is descriptive-correlational using Eviews software. Multiple regression is used to probe the relationship between the independent and dependent variables. The following is the model of regression:

\[
\text{Interest rate gap} = \alpha_0 + \alpha_1 \text{BANKDEV} + \alpha_2 \text{GDP} + \alpha_3 \text{RES} + \alpha_4 \text{SCALE} + \alpha_5 \text{INFL} + \alpha_6 \text{XRATVOL} + \alpha_7 \text{CROW} + \alpha_8 \text{TBILL} + \alpha_9 \text{DISRATE} + \alpha_{10} \text{DEFGDP}
\]

The results are shown in tables and the graphs

11. Findings

Statistical data for effective market variables on interest rate gap for the years is as following:
Table 1. Effective market variables on interest rate gap

<table>
<thead>
<tr>
<th>Market variables</th>
<th>BANKDEV</th>
<th>RGDP</th>
<th>RESREQ</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1378</td>
<td>1/0</td>
<td>0/026</td>
<td>0/182</td>
<td>0/7</td>
</tr>
<tr>
<td>1379</td>
<td>1/0</td>
<td>0/034</td>
<td>0/231</td>
<td>0/68</td>
</tr>
<tr>
<td>1380</td>
<td>1/1</td>
<td>0/038</td>
<td>0/174</td>
<td>0/69</td>
</tr>
<tr>
<td>1381</td>
<td>1/4</td>
<td>0/052</td>
<td>0/163</td>
<td>0/72</td>
</tr>
<tr>
<td>1382</td>
<td>1/5</td>
<td>0/061</td>
<td>0/157</td>
<td>0/72</td>
</tr>
<tr>
<td>1383</td>
<td>0/5</td>
<td>0/076</td>
<td>0/148</td>
<td>0/74</td>
</tr>
<tr>
<td>1384</td>
<td>1/5</td>
<td>0/099</td>
<td>0/1471</td>
<td>0/73</td>
</tr>
<tr>
<td>1385</td>
<td>1/6</td>
<td>0/118</td>
<td>0/1512</td>
<td>0/73</td>
</tr>
<tr>
<td>1386</td>
<td>0/2</td>
<td>0/148</td>
<td>0/1511</td>
<td>0/69</td>
</tr>
<tr>
<td>1387</td>
<td>1/6</td>
<td>0/172</td>
<td>0/1292</td>
<td>0/67</td>
</tr>
<tr>
<td>1388</td>
<td>1/7</td>
<td>0/179</td>
<td>0/1124</td>
<td>0/67</td>
</tr>
</tbody>
</table>

Based on the above table, the highest banking development happened in 2009 (1.7) and the highest economic growth in 2009 (0.231) and the highest save to scale in 2004 (0.74).
Table 2. Effective market variables on interest rate gap

<table>
<thead>
<tr>
<th></th>
<th>Macro-economy variables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(INFL)</td>
<td>(XRATVOL)</td>
</tr>
<tr>
<td>1378</td>
<td>20/1</td>
<td>0</td>
</tr>
<tr>
<td>1379</td>
<td>12/6</td>
<td>0</td>
</tr>
<tr>
<td>1380</td>
<td>11/4</td>
<td>0</td>
</tr>
<tr>
<td>1381</td>
<td>15/8</td>
<td>39/22</td>
</tr>
<tr>
<td>1382</td>
<td>15/6</td>
<td>93/01</td>
</tr>
<tr>
<td>1383</td>
<td>15/2</td>
<td>109/59</td>
</tr>
<tr>
<td>1384</td>
<td>10/4</td>
<td>76/08</td>
</tr>
<tr>
<td>1385</td>
<td>11/9</td>
<td>30/77</td>
</tr>
<tr>
<td>1386</td>
<td>18/4</td>
<td>73/29</td>
</tr>
<tr>
<td>1387</td>
<td>25/4</td>
<td>366/79</td>
</tr>
<tr>
<td>1388</td>
<td>10/8</td>
<td>93/44</td>
</tr>
</tbody>
</table>

Regarding the above table, the highest inflation rate happened in 2008 (25.4) and the lowest one in 2005 (10.4). The highest interest rate fluctuation is related to 2006 (366.79) and the highest government borrowing happened in 2006 (0.148) and the lowest government economic activities is related to 2008 (-6.2). The highest interest rate happened in 2004 (5.7).
Table 3. Central tendency measures of research variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank interest rate</td>
<td>4</td>
<td>1/7860571</td>
<td>11</td>
</tr>
<tr>
<td>BANKD</td>
<td>1/190</td>
<td>4867331</td>
<td>11</td>
</tr>
<tr>
<td>RGDP</td>
<td>10911</td>
<td>559246</td>
<td>11</td>
</tr>
<tr>
<td>INFL</td>
<td>15/236</td>
<td>46182838</td>
<td>11</td>
</tr>
<tr>
<td>XRAYTVD</td>
<td>15/236</td>
<td>1033540138</td>
<td>11</td>
</tr>
<tr>
<td>CROD</td>
<td>1090</td>
<td>310079</td>
<td>11</td>
</tr>
<tr>
<td>DEFGDP</td>
<td>-3/227</td>
<td>21298314</td>
<td>11</td>
</tr>
<tr>
<td>RESREQ</td>
<td>-3/227</td>
<td>306637</td>
<td>11</td>
</tr>
<tr>
<td>SCAL</td>
<td>7/03</td>
<td>254058</td>
<td>11</td>
</tr>
</tbody>
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<td>1/190</td>
<td>4/618283</td>
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</tr>
<tr>
<td>X RATVOL</td>
<td>15/236</td>
<td>103/3540138</td>
<td>11</td>
</tr>
<tr>
<td>CROD</td>
<td>1/190</td>
<td>0/310079</td>
<td>11</td>
</tr>
<tr>
<td>DEFGDP</td>
<td>1/190</td>
<td>2/1298314</td>
<td>11</td>
</tr>
<tr>
<td>RESREQ</td>
<td>1/190</td>
<td>0/306637</td>
<td>11</td>
</tr>
<tr>
<td>SCAL</td>
<td>1/190</td>
<td>0/254058</td>
<td>11</td>
</tr>
<tr>
<td>NAGDINGI</td>
<td>28/563</td>
<td>5/87287</td>
<td>11</td>
</tr>
</tbody>
</table>

Regarding the above table, the average of interest rate gap during 1999-2009 is 4 and the mean of bank development is 1.190 and the mean of economic growth is 0.091 and the mean of inflation rate is 15.236, interest rate fluctuations is 15.236 and borrowing of governmental sector is 0.090. The mean of government economic activities is 3.227 and the legal reserve ratio is -3.227. The mean of saving to scale is 0.703 and liquidity growth is 28.563.

Table 4: Correlation coefficient of the variables with interest rate gap

<table>
<thead>
<tr>
<th>r Interest rate gap</th>
<th>BANKD</th>
<th>RGDP</th>
<th>INFL</th>
<th>X RATVOL</th>
<th>CROD</th>
<th>DEFGDP</th>
<th>RESREQ</th>
<th>SCAL</th>
<th>NAGDINGI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig</td>
<td>/467</td>
<td>.001</td>
<td>.196</td>
<td>.156</td>
<td>.010</td>
<td>.058</td>
<td>.068</td>
<td>.030</td>
<td>.149</td>
</tr>
</tbody>
</table>

Based on the above table, correlation coefficient of market and macro-economy variables with interest rate gaps in bank development (.029), economic growth (-.815), inflation rate (-.287) and exchange rate fluctuations (-.336), borrowing of government sector (-.683) and government economic activities (.501), legal reserve ratio (.480), saving in scale (.582) and liquidity growth (.582).

Table 5: Regression of research variables

<table>
<thead>
<tr>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>31/898</td>
<td>9</td>
<td>3/544</td>
<td>1482/79</td>
</tr>
<tr>
<td>Residual</td>
<td>0/02</td>
<td>1</td>
<td>/002</td>
<td>0/002</td>
</tr>
<tr>
<td>Total</td>
<td>31/900</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the above table, regression analysis (sig=.020, F=1482.79 (df=9) is valid enough.
Based on the above table, regression analysis (sig=.020, F=1482.79 (df=9) is valid enough.

Table 6. standardized coefficients of the research variables

<table>
<thead>
<tr>
<th>Non-standard coefficient</th>
<th>Standardized coefficient</th>
<th>t</th>
<th>Sig/</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std/ Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>BANKD</td>
<td>-14/932</td>
<td>2/871</td>
<td>-5/201</td>
</tr>
<tr>
<td>RGDP</td>
<td>-25/038</td>
<td>3/984</td>
<td>-784</td>
</tr>
<tr>
<td>INFL</td>
<td>-2/01</td>
<td>0/08</td>
<td>-520</td>
</tr>
<tr>
<td>XTRAVOL</td>
<td>/015</td>
<td>/001</td>
<td>/896</td>
</tr>
<tr>
<td>CROD</td>
<td>-2/278</td>
<td>5/398</td>
<td>-0040</td>
</tr>
<tr>
<td>DEFGDP</td>
<td>/337</td>
<td>/028</td>
<td>/402</td>
</tr>
<tr>
<td>RESREQ</td>
<td>1/475</td>
<td>1/769</td>
<td>/025</td>
</tr>
<tr>
<td>SCAL</td>
<td>34/162</td>
<td>4/892</td>
<td>/486</td>
</tr>
<tr>
<td>NAGDINGI</td>
<td>-/012</td>
<td>/025</td>
<td>-039</td>
</tr>
</tbody>
</table>

The model of relationship between market variables and macro-economy with interest rate gap

= +/029 BANKDEV+/815 GDP+/480 RES+/582 SCALE+/287 INFL+/336 XTRAVOL interest rate gap
+/083 CROW+/501 DEFGDP
12. Conclusion and discussion

Statistical data on market effectiveness variables on interest rate gap is explained. The highest banking development happened in 2009 (1.7%) and the highest economic growth happened in 2009 (0.179) and the highest legal reserve happened in 200 (0.231) and the highest level of providence happened in 2004 (0.74). The highest inflation rate happened in 2008 (25.4) and the lowest rate in 2005 (10.4). Also the highest fluctuations of inflation rate happened in 2008 (366.79) and the highest government borrowing happened in 2009 (0.148) and the highest liquidity growth happened in 2006 (0.148). The lowest government financial activity belonged to 2008 (-6.2) and the highest interest rate gap belonged to 2004 (5.7). Also the mean of interest rate gap during 2008 and 2009 was 4 and the mean of banking development was 1.190, the mean of economic growth was 0.0911 and the mean of inflation rate was 15.236. Also, the fluctuations of interest rate was 15.236 and government sector borrowing was 0.090. The mean of financial activities of government was -3.227 and the ratio of legal reserve was -3.227. The mean of providence in scale was 0.703 and liquidity growth was 28.563.

The coefficient of market variables and macro-economy with interest rate gap were 0.029 in banking development, -.815 in economic growth and -.287 in inflation rate and -.336 in fluctuations of interest rate, 0.501 in government economic activities, 0.480 in the ratio of legal reserve, 0.582 in providence and 0.582 in liquidity growth. Correlation coefficient

Correlation coefficient between the structure and development of bank sector and interest rate gap is (r=0.029). So, regarding (sig=.020, F=1482.79, df=9), the research hypothesis that the structure and development of bank sector has effect on interest rate gap is supported. In other words, there is a positive relationship between the structure and development of bank sector and interest rate gap, but the relationship is not very strong based on Beta standard coefficient (B=0.093).

Correlation coefficient between legal reserve ratio and interest rate gap is (r=0.48). So, regarding (sig=.020, F=1482.79, df=9), the research hypothesis that the legal reserve ratio has effect on interest rate gap is supported. In other words, there is a positive relationship between legal reserve ratio and interest rate gap, but the relationship is mean level based on Beta standard coefficient (B=0.025).

Correlation coefficient between saving in scale and interest rate gap is (r=0.582). So, regarding (sig=.020, F=1482.79, df=9), the research hypothesis that saving in scale has effect on interest rate gap is supported. In other words, there is a positive relationship between saving in scale and interest rate gap, but the relationship is more than the mean level based on Beta standard coefficient (B=0.093).

Correlation coefficient between government economic activities and interest rate gap is (r=0.501). So, regarding (sig=.020, F=1482.79, df=9), the research hypothesis that government economic activities has effect on interest rate gap is supported.
rate gap is supported. In other words, there is a positive relationship between government economic activities and interest rate gap and the relationship is strong based on Beta standard coefficient \((B=0.402)\). Correlation coefficient between economic growth and interest rate gap is \((r=-0.815)\). So, regarding \((\text{sig}=0.020, \text{F}=1482.79, \text{df}=9)\), the research hypothesis that economic growth has effect on interest rate gap is rejected. In other words, there is a negative relationship between economic growth and interest rate gap.

Correlation coefficient between inflation rate and interest rate gap is \((r=-0.287)\). So, regarding \((\text{sig}=0.020, \text{F}=1482.79, \text{df}=9)\), the research hypothesis that inflation rate has effect on interest rate gap is supported. In other words, there is a negative relationship between inflation rate and interest rate gap.

Correlation coefficient between exchange rate fluctuations and interest rate gap is \((r=-0.336)\). So, regarding \((\text{sig}=0.020, \text{F}=1482.79, \text{df}=9)\), the research hypothesis that exchange rate fluctuation has effect on interest rate gap is supported. In other words, there is a negative relationship between exchange rate fluctuation and interest rate gap.

Correlation coefficient between liquidity growth and interest rate gap is \((r=0.582)\). So, regarding \((\text{sig}=0.020, \text{F}=1482.79, \text{df}=9)\), the research hypothesis that liquidity growth has effect on interest rate gap is supported. In other words, there is a positive relationship between liquidity growth and interest rate gap and the relationship is strong based on Beta standard coefficient \((B=0.093)\).

Correlation coefficient between borrowing of and interest rate gap is \((r=-0.683)\). So, regarding \((\text{sig}=0.020, \text{F}=1482.79, \text{df}=9)\), the research hypothesis that government sector borrowing has effect on interest rate gap is rejected. In other words, there is a negative relationship between government sector borrowing and interest rate gap and the relationship is strong based on Beta standard coefficient \((B=0.093)\).

13. **Research suggestions**

- More large scale studies should be done about effective factors on interest rate gap in banking industry.
- Comparative studies in other countries should be done about effective factors on interest rate gap in banking industry.
- More attention should be paid to the structure and development of bank sector because it has a positive effect on interest rate gap.
- More attention should paid to legal reserve ratio because it has a positive effect on interest rate gap.
- More attention should paid to legal reserve ratio because it has a positive effect on interest rate gap.
- More attention should paid to government financial activities because it has effect on interest rate gap.
- More attention should paid to economic growth because it has effect on interest rate gap.
- More attention should paid to inflation rate because it has a negative effect on interest rate gap.
- More attention should paid to exchange rate fluctuation because it has a negative effect on interest rate gap.
- More attention should paid to liquidity growth because it has a negative effect on interest rate gap.
- More attention should paid to government sector borrowing because it has a negative effect on interest rate gap.

**References**

- Atabaki, morteza (2010). Investigation of effective factors on difference of the received and the paid interest rate in Iran’s economy. 5th year. No.4. p.113-133.


Mojtahed, Ahmad (2004). Proceeding of the 14th conference on monetary and exchange policies of challenges and necessities of money and capital markets in Iran’s economy. Money and banking research center. 1st publication.


Handerson, James. M.richard, Quant (2007). Theory of micro-economy. Translated by Morteza Qarebaghian and Jamshid Pajuhan. 6th publication. Rasa cultural services institute publication
- BARSKY, r. b.(1987) the fisher hypothesis and the forecast Ability and Persistence of Inflation; journal of Monetary Economics(19) , pp. 3-24.
- DARBY , M.R. (2006) the financial and tax Effect of Monetary policy on Interest Rates; Economic Enquiry (13) , pp. 266-76.
- Five , p and Aura , s(2002) interest Rate and inflation in Monetary models with ingenious money Growth Rate; Economic Bulletin, 5(1) ,pp. 1-10.
- Valderrama, Maria (2011). " credit channel and investment behavior in Austria; Austria : A micro – econometric approach” internet.