

EVALUATING THE EFFECT OF CHANGES OF ECONOMIC FLUCTUATIONS (BOOM, STAGNATION AND STAGFLATION) ON THE PROFITABILITY OF BANKS LISTED IN THE TEHRAN STOCK EXCHANGE

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Abstract: In this study using linear model of the effect of independent variables on the dependent variable were examined. Bank profitability as a dependent variable and conditions of stagflation, GDP growth, changes in stock index securities, liquidity growth as independent variables and variables bank size and number of employees are also considered as control ones. The effects of economic fluctuations on the profitability of banks listed in the Tehran stock exchange based on the annual financial statements over the 2010 to 2014 of 12 banks. Overall, the evidence from the research were noted as between stagflation, GDP and changes Stock Exchange index has a significant relationship with profitability. However, there is no significant relationship between growth, liquidity and profitability.

Keywords: economic fluctuations, the profitability of banks, internal factors, stagflation

1 Introduction

Today the bank as an important element in financial markets play an important role in the economy. With the development of financial markets, banking and financial institutions have taken a wider dimension and no doubt that economic development is not possible without considering the role of banking and money markets. Banks play an important role in the economy for two reasons; Banks as financial intermediaries provide financial resources as well as on deposits indication that the debtors control is an important part of the national currency. Financial performance review and monitor the financial condition of banks for depositors, the owners, potential investors, managers, and regulators deemed important.

Today, any change in the country's banking system could greatly affect its business activity (Kavyani et al., 2012).

Banks are one of the main activators monetary market and community economic as an intermediary, attract additional financial resources in the form of deposits and they will pay for facilities to customers of financial resources and considering that all activities are conducted within the economy. Therefore, any change in the economic situation could also have an impact on them (Kallantari, 2011). According to the above functions, the banking system, it is obvious that the banking industry plays an important role in the economic growth of communities. The bank is a business and goal of any business is profit, therefore, the banks with the activities mentioned above are always thinking about more profitable and financial resources would lead towards lucrative targets. So given the profitability of the main objectives of the bank, therefore, changes in macroeconomic variables banking businesses directly and indirectly will affect. Therefore, this paper examines the effects of economic fluctuations on our profitability analysis bank.

2 History Research

Ricardas Mileris (2015) in their study examined the impact of the recession on the profitability of banks' loan portfolio data. Results of the analysis, higher sensitivity of NPLs to the economic downturn in Europe Union member states with incomplete macro-economic indicators confirmed. Moreover, the

results show that banks in these countries by assessing the credit risk of loan applicants should consider possible changes in the macro economy, because they have a significant impact on the profitability of banks' loan portfolio in future periods. Mohammad Fizan Malik et al., (2014) in a study of interest rates and their impact on the profitability of banks treaty in the Pakistan public and private sectors mentioned.

In this study, to better understand the effect of sample is divided into two categories.

1) Public sector banks, including four national banks

2) Private sector banks including six private sector banks for study (Does not include Islamic banks in the sample). Bank lending rates as a proxy for interest rates is considered, while return on assets (ROA) and return on equity (ROE) as the profit of the bank is taken into account. Regression model was used to study the effects of interest rates on profitability.

The results show that the interest rate impact on both return on assets (ROA) and return on equity (ROE) in private banks compared to public sector banks are responsible. Sallum and Hayek (2012) in his article the effect of macroeconomic variables such as GDP and inflation on the interest income of banks in Lebanon have investigated. The findings suggest that a significant positive relationship between GDP and interest income of the banks. We can say there is a positive relationship between economic growth and bank earnings. On the other hand, inflation has two effects on the Bank's income and expenses.

High inflation reduces the real interest rate is the issue of demand for bank facilities and consequently increase income. On the other hand, inflation increase banking costs (through the impact on operational costs). Tan and Flores (2012) studied the effects of inflation and the profitability of Chinese banks has this study is based on panel data conducted between 2003-2009.

The results of their research indicate that there is a positive relationship between profitability of Chinese banks with cost efficiency, the development of the banking sector, development of capital markets and inflation. Dietrich and Wanzenried (2011) factors affecting the profitability of commercial banks in Switzerland examined the period 1999 to 2006. The results indicate that the relationship between bank profitability and growth in GDP is positive. Renato Giovannini (2010) in a study of the relationship between investment banking services, ownership structure, financial advisers and plans for monitoring of public companies examined. The results of this study indicate that it is still impossible to be noted

Between willingness to Investment Banking and performance, there is a correlation. Seelanatha (2010), the impact of market structure on the efficiency and profitability of banks Sri Lankan examined. The results show that the performance of banks in relation to the Sri Lankan market concentration or market power does not have any of these banks. However, when the impact of the banking market structure and focus on the efficiency of measures, the existence of this relationship is confirmed. Molyneux and Thornton (1992), the determinants of bank performance between 1986 and 1989 in 18 European countries examined. The procedure was repeated Burke banks with the highest concentration of large size. Javanbakhth Miandehi (2015), in their study to identify and prioritize the factors affecting the profitability of banks using fuzzy techniques has been investigated. The data for this study was collected using a questionnaire phase and using all measures have been proposed AHP technique is classified. The results show that the main criteria for bank profitability by revenue, resource management, credit management, promote exchange activities, development of

electronic banking, customer relationship management, human capital development and sale of non-banking services. Naderi Bani and Enayati (2015) in their research examine the impact of macroeconomic variables on the profitability of banks in Iran during their five-year financial 2009-2013.

Econometric panel data is the method used in this research. The results show that the effects of macroeconomic variables of inflation, housing price index and the rate of exchange intensity dependent variable are negative and significant profit margins. Majidi Khamene and Ansari (2014) in their research examined the relationship between macroeconomic variables and the profitability of banks (Maskan Bank), in the period 2002-2011. The results showed that there is no direct relationship between liquidity and profitability of banks positively correlated with GDP, there was no significant relationship between inflation and the profitability of banks. Delkhahi (2014), in his study on the effects of economic conditions (boom, stagnation and stagflation) on the activity and profitability of the Bank Pasargad, using the linear model showed the impact of inflation and liquidity over profitability for the delay and reverse Pasargad Bank and effectiveness of GDP on bank profitability variable is declared for the delay and place. Pirayesh and Bahrami (2014), in his research studying the factors affecting the profitability of commercial banks listed on the Tehran Stock Exchange, during the period 2005 to 2012 concluded that the independent variables capital adequacy, asset quality, there is a significant relationship between the dependent variable profitability and cash management banks. Results from regression coefficient indicates the first step is the most important variable in determining the profitability of commercial banks, asset quality variable with 43 percent, the variance of the dependent variable; the next step is capital adequacy rate of 30% after 0.22 of variances in profitability and liquidity management of commercial banks explained. Walli John (2013), to evaluate the effect of macroeconomic variables on the profitability of the banking and public and private banks paid during the period 2005 to 2010. The results show that the bank special factors include the bank's capital, liquidity risk, combining private banking activities and bank ownership have had positive and significant effects on profitability, while the size of banks had a significantly negative impact on profitability.

As well as macroeconomic variables such as GDP, inflation rate have a significant positive relationship with profitability. Turki and Karimzadeh (2013) examined the effect of electronic banking on the profitability of Iran's Bank Mellat. The results showed that the bank's market concentration is greater positive effect on the profitability of the bank, this increase may be due to the emergence of a monopoly position in the market for concentrating said. Despite the problems and limitations, as well as the development of electronic banking. Bank Mellat has brought increased profitability. Noori et al., (2011) examined the effects of concentration in the banking industry and other factors have on the profitability of public banks, the results showed that there was significant inverse relationship between concentration and profitability of banks. The other factors efficiency, capital, national income levels and interest rates and banks' profitability has a direct relationship with the state while the size of the bank has an inverse relationship with profitability.

3 Methodology and Hypothesis

The population of this study includes all banks are listed the financial performance between 2010 to 2014 registered. The aim of the study is to identify and predict a phenomenon, in a statistical population. To obtain an understanding of the phenomenon, an example of that society, and the analysis is performed on selected samples and then extrapolated the results to the entire population. Due to the limited number of banks listed in the Tehran Stock Exchange and as pointed out in its population the research sample consisted of those banks that are listed in the Tehran Stock Exchange has the following measures:

1. Information is available for the periods 2010 to 2014.
2. The financial period of the banks, are identical. (At the end of March)
3. Selected Banks are not in the classification of the OTC market transactions.

Thus, among the banks listed in the Tehran Stock Exchange a total of 12 banks selected as statistical sample

According to 5-year period sample size is 60. According to the theoretical foundations of the research hypotheses are stated as follows:

First hypothesis: There is a significant relationship between the conditions of stagflation and profitability of banks.

The second hypothesis: There is a significant relationship between GDP growth and profitability of banks.

The third hypothesis: there is a significant relationship between Stock Exchange index changes and profitability of banks.

Fourth hypothesis: There is a significant relationship between growth, liquidity and profitability of banks.

Hypothesis test

The model presented in this study is as follows:

Model (1)

$$ROA_{i,t} = \beta_0 + \beta_1 STAGFL_{i,t} + \beta_2 GDPGR_{i,t} + \beta_3 TEDPCH_{i,t} + \beta_4 LIQUGR_{i,t} + \beta_5 BASIZE_{i,t} + \beta_6 PERNUM_{i,t} + \varepsilon_{i,t} \quad (1)$$

In this study combined data is used to test the hypotheses. In the combined data to choose between fixed-effects panel data test Chow test (test F) and to choose between tests of fixed effects and random effects test Hausman test was used. Top model variables are as follows:

Bank profitability (ROA): In this study, the rate of return on assets used for bank profitability, which is achieved by dividing net income, by total assets.

Terms of stagflation (STAGFL): In this study the conditions of stagflation is a dummy variable therefore, if the rate of inflation in the middle of this year the inflation rate over the course of further research. In addition, the rate of GDP growth rate of GDP this year is less over the study period and the value of this variable is assigned a value of zero.

GDP growth (GDPGR): GDP growth is calculated as follows.

Model (2)

$$NOE = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \quad (2)$$

Changes Stock Exchange index (TEDPCH): to compute the index of the Stock Exchange of cash return index of Tehran Stock Exchange (TEDPIX) is used, which is calculated as follows.

Model (3)

$$TEDPCH = \frac{TEDPCX_t - TEDPCX_{t-1}}{TEDPCX_{t-1}} \quad (3)$$

Liquidity growth (LIQUGR): through the growth of liquidity announced by the Central Bank can be obtained.

Bank size (BASIZE): Bank size is achieved through natural logarithm of the total assets of banks.

Model (5)

Model (4)

PREMIUM=LN number of employees (6)

BASIZE=LN Total bank assets (5)

4 Findings

Number of employees (PREMIUM): the number of employees is achieved through natural logarithm of the number of employees.

In Table (1) Results Descriptive, statistics are presented.

Table 1: Descriptive statistics

Variable name	Symbol	Number of Views	Average	Middle	Maximum	Minimum	Standard deviation
Bank profitability	ROA	60	0.0182	0.0131	0.0844	-0.0013	0.0153
Terms of stagflation	STAGFL	60	0.2000	0.0000	1.0000	0.0000	0.4034
GDP growth	GDPGR	60	0.6800	1.3000	6.5000	-6.8000	4.7293
Stock exchange index changes	TEDPCH	60	61.787	57.362	107.71	11.208	33.407
Liquidity growth	LIQUGR	60	25.620	25.100	30.000	20.100	3.6166
Database size	BASIZE	60	18.814	18.978	21.039	15.045	1.2758
The natural logarithm of the number of employees	PERNUM	60	8.5063	8.0659	10.418	7.2556	0.9961

Table 1 shows the descriptive statistics, which some concepts of descriptive statistics of variables, including mean, median, minimum observations, maximum, standard deviation has been observed.

obtained can be said that the profitability of the banks surveyed the relatively high volatility. Average liquidity growth is 25.62% with a standard deviation (3.62%) is of relatively low volatility.

The results show that the banks examined, the average profitability is around 1.82% and the standard deviation (1.53%)

Table 2 also shows the correlation coefficient is variables.

Table 2: Correlation test result

Variable	ROA	STAGFL	GDPGR	TEDPCH	LIQUGR	BASIZE	PERNUM
ROA	1.000						
Possibility	---						
STAGFL	-0.1995	1.000					
Possibility	0.0000	---					
GDPGR	0.0907	-0.2751	1.000				
Possibility	0.0408	0.0334	---				
TEDPCH	-0.0898	0.1931	-0.0679	1.000			
Possibility	0.0428	0.0000	0.6064	---			
LIQUGR	0.053	0.0553	-0.1796	0.1129	1.000		
Possibility	0.2508	0.2126	0.0000	0.0000	---		
BASIZE	0.1077	0.2345	-0.2014	0.0775	0.2016	1.000	
Possibility	0.0150	0.0713	0.1227	0.5563	0.1225	---	
PERNUM	-0.3845	0.0235	-0.0162	0.0223	0.0234	0.1175	1.000
Possibility	0.0024	0.8584	0.9024	0.8657	0.8592	0.0079	---

Results table 2 shows the 95% confidence level, the situation of stagflation, changes Stock Exchange and the natural logarithm of the number of employees and a significant inverse correlation with the profitability of banks while GDP growth and the size of banks with bank profitability are correlated.

It is necessary to estimate models estimation method (combination or panel) are specified.

F-Limmer test has been used for this purpose. The observation that is likely to test more than 5% or in other words the test statistic is less than the statistic table, the procedure used and to

test the observation that the probability is less than 5%, Panel method used to estimate the model. His painting technique using two models of "random effects" and "fixed effects" can be done. Hausman test used to determine which model is used. The

observations that test the probability is less than 5% of the fixed effects model and the observation that is likely to test more than 5% of the random effects model was used to estimate the model.

Table 3: F-Limmer test results Panel method

Research Model	Type of statistic	statistic Value	Degrees of freedom	Possibility	Result
	F statistic	3.7076	(11.42)	0.0010	Panel method
	(Chi-square)	40.7137	11	0.0000	

Table 4: The results of Hausman

Research Model	Type of statistic	statistic Value	Degrees of freedom	Possibility	Result
	(Chi-square)	107.0083	6	0.0000	Fixed effects model

As the Tables (3) and (4) show, the probability of F-Limmer research model is less than 5% the panel method is used to estimate the model; and given that the probability is less than 5

percent Hausman test research model therefore, the fixed effects model was used to estimate it. Table 5 shows the test results are hypothesis.

Table 5: Results of the research model

Variable	Symbol	Estimated coefficient	Standard error	T-statistic	Possibility
Constant (intercept)	C	0.252892	0.081214	3.120115	0.0033
Terms of stagflation	STAGFL	-0.009586	0.003600	-2.662753	0.0080
GDP growth	GDPGR	0.033101	0.008970	3.690344	0.0003
Stock exchange index changes	TEDPCH	-0.014001	0.006972	-2.008074	0.0452
Liquidity growth	LIQUGR	0.002338	0.001272	1.839041	0.0730
Bank size	BASIZE	0.030600	0.010734	2.850601	0.0046
The natural logarithm of the number of employees	PERNUM	-0.019735	0.008867	-2.225656	0.0315
The coefficient of determination			0.602		
The coefficient of determination adjusted			0.562		
Durbin - Watson			1.821		
F statistic			22.6629		
Probability (statistics F)			0.0000		

First hypothesis: There is a significant relationship between the conditions of stagflation and profitability of banks. To test this hypothesis, the results of the model are presented in Table (5) have been used.

The probability (P) F equal to 0.0000, and because the amount is less than 0.05, the null hypothesis is rejected at the 95% confidence level, the model is significant. Watson Durbin statistic is 1.821. This value indicates the absence of autocorrelation of errors. The results show that the coefficient of determination adjusted, approximately 56.2% by independent variables and the dependent variable controlled models, explained. The results show that except for variable liquidity growth, the remaining variables in the model are significant at the 95% confidence level. The results of the control variables show that positive correlation between the size of the bank and bank profitability significantly. There is a negative and significant relationship between the natural logarithm of the number of employees and the profitability of banks. In general, the results show that the coefficient of the variable conditions of stagflation, that -0.009586 which reflects the negative impact of inflation on the Bank's profitability is recession due to the variable conditions of stagflation coefficient t-statistic is significant at 95% confidence level. In other words, we can say the conditions of stagflation and there is significant negative correlation bank profitability.

According to the above can be verified at 95% considered the first hypothesis this reflects there is a significant negative correlation between the conditions of stagflation and profitability of banks.

The second hypothesis: there is a significant relationship between GDP growth and profitability of banks.

To test these hypotheses, the results of the model are presented in Table (5) interest is taken. In general, the results show that variable rate of GDP growth, was 0.033101 that the positive effects of GDP growth on the profitability of banks, which varies according to GDP growth coefficient t-statistic is significant at 95% confidence level, in other words we can say that a positive relationship between GDP growth and profitability of banks significantly.

According to the above 95% in the second sub-hypothesis can be considered. This reflects the positive significant relationship between GDP growth and profitability of banks.

The third hypothesis: there is a significant relationship between changes of index Stock Exchange and profitability of banks.

To test these hypotheses, the results of the model are presented in Table (5) have been used. In general, the results show that the variable coefficient Stock Exchange index changes, -0.014001 represent negative impact of bank profitability on the stock

exchange index. According to the statistic t with variable coefficient Stock Exchange index change is significant at 95% confidence level, in other words we can say that the Stock Exchange index changes and there is a significant negative correlation bank profitability. According to the above 95% in the third sub-hypothesis can be considered confirmed. This reflects there is a negative and significant relationship between changes in stock index securities and bank profitability.

Fourth hypothesis: There is a significant relationship between growth, liquidity and profitability of banks.

To test these hypotheses, the results of the model are presented in Table (5) have been used. In general, the results show that the rate of growth of liquidity variable, was 0.002338

That the positive effects of liquidity growth on bank profitability however, due to the variable coefficient t-statistic liquidity growth at 95% is not significant in the model, in other words, we can say that the growth of liquidity and there is no significant relationship between bank profitability. According to the above fourth sub-hypothesis cannot be confirmed at 95%. This indicates that there is no significant relationship between growth, liquidity and profitability of banks.

Due to the limited number of banks listed in the Tehran Stock Exchange and, as pointed out in its population. The research sample consisted of those banks that are listed in the Tehran Stock Exchange has the following measures:

- 1 .Information is available for the periods 2010 to 2014.
- 2 .The financial period of the banks, are identical (At the end of March)
- 3 .Selected Banks are not in the classification of the OTC market transactions.

5 Conclusion

The extent of research and application of its results, more economic and more comprehensive studies are needed in this area is necessary. Given that the index of goods and services, inflation and purchasing power of the domestic currency of the country measure due to the high volatility in prices and the rise in inflation in recent years, economic experts should act in managing inflation.

Due to the high rate of bank profitability in the country and comparison with global statistics, interest rates and its management as a factor in lowering inflation is suggested.

That, where the study was conducted in Iran, can be used in future studies to investigate the factors affecting the Bank's profitability in various countries or using time series model to study factors affecting the profitability of a particular bank. It can also be paid to the effects of resource allocation on the profitability of banks because the allocation of financial resources, a contributing factor to the development of a society.

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