

The Study of Effect of Exchange Rate on Iranian Private Bank's Performance

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ABSTRACT – The exchange rate as a criterion of a country's national currency value against other countries is reflective of that countries' economic state compared to other countries' conditions. The exchange rate is a variable which can affect the economic performance and economic variables. One of the important matters which were studied in the field of exchange rate in under-developed and developing countries is the matter of exchange rate's effect on various economic sectors and banks. Therefore, this study investigates the effects of exchange rate on performance of private banks. For this purpose, a multivariate regression model, in which the dependent variable is the performance of the banks (operating income) was estimated using the private banks' data during the years from 2009 to 2014 and the method of stable effects, and the effect of exchange rate's variables, volume of tokens and credits were studied. Results show that the exchange rate has a negative and meaningful effect on the performance of private banks in Iran.

KEYWORDS: *Exchange Rate, Performance, bank, Income*

Introduction

One of the effective factors on country's economy is the exchange rate. Theoretically, uncertainty in exchange rate effects economy's internal sector, in addition to foreign trade sector. In an open economy, trade of services and stock among countries is done according to exchange rate. So the exchange rate can affect the main international or foreign trade variables, including exports, imports, entrance and the exit of stock. In fact, it can be said that, exchange rate causes a kind of risk in the sector of foreign cooperation which in this way can interrupt the exports, imports and stock flows. So if the exchange rate's changes are set in the appropriate direction, it can provide an appropriate and more favorable in the direction of production, trade and investment. The exchange rate causes the change of price in goods and services, production and its factors and this way affecting the expected now and future cash flows and consequently yield of economic business stock. In a way that decrease of currency value causes increase in locally-produced goods, due to increase in relative price of foreign goods to domestic goods, which results in the increase of general level of prices. On the other hand, it causes the decrease of inputs' imports or that same intermediate and investing goods, due to the decrease of their prices which results in the increase of production expense and decrease of investment, the demand for stock decreases and consequently the stock market decreases (Raei, 2003: 7). Due to the importance of exchange rate as an important variable of macro economy, which affects the profitability and private banks' value, many researches have been conducted in this field in developed and developing countries. Exchange rate is counted as one of the key variables of economy and its changes can have meaningful effects on other economic components such as economic growth, foreign trade and generally economy's foreign and internal balances, and for this reason exchange rate is very important in all economies. The results of a study about the effects of exchange rate on economic variables between the year 1960 to 2007 show that the unpredictable decrease of inner currency value (increase of exchange rate) have a direct relationship with the growth of households' expenditure, but the decrease of exchange rate has no effect on the growth of households' expenditure. In a word, with the increase of exchange rate, the households' consumption increases; but with its decrease, there is no significant change. Also based on the findings of this research, in the conditions of unexpected increase of exchange rate, the consumers tended to use internal goods and the consumption of imported goods is decreased. One of the other outstanding and unexpected results of this research is that with the increase of exchange rate, the amount of non-oil exports is decreased. (World of Economy, S 2707) In recent years, financial market liberalization has put them at various risks including the risk of exchange rate. The increase of universal trade has caused the exchange rate to be considered as one of the most important determinative factors of the corporations' profitability and the price of stock. (Kim, 2003)The effect of exchange rate on the yield of banks' stock is one of

the subjects favored by managers, legislators and investors. The lack of synched maturity of the banks' claims and obligations and unexpected changes in exchange rate are the key factors in increase of banks' risks. In addition, most of the financial and economical analyzers agree that banks' incomes, expenses and profitability is directly affected by the change of exchange rate. (Saunders and Yourougou, 1990: 171-182) After the dismantling of the system stable exchange rate in terms of dollar in the 1970 decade, many of the countries accepted the floating currency system. The system that had a higher exchange rate (Williamson, 2001: 445). The high level of exchange rate causes a more lack of certainty for the economic businesses and financial markets. The exchange rate and the instability of financial markets can have an inappropriate effect on the banks' stability, because the effect of exchange rate is not removable by the techniques of risk management (Gilkenson and Smith, 1992). Rather the bank institutes can only decrease the risk of changes in exchange rate, to some extent, by applying the off-balance activities and using the effective techniques of risk management. Due to the lack of possibility to necessary utilization of these tools, the developing countries' financial institutes are more vulnerable and the fact that these countries are more faced with financial crisis, is not unexpected. Therefore it's worthy that the effect of currency on financial markets and banking in developing countries is studied and its results can be effective on the financial stability and legislation policies of these countries' banking industry. Despite of the importance of investigating the effect of exchange rate on the yield of banking industry, there have been few articles and researches conducted on this matter and the existing researches were conducted in the developed countries. The purpose of this research is to investigate the effect of exchange rate on the private banks' performance using the existing data in the country of Iran. Iran as a developing country has witnessed important changes in banking industry. After the Islamic Revolution in the year 1978, the system of Islamic banking was established in Iran. The establishment of new private banks and the privatization of the state banks are the most important changes in Iran's banking industry in the recent years. Iran, like other developing countries has always witnessed the exchange rate, especially after the performance of the subsidy reform plan and applying stronger sanctions against the financial system of the country by the west. Therefore this research attempts to investigate the effect of exchange rate on the private banks' performance during the period from 2009 to 2014.

The Theoretical Principles of the Research

The word currency comes from the origin "currentia" in the international banking, meaning foreign money, which sometimes is added to the adjective "foreign" and is used as foreign currency; in order to distinguish it from the national money or the common money inside a country. The term "price" (Sa'r, in Persian) also means currency, which in Persian is used in its plural form (As'ar, in Persian), meaning the foreign money. Using the Foreign Currency is also common in Persian. One of the differences between financial transactions and international exchanges is that in the internal trades, paying and receiving the fund needs to be done in terms of the common national money, but in foreign transactions, these funds are usually paid in the forms of common and valid foreign money. For instance, in Iran, to do the exchanges, Rial is used, in Germany, Mark and in America, American dollar, but when an Iranian wants to purchase some goods from America, he should pay the American dollar for it, therefore he must pay Rial according to a defined exchange relationship (currency rate) and get dollar and purchase the good with it (Shakeri, 2012: 356). The meaning of currency is any instrument which is used in foreign exchanges for payments in the form of paper money, draft or cheque. And the meaning of foreign currency is the amount of national currency which should be paid for gaining the other countries' currency (Rahmani, 2011: 215). Also we can consider the exchange rate as the equal value of a foreign currency to an internal currency. In other words, the cost of buying or selling a foreign currency in the country's common currency is called the exchange rate.

The kinds of Exchange Rate

A. Preferential Exchange Rate

The meaning of preferential exchange rate is the exchange rate this that in one system, two or more currency exchanges are announced more than the official rate for buying the currency. For instance, the government of Iran in the year 1981, to absorb service currency of the Iranian workers in the region of Persian-gulf, announced the preferential currency of 150 Rials for each dollar, and also the preferential currency for each exported currency equal to 425 Rials in the year 1987, which was paid against the gained currency of exports that were sold in terms of official currency to the banks (Shakeri, 2012).

B. Multiple Exchange Rate

The existence of two or more rates for currencies when it is insufficiently exposed, with the purpose of optimizing the allocation of the existing currency to various consumptions is called multiple exchange rate. In addition, this currency system is used to avoid the wasteful exit of currency. In this system, the government, due to its own currency incomes, interferes in the currency market directly and attempts to determine few rates for the currencies simultaneously with the purpose of promoting their economic and political priority policy objectives. In such a system, the necessary consumptions (like the entrance of investing and intermediate goods, the cost of students' education and curing the sick) is counted for the cheaper rates and the unnecessary consumptions (like the imported luxury goods and leisure travels to abroad) are counted for the more expensive rates.

In Iran, during the two decades 1941 and 1951, this system was performed through the currency certificate. And one more time, the central bank of Iran, from the year 1979, first used the two-rate currency system and then with the announcement of three rates, official, non-official and announced, took more control over the currency.

C. The official Exchange Rate

The stable and official exchange rate in terms of gold and US dollar which is announced to the International Monetary Fund is called the official exchange rate.

D. The Floating Exchange Rate

Whenever the countries' currency value, under the influence of international market forces, fluctuates compared to one another, the exchange rate is called floating.

The History of the Research

According to the conducted researches, the effect of exchange rate's changes on financial institute show that many of these institutes are in danger of the effect of these changes (Chamberlain, 1997; Lady, 2009, Martin, 2000). Since the unexpected changes in the exchange rate can affect the bank's net profit and loss, the risk of exchange rate changes can be an effective variable on the banks' stock yield. The first researches that paid attention to the effect of exchange rate on the banks' stock yield were conducted by Gramtikus and researchers (1986) and Chamberlain and researchers (1997). The result of these researches show that the American banks are at risk of exchange rate changes (Chamberlain and researchers 1997).

Mohagheghnia, Hosseini and Ja'fari Bagherabadi (2013) studied the exchange rate in a research titled "The Study of the Relationship between Exchange Rate and Banking Industry Yield". In their opinion in the developing countries like Iran, the study of the amount of effectiveness of exchange rate on various corporations is an important and essential matters and it's not unexpected that these countries are put more at risk of financial crisis, due to lack of existence of developed financial markets. In this study, the effectiveness of exchange rate risk on Iranian banks is measured using two market based models. The studied sample of this research includes 7 accepted banks in Tehran's securities stock during the years 2003 and 2011. The results of estimating the two models show that there is no meaningful relationship between the fluctuations of the exchange rate of dollar against Rial and the stock expenses of these banks. One of the reasons that can be titled for these results is that the stockholders lack an exact information and appropriate analyze of the amount of effect of these fluctuations on the value of these corporations, because of the insufficient disclosure of the open state of currency. Another reason can be the fact that banks could control the exchange rate by various methods of natural hedging and this matter has caused the decrease of effect of these fluctuations on the bank value.

Specification of the Model and Introduction of the Research's Variables

In this research, the following model was used to estimate the hypothesis, the explaining variables of exchange rate are credits and facilities and the dependent variable is the private banks' performance that in this research, the income of the private banks are considered as their performances.

The rate of the studied currency in this research is the free and nominal exchange rate which between the years, 2009 and 2013, were announced by the central bank and noticed as the independent variable.

$$y_{it} = \alpha_0 + \alpha_1 Fa_{it} + \alpha_2 Cr_{it} + \alpha_3 Er_{it} + eit$$

Fa :Facilities

Cr :Credit

Er: Exchange Rate

The purpose of the Research

In this research, we seek to be capable of determining the relationships and direction of these variables on the private banks' performance and presenting solutions in the direction of development of private banks and the implementation of the article 44 of the constitutional law.

The study and evaluation of the exchange rate's effect on the private banks' income

Research Hypothesis

The exchange rate had a meaningful effect on the private banks' income.

Research Methodology

The methodology of this research was practical from the aspect of purpose and the kind of research was descriptive and survey. In order to gather information, the library information were used, by referring to the Latin and Persian resources in the fields of exchange rate and private banks' activities, and the information related to exchange rate which were collected by referring to the central bank's statistical yearbooks and after extracting the exchange rate related to each month, each year's average exchange rate was gained and also the information related to the private banks' performance, the variables whose data was taken from Islamic Republic of Iran's central bank's statistical yearbooks and the information existing in the compact disk related to the banks' performance during the period from year 2009 to 2014.

The statistical population of our research is the private banks in Iran and the statistical sample is the banks which were operating from year 2009 to 2014, and there are information about their performances at hand. In this research, the estimation of the model was studied, using the Eviews software, which is an economic software and some tests (Incorporative test, **meaningful test of individual effects**, **F test** and Hausman test).

The research's Findings

The method of estimating the model

Selection between the Consolidated and Panel Data

To estimate the model, first, to determine whether to use panel data or consolidated data, the F Leymer test is used.

The results related to the F test for this research's regression model is shown in chart (1).

Table 1. The Results of F Test on Model (1)

The Summary of Test	Statistic	Degree of Freedom	Meaningfulness	Test Results	
F	2.21786	(8.42)	0.0453	Rejection of H0	Panel Data Methods
Chi-square	18.3006	8	0.0191	Rejection of H0	Panel Data Methods

About the regression model (1), according to the meaningful level of F test's results, which are lower than 5 percent, it is shown that the hypothesis H_0 (Incorporative Model) is not confirmed. In other words, there are individual or group effects and the method of panel data must be used to estimate the research's regression model which in the rest, the Hausman test is used to determine the kind of panel test (with random effects or stable effects).

Selection between Stable or Random Effects (Hausman Test)

After confirming the differences of intercept related to different levels, the selection between stable or random effects must be tested, using the Hausman test.

In Hausman test, the H_0 hypothesis, based on the adjustment of the random effect estimations, is tested against the H_1 hypothesis, based on the incompatibility of the random effect estimations.

Table 2. The Results of the Hausman Test on Model (1)

The Summary of Test	Statistic of Chi-square	Degree of Freedom	Meaningfulness	Test Results	
Studying the Assumption of Random Effects	3.55839	3	0.313	Confirmation of H0	Model with Random Effects

The results related to Hausman test in chart (2) show that the statistic of the Hausman test for regression model (1) equals 3.56 which on the certainty level is not 95% meaningful. This matter shows that the zero hypothesis is confirmed. Therefore, according to the Hausman test, the research's regression model's fitness will be appropriate using the panel data model using the method of random effects.

The Model's Fitness

In the below chart, the results and the estimations of the model are brought. As observed, the coefficients of the variables credits, facilities and exchange rate are 95% meaningful in the certainty interval, because their value has become lower than 0.05. The coefficient of the exchange rate is negative, which shows that the increase of exchange rate causes the decrease of the bank income. This result is reversal for the facilities and credits, because these two variables are estimated positive. Finally the model is as follow:

$$Y_{it} = 78 * Cr_{it} + 157 * Fa_{it} + -2.1 * Er_{it}$$

Table 3. The Results of Estimation of Model (1) with the Method of Random Effects

Variable	Coefficient	Standard Deviation	Ti Statistic	Probability Value
Credits	0.887796	0.01125	78.92776	0
Facilities	0.968512	0.00614	157.7005	0
Exchange Rate	-59.2322	28.7394	-2.06101	0.045
Intercept	843343.7	825244	1.021933	0.312

In the above model, the unit of credits and facilities is both in terms of million Rials and the exchange rate's unit is Rial. Also the unit of dependent variables is million Rials. This means that, for each unit of increase in the exchange rate variable, we witness changes in the bank income to the amount of -59.23.

Also for each unit of change in the credit variable, 0.88 unit is added to the dependent variable and this amount is 0.97 for the facilities variable.

The Study of the Criteria of the Model's Effectiveness and Adequacy

In the following chart, there are few criterion and statistic brought that shows how useful is the fitted model. As it has been noted, the determination coefficient equals 99.8% that shows the fact that the model's explaining variables can determine 99 percent of the dependent variable's changes. Also the F statistic equals 947.5 which with the meaningful level of 0.00 shows that the model is totally meaningful and acceptable.

Table 4. Studying the Model's Qualification

Confirmation Coefficient	0.9982	F Statistic	9475
Adjusted Confirmation Coefficient	0.9981	Meaningfulness	0
Durbin-Watson Statistic	1.8041		

The Study of Heterogeneity of the Variance (Autocorrelation)

What should be considered firstly, for any regression is the underlying assumptions based on which the analyses is done. This is a very important point that unfortunately is often ignored in analyses and this interrupts the results. The underlying assumptions for a regression pattern are as follows:

- 1- The error sentence of ϵ has the average of zero.
- 2- The error sentence of ϵ has the stable variance. (Should be stationary)
- 3- The error sentence of ϵ should be uncorrelated.
- 4- The error sentence of ϵ should be normally distributed.

If the fitted pattern is appropriate, the remains should confirm the mentioned assumptions above. The remaining difference is between the observed values and fitted amounts by the pattern, meaning that:

$$e_i = Y_i - \hat{Y}_i$$

The underlying assumptions of regression, or in other terms are the remained amount of variables' variability's response, which is not defined by the regression pattern.

The Test of Error's Independency

The test of Durbin-Watson examines the serial correlation between regressions' remains (errors) based on the zero assumption:

HO: There is no correlation between the errors.

H1: There is correlation between the errors.

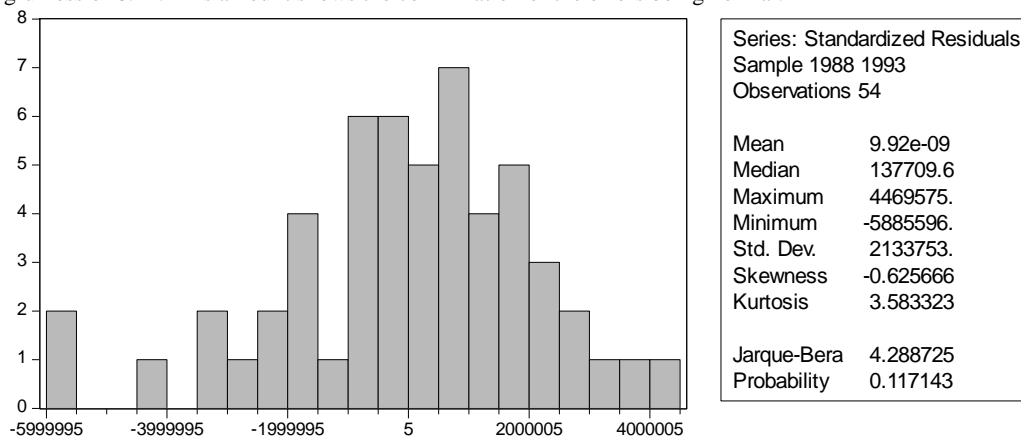
The Durbin-Watson statistic along with the crisis amounts on the error level of 1% are as the charts (4-6). According to the fact that the accounted amount of Durbin-Watson statistic of the regression model of this research is between the crisis amounts on the error level of 0.01, therefore the lack of serial or consecutive correlation of the remains in the first or second regression model in the certainty distance of 99 percent is confirmed.

Table 5: Durbin-Watson Statistic

Regression Model	Crisis Amounts (Error Level of 1%)		Durbin-Watson Statistic
	Du	Di	
	1.987	1.497	1.80

The Study of the Remains' Distribution

Another essential assumption for the regression model is that the remains' distribution is normal for the model. As it is noted in the following diagram, the remains' distribution is very similar to the normal diagram, because the histogram is very close to the normal state. Intuitively, we conclude that the remains are normal. Using the Jarque-Bera, this assumption is studied that it has the meaningfulness of 0.12. This amount shows the confirmation of the errors being normal.



Conclusion and Suggestions

Using the econometric model to measure the vulnerability of Iranian banks of exchange rate, in case of sufficient information, the stockholders can more exactly estimate the effect of exchange rate on this group. In this research, our studied sample included the banks which were accepted in Tehran's Securities Stock during the years, from 2009 to 2014. The results of the estimation of the model showed that there is a meaningful and negative relationship between the exchange rate and the private banks' performance (Total income of the banks). The total income of banks is affected by exchange rate and the variable of total rate is 0.99 percent dependent on the exchange rate. Another point is the reversal of the coefficient of the exchange rate. Meaning that with the increase of the exchange rate, the banks' income is decreased during the years and contrary to what was expected, this increase of rate has not caused the increase of the banks' income and performance. 1. It is recommended that economic legislative systems, in order to achieve an increase in private investment and hence economic growth, create a stable system of decision making in the field of capital market and money and with proper management of the free exchange rate, and perfectly provide the stockholders' interest and create the field of their protection. 2. With regard to the direct effect of the nominal exchange rate on the index of bank performance, the necessity of paying attention to the correct policy of the Central Bank in the field of exchange rate is doubled. It is recommended that to improve the state of the banks' income and increase of public interest to deposit on banks, which has the capability to absorb the wandering liquidity in economy, the policy and support packages should be explained, so that the banks can improve their position.

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