

# *The Risk of Exchange Rate and its Connection with the Performance of the Banking Sector in Albania*

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## **Abstract**

*The exchange rate is a highly debated issue among economists regarding its impact on the performance of financial institutions in general and performance of banks in particular. In this paper we will study whether the performance of banks in the banking system in Albania is affected by the changes of exchange rate for a period of 10 years (2005–2014). For a more detailed analysis to measure the impact that the change of exchange rate has on the performance of banks in Albania will be examined the annual data for 10 years, from 2005–2014. The purpose of this paper is to see if there was a negative or a positive impact of exchange rate fluctuations on bank performance in Albania. The research question that arises in this paper is: How does the exchange rate risk affect the performance of banks in Albania? The hypothesis that we want to prove in this paper is: the exchange rate has not had a high impact on the performance of banks in Albania. To answer the research question and hypothesis will be reviewed the literature on the exchange rate, will be used an analytical, comparative and econometric methodology. The data that will be used will be secondary data obtained from official websites of banks and the Bank of Albania. We will take as a measure of exchange rate the net open position that constitutes the independent variable, and the total income before tax to measure the bank performance, as the dependent variable.*

**Keywords:** *Exchange Rate Risk, Net open position, Profit before tax, Bank performance*

## Literature review

The importance of foreign exchange exposure increased shortly after 1973 as the world moved towards a flexible exchange rate system. While banks faced currency risks prior to that time as there were significant deviations from purchasing power parity, foreign exchange risk became explicitly and nominally much more important after 1973.

Exposure to foreign risk can arise when the domestic currency values of assets, liabilities and cash flows denominated in a foreign currency are subject to change due to exchange rate changes (Ahmed, L. 2015). Commercial banks, actively deal in foreign currencies holding assets and liabilities in foreign denominated currencies, are continuously exposed to Foreign Exchange Risk. Foreign Exchange Risk of a commercial bank comes from its very trade and non-trade services.

An extreme risk of exchange rate was evident in 1997, when the monetary crisis in Asia occurred. The crisis began on July 2, when Thai Baht (Korean currency) fell approximately 50% of the value relatively to the dollar, which led to the decline of other non-Asian currencies and affected also the currencies even in other non-Asian countries. On 20 November 1997 approximately 5 months after the first currency devaluation of South Korea, the Korean currency depreciated by 10% relatively to the dollar. As a result of these currency shocks were affected the proceeds of some US financial institutions. For example, in November 1997 Chase Manhattan Corp. announced a loss of 160 million dollars. Recently, the only dealer in Allfirs Bank covered a loss of 211 million dollars from the trading of foreign currency. After 5 years in which these losses were hidden so successfully, these activities were discovered in 2002. The ethical dilemma box found the trading of foreign currency illegally by some traders of FX. As an attempt to control the interest rate risk, in February 2004, the most important European countries pushed USA for a more aggressive campaign to stabilize the dollar's decline. Efforts to mitigate the decline of the dollar was initiated by Japan and European countries, while the decline of the dollar undermine the economic downturn in these countries. Pg. 183

A number of academic studies have addressed banks and foreign exchange exposure. For example, Bracker et al (2009) identified the change in the value of the U.S. dollar as one of the six primary sources of bank risk. Bracker's study focus on the sensitivity of bank stock returns to various risk factors. The findings were not consistent however with some time periods generating positive relationships and other generating negative relationships between bank holding company returns

and exchange rates. However, their study did identify foreign exchange risk as significant overall.

According to (Ahmed, L. 2015), the study found that foreign exchange exposure has negative effect on the performance of listed commercial banks in Kenya. The study recommended that regulators who include Central Bank of Kenya to ensure stable exchange rate environment and the management of commercial banks in Kenya to continue the improvement of the foreign exchange exposure management techniques.

The exposure towards changing exchange rates of foreign currencies is the measure in which monetary flows, derived from transactions in foreign currency, are sensible to the changing of exchange rates of that currency. Economical units, based on the demand and supply for foreign currency, are divided in four categories: exporters, importers, foreign investors and speculators (Salko, Dhuci & Kola 2010).

Therefore to achieve the purpose of this paper we have chosen as a measure of exchange rate risk the net open position in the entire Albanian banking system. Based on literature we can define net open position as follows:

Sum of all the Net Asset positions & Net Liability positions is known as Net Open Position or Net Foreign Currency Exposure. "Net Foreign Currency Exposure" gives the information about the Foreign Exchange Risk that has been assumed by the bank at that point of time. This figure represents the unhedged position of bank in all the foreign currencies. A negative figure shows Net Short Position whereas positive figure shows Net Open Position.

Any unhedged position in a particular currency gives rise to foreign exchange risk and such a position is said to be Open Position in that particular currency. If a bank has sold more foreign currency than it has purchased, it is said to be Net Short in that currency, alternatively if it has purchased more foreign currency than it has purchased than it is in Net Long position. Both of these positions are exposed to risk as the foreign currency may fall in value as compared to local or home currency and becomes a reason for substantial loss for the bank if it is in Net Long position or the foreign currency may rise in value and cause losses if the bank is Net Short in that currency. Long Position is also known as overbought or Net Asset Position and Short Position is also known as Net Liability or Oversold Position. Sum of all the Net Asset positions & Net Liability positions is known as Net Open Position or Net Foreign Currency Exposure. "Net Foreign Currency Exposure" gives the information about the Foreign Exchange Risk that has been assumed by the bank at that point of time. This figure represents the unhedged position of bank in all the foreign currencies. A negative figure shows Net Short Position whereas positive figure shows Net Open Position.

## Net foreign currency exposure

According to Ahmed, L. (2015) the very first research question is to check whether there is Any Net Foreign Currency Exposure assumed by the commercial banks in Kenya. For this purpose, Annual Financial Statements of listed commercial banks are studied. As per the statutory requirements, all the banks operating in Kenya including commercial banks have to mention in the notes to financial statements “Net Foreign Currency Exposure” in Kenyan shillings, the calculated net position by bank, under the heading of “Foreign Exchange Risk”. Whether this Net Foreign Currency Exposure varies from bank to bank or there is a set rule for all the banks? If a bank has zero Net Foreign Currency Exposure, it means it has all of its assets and liabilities hedged and offset against other currencies or in the same currency. It can be analyzed either relative to Total Assets or Net Assets of the bank; however, it is more appropriate to analyze it with its relativeness to Net Assets. Therefore, a new variable is constructed i.e. “Net Foreign Currency Exposure relative to Net Assets.

## Foreign exchange risk in commercial banks

Foreign Exchange Trading Activities include:

1. The purchase and sale of foreign currencies to allow customers to partake in and complete international commercial trade transactions.
2. The purchase and sale of foreign currencies to allow customers (or the financial institution itself) to take positions in foreign real and financial investments.
3. The Purchase and Sale of foreign currencies for hedging purposes to offset customer exposure in any given currency.
4. To purchase and sale of foreign currencies for speculative purposes base on forecasting or expecting future movements in Foreign Exchange rates. The above mentioned Trade Activities do not expose a commercial bank to foreign exchange risk as a result of all of the above. The commercial bank is exposed to foreign exchange risk only up to the extent to which it has not hedged or covered its position. Wherever there is any uncertainty that the future exchange rates will affect the value of financial instruments, there lies the foreign exchange risk of a commercial bank. Foreign Exchange risk does not lie where the future exchange rate is predefined by using different instruments and tools by the bank. (Bracker, K., Imhof, M., Lallemand, J. (2009))

## **Foreign currency exposure of a commercial bank**

### *Kinds of Foreign Exchange Exposure*

Risk management techniques vary with the type of exposure (accounting or economic) and term of exposure. Accounting exposure, also called translation exposure, results from the need to restate foreign subsidiaries' financial statements into the parent's reporting currency and is the sensitivity of net income to the variation in the exchange rate between a foreign subsidiary and its parent. Economic exposure is the extent to which a firm's market value, in any particular currency, is sensitive to unexpected changes in foreign currency. Currency fluctuations affect the value of the firm's operating cash flows, income statement and competitive position, hence market share and stock price. Currency fluctuations also affect a firm's balance sheet by changing the value of the firm's assets and liabilities, accounts payable, accounts receivables, inventory, loans in foreign currency, investments in foreign banks; this type of economic exposure is called the balance sheet exposure (Ahmed, L. (2015)).

Transaction exposure is a form of short term economic exposure due to fixed price contracting in an atmosphere of exchange-rate volatility. The most common definition of the measure of exchange-rate exposure is the sensitivity of the value of the firm proxies by the bank's stock return, to an unanticipated change in an exchange rate.

## **Analysis of the data in the Albanian banking sector**

The purpose of this paper is to show how the exchange rate change has affected the performance of banks in Albania. For this reason was performed the literature review, in order to identify what are the most appropriate indicators for measuring the exchange rate and the performance of banks. Regarding the measurement of exchange rate risk, the net open position will be used as a measure. This indicator is calculated as the sum of all net open positions for all currencies held by banks in the Albanian banking system. For each currency was calculated the equivalent in Albanian Lek of the open position for each month from 2005 to 2014 for all commercial banks in Albania. To measure the bank performance, were selected from the literature the gross income of activity from 2005 to 2014.

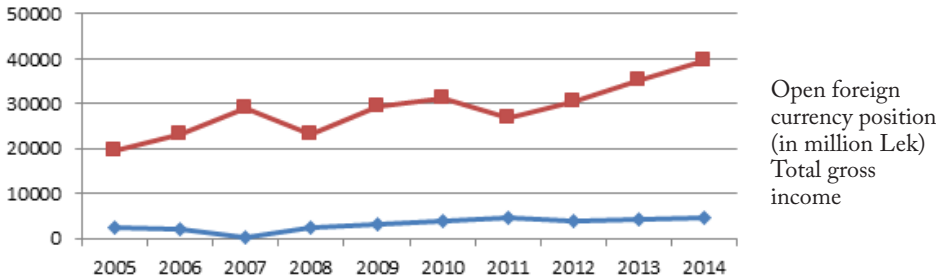
### *Tabular and graphical analysis of the risk of exchange rate*

To see the impact of the exchange rate on the performance of commercial banks in Albania, our analysis will be divided into two parts. In the first part we will perform a graphical and tabular analysis for a period of 10 years, to see the trend of two variables selected in order to interpret and argue the hypothesis raised in this paper. The second part of the analysis will include a single econometric model, where as the dependent variable will be the monthly gross income of activity and as the independent variable will be the monthly net open positions for a period of 10 years. This second analysis regards the time frame 2005 - 2014 with a number of observations 10. The data used for the analysis are secondary data obtained from the official website of the Bank of Albania.

From the analysis of the data is observed that for the period 2005 - 2014, we note that the Albanian banking system has been in positive net open position (or long). This means that the banking system in total has bought more foreign currency than it sold and faces the risk that a devaluation of major currencies (euro, dollar, British pound, etc.) will lead banks in a negative profit and this will negatively impact the gross operating income. In no year during this period banks have had a negative net open position (short). This means that banks have sold more than they bought foreign currency. This would ensure that banks would face the risk of evaluation of major foreign currencies against the Albanian Lek. The Albanian banking system will not be exposed to the risk of exchange rate only if the net open position would be zero. Because regardless of the exchange rate fluctuation, the amount exposed to it is zero and affects the gross income from the activity. In this case we can say that the banks are fully covered by foreign exchange fluctuations. It is observed from the Chart no. 1 that only in 2007 the banks had a very small net open position, compared to other years, 130 million Lek. It is noted that this year, the total gross income increased comparing this value with two years ago. In 2007 this amount was 29,014 million compared to the gross income that are 19,545 million Lek. While the net open position in 2005 is 2,569 million Lek. This means that the bank has been exposed to the exchange rate risk  $f$  in 2005 than in 2007 due to the lower amount of net position.

Another element for the assessment of risk from the exchange rate is the variability of exchange rates of foreign currencies against Albanian Lek. The graph no. 2 shows the exchange rates in the 5 major currencies which operate in Albania. It is noted that the exchange rate Eur / Lek has had a lower rate of growth from 2005 to 2014, excluding the years 2008-2009 where there is a greater increase of the exchange rate. The US dollar has suffered depreciation

**GRAPH 1:** Foreign currency exposure and the total gross income

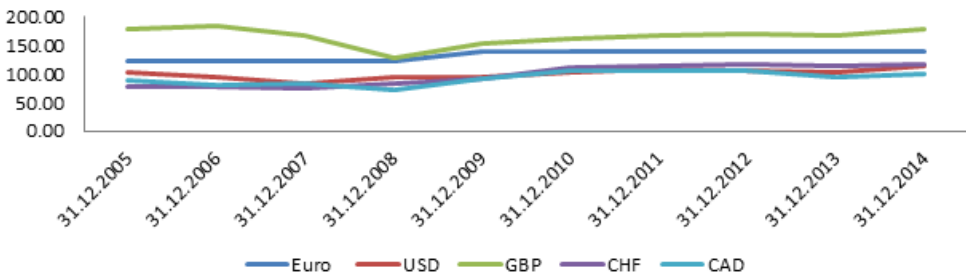


Source: Bank of Albania, graph of the authors

ranging from 2005 to 2007 suffering a fluctuation in growth and then falling again in the years 2008-2009 until 2013. The graph shows that we have an appreciation of the dollar. The British pound also had a large fluctuation during the period 2005-2014.

The combination of these two elements of risk and net exposure and exchange rate fluctuations have caused the banks to be exposed to gains or losses from exchange rate to affect the performance of the banking system. The graph no. 1 shows that starting from 2010 the banks have had a positive net open position but from 2011 it was noted that the total gross income increased significantly. This increase in gross income may have come as a result of increased net income from interests. From this analysis we can say that the banking system in Albania has not been too much exposed to the exchange rate risk, this also due to the fact that the net open positions and the exchange rate fluctuations have not been high. So banks in Albania are protected from losses that may result from the exchange rate.

**GRAPH 2:** Exchange Rates 2005 - 2014



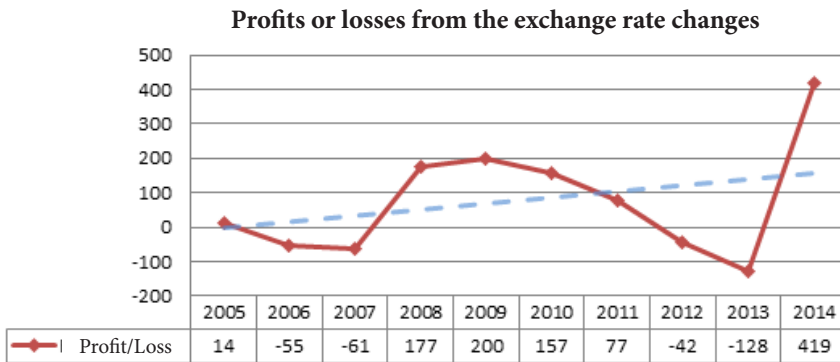
Source: Bank of Albania, graph of the authors



*The calculation of losses / profits from exchange rate fluctuations*

In Graph No. 3 are calculated the profits or losses from the exchange rate changes for the 5 major currencies as the euro, US dollar, British pound, Swiss franc and Canadian dollar.

**GRAPH 3:** Profit / loss from the exchange rate change for (EUR/USD/GBP/CHF/CAD)



Source: Bank of Albania, graph of the authors

To calculate the risk from exchange rate have been taken into consideration two risk factors that are the net open position that represents the amount of exposure and exchange rate volatility. The potential measure of the foreign exchange exposure is measured by the algebraic sum of total assets, liabilities, and purchases and sales in foreign currency. So it can be calculated as follows:

Net exposure<sub>i</sub> = (Assets in foreign currency – liabilities in foreign currency) + (purchased foreign currency – sold foreign currency) = net assets in foreign currency + net traded purchased foreign currency. This measure was taken from the Bank of Albania, for the net open positions n. Where:

i = currency of i

All currencies as well as for the entire banking system for 10 years. While the second factor of risk is the volatility of the exchange rate is calculated as follows: Volatility of lek/exchange rate of the foreign currency, and to assess whether there was a profit or loss in the Albanian banking system we have acted in this way:

Losses in lek/profits in the currency i = (net exposure in the foreign currency i assessed in Lek) \* Volatility of lek/exchange rate of foreign currency.

These losses are calculated for 5 main currencies on which commercial banks have committed more transactions as the euro, US and Canadian dollar, British pound or Swiss franc.



**TABLE 1:** Profit/Loss calculated for the 5 main currencies 2005 – 2014 (in million)

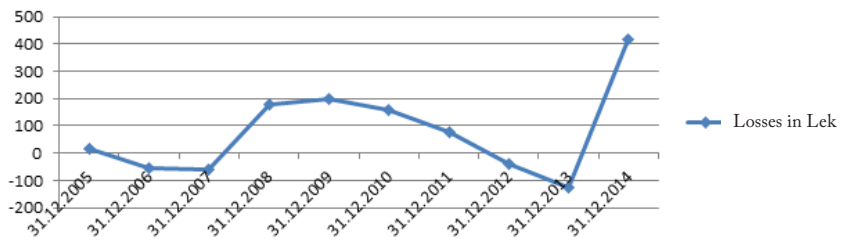
	31.12.2005	31.12.2006	31.12.2007	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013	31.12.2014
EUR	-55.27	12.66	7.57	24.49	192.78	13.65	2.54	-0.64	-9.27	0.10
USD	68.15	-70.22	-58.75	124.15	0.00	112.98	68.68	-41.19	-110.98	400.98
GBP	-0.02	1.65	-5.78	11.26	-8.18	-2.47	3.81	-0.59	-3.10	7.70
CHF	-1.16	-1.12	-3.79	15.68	18.90	35.16	2.17	0.35	-5.98	2.04
CAD	2.21	1.82	0.11	1.61	-3.11	-1.84	-0.07	0.13	1.75	8.43

In the Table 1 were calculated losses / profits for each currency for 10 years. While in the table 2 is showed how to calculate the profit or loss for the currency euro for the period 2005-2014.

**TABLE 2:** Losses/profits from the exchange rate change euro/Lek

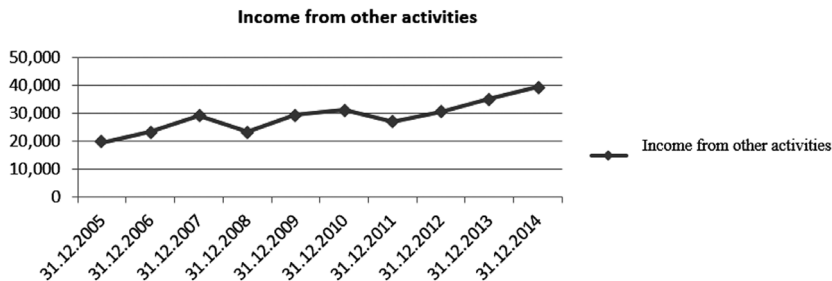
	31.12.2005	31.12.2006	31.12.2007	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013	31.12.2014
EUR	122.58	123.85	121.78	123.80	137.96	138.77	138.93	139.59	140.20	140.14
Lek Shock	-3.77	1.27	-2.07	2.02	14.16	0.81	0.16	0.66	0.61	-0.06
Shock/foreign currency exchange rate	-0.03076	0.01025	-0.01700	0.01632	0.10264	0.00584	0.00115	0.00473	0.00435	-0.00043
Net Open Position	1796.97	1234.35	-445.26	1501.08	1878.23	2339.13	2205.63	-134.32	-2131.35	-236.06
Losses in lek/eur	-55.27	12.66	7.57	24.49	192.78	13.65	2.54	-0.64	-9.27	0.10

**GRAPH 4:** Losses in Lek 2005 – 2014



Source: Bank of Albania, graph of the authors

**GRAPH 5:** Income from other activities



Source: Bank of Albania, graph of the authors

### *Measurement and interpretation of results*

Finally we made a test using a single regression equation taking as dependent variable the gross income from other activities and as independent variable the foreign exchange net open position. Below we present the regression results.

Dependent Variable: TI

Method: Least Squares

Date: 06/11/16 Time: 12:51

Sample: 2011M01 2014M12

Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10945.53	3455.563	3.167509	0.0027
NCE	1.296026	0.674014	1.922848	0.0607
R-squared	0.074397	Mean dependent var		17070.93
Adjusted R-squared	0.054275	S.D. dependent var		9539.406
S.E. of regression	9276.917	Akaike info criterion		21.14922
Sum squared resid	3.96E+09	Schwarz criterion		21.22719
Log likelihood	-505.5813	Hannan-Quinn criter.		21.17868
F-statistic	3.697345	Durbin-Watson stat		0.791407
Prob(F-statistic)	0.060703			

Also the results of the single regression show that there is no significant link between profit / loss in foreign currency and bank performance because the coefficient  $p$  is greater than 0.05 (0.0607). This means that banks in Albania during 2005 - 2014 have not been exposed to exchange rate risk. This for two reasons: first, the net foreign currency exposure was not very high and the second, the exchange rate shocks have not been significant. As a conclusion we can say that the banking system is protected from exchange rate shocks.

### **Conclusions**

The purpose of this paper is to show how the exchange rate change has affected the performance of banks in Albania. The net open position will be used as a measure of exchange rate risk. This indicator is calculated as the sum of all net open positions for all currencies held by banks in the Albanian banking system for each month from 2005 to 2014. To measure the bank performance, were selected from the literature the gross income of activity from 2005 to 2014. The data used

for the analysis are secondary data obtained from the official website of the Bank of Albania.

The analysis is divided into two parts. In the first part graphical and tabular analysis for a period of 10 years was performed. The second part of the analysis includes a single econometric model, where as the dependent variable will be the monthly gross income of activity and as the independent variable will be the monthly net open positions for a period of 10 years.

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