DOES A MONETARY TIGHTENING RISE OR LOWER THE INTEREST RATES: ALBANIAN CASE

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Abstract

Monetary tightening policy refers to the actions of the Central Bank to constrict spending in an economy that is growing too quickly. The actions of the Central bank include rising the interest rate in the short term in order to decrease the liquidity of the Banks. If the interest rate increases in the short term, it brings low amount of loans and high saving. This paper examines the effects that the monetary tightening has in nominal interest rate in long run and short run, by focusing in the study on liquidity preference and Fisher effect. Also it is going to represent the full effects that the monetary tightening policy has in the money demand, money supply and interest rates of the Bank of Albania (BOA), how does it influence the economy and what are its consequences in the macroeconomic conditions. The econometric model is an important part of the study since it includes the implementation of the theoretical part and a strong evidence of the whole theoretical study. The model including the time series data (1993 – 2012), examines the relationship between nominal interest rate and inflation in Albania. After reasonable analysis, it will demonstrate that the tight monetary policy in Albania has a significant impact in the interest rates as it has a long run stable relationship.

Keywords: nominal interest rate, inflation, Fisher hypothesis

1- Introduction

Interest rate is one of the most important tools that the government uses in order to control the inflation. In general, the public asks the question of why the interest rates are so important and widely discussed. In the first place, interest rates affect the consumer's behavior directly. In the case of a country's economy facing expansion, there exists the risk of the monetary devaluation because of the increase in the general level of prices. This is the precise time when the Central Bank, in the case the BoA pursues the tight monetary policy practice by raising up the interest rates, making it more expensive to borrow money, so this will reduce the money supply. In this case , the purchasing power of the individual falls down, demand for goods and services as well, so the prices go toward a general reduction. In other words, interest rates play an important role in fighting one of the major problems of a state's economy: inflation.

In this study, there will be presented the case of Albania which is a state dominated by a transition economy. This economic structure originated from the unstable economic history that Albania has, the Communist regime that left it steps behind the developed countries and finally the lack of organization of the economic institutions. Despite of the fact that the BoA is not a strong-base financial institution as the developed countries central banks are, it constantly tries to give sense to the economic situations offered in the Albanian reality.

The main objective of this study is dedicated to the effect that the tight monetary policy has on other economic variables like: inflation, exchange rates and unemployment. And the main result shows a long run stable relationship between nominal interest rate and inflation, which shows that between nominal interest rate and inflation move together in the long run in Albania.

2- Litearure Review

Monetary theory represents the regulation of the money supply in the market from the Central bank of the specific country being studies, in this Albania case. Through the decision of the amount of the monetary supply, whether it will be an increase of decrease, the interest rates get affected (Investopedia US, Value Click Inc, 2013). As referring the research titled: "The Monetary policy in albania during 20th century crises" it is stated that Albania did not have a real monetary system up to 1912 and it still needed many decades in order to get ready and pass the obstacles until reaching its years of success from the year 1997 up to 2002 (Pisha & Vorpsi, 2010). In overall, since Albania represents a low experienced country in the field of economy, the impact that monetary policies have in the overall economy are not as large and do not affect in the great scale that the other countries policies affect their economic indicators: interest rates, exchange rates, inflation rates etc.

Monetary policy cannot control in any mechanistic way the quantity of reserve money through control over an interest rate (Mahadeva &Sterne , 2000). There are just too many shocks to the demand for reserve money to enable such control within any reasonable range of interest rates. So the central bank is always obliges to adjust the supply of reserve money to demand at some acceptable interest rate, i.e., to offer an elastic supply of reserve money. Nevertheless, influence over the quantity of reserve money through short-term interest-rate control should be achievable over time, if not immediately, in virtually all market –based banking systems.

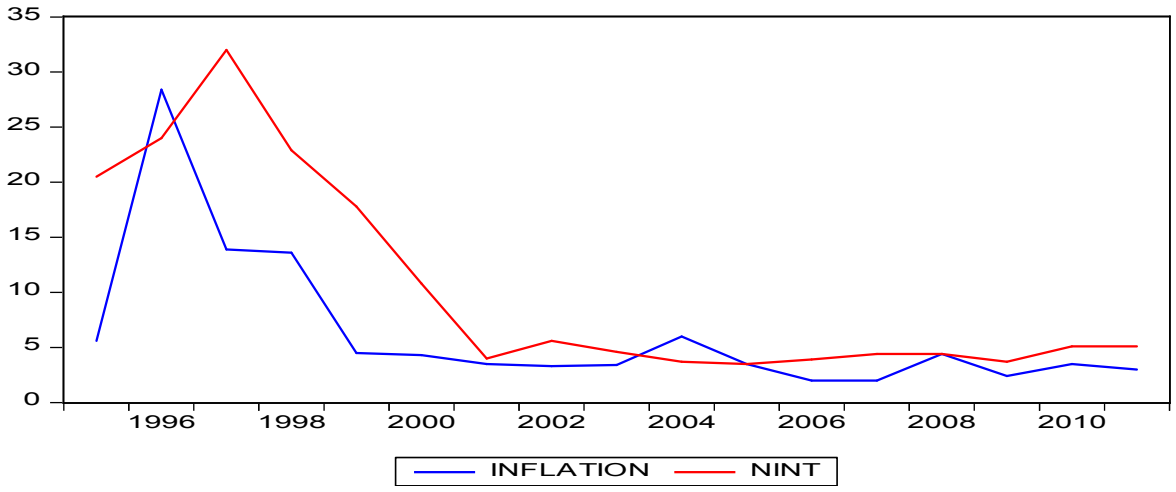
3- Data and Methodology

Studing the effects of the interest rates in the economy needs not only theoretical concepts, but it need a prectical and econometric study as well. There are selected the time series data coming from a range of the year 1995 up to the year 2011. The sources of the data are Bank of Albania and INSTAT. Time series data refers to study of data collected through time which are necessary for providing pure research and practical implementation. Such usage

has resulted in considerable misunderstanding because, in reality, stationary and non stationary are essentially indistinguishable except where changes in an underlying process are so dramatic that no statistical assessment is necessary (Koutsoyiannis, 2011a)

Regression Analysis uses statistical data to provide an equation that generates the relationship between one variable that is going to be predicted based on an independent variable. The number of observations in this analysis is 17. The correlation between dependant variable and independent variable is shown by Multiple R which has the value 0, 73. While the value of R square is 0.54 which means that only 45% of the equation can be explained. According the value of standard error it is high which means that the data are spread in a large range. An examination of the relationship between nominal interest rate and inflation: non-stationary time series data and Johansen Co-integration Test

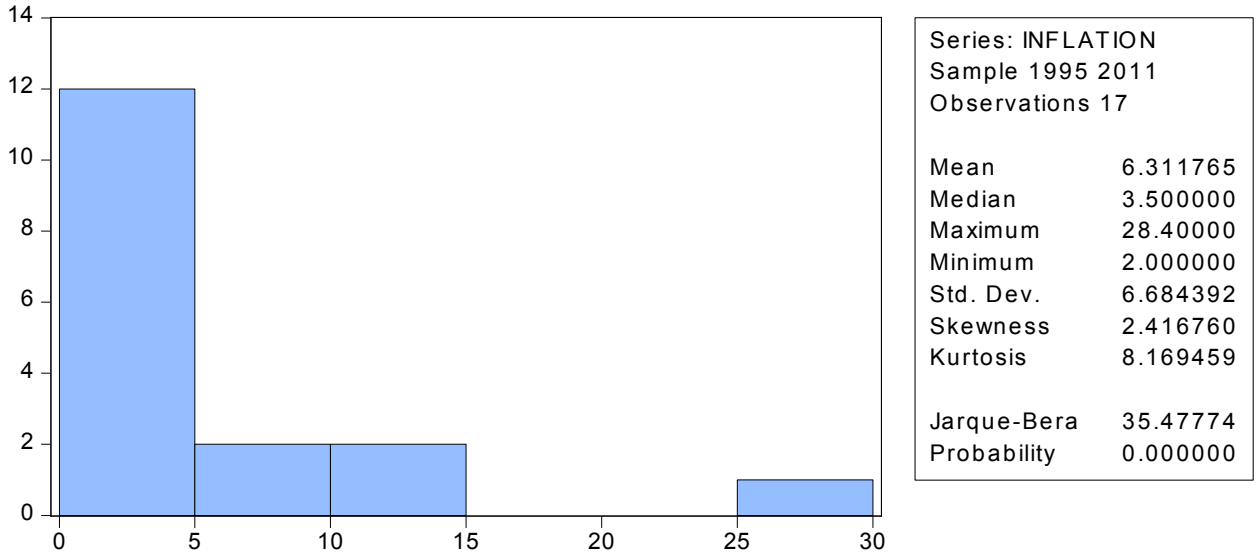
Graph 1. Nominal interest rate and inflation in Albania (1995-2011)



As it can be observed in the graph the highest amount value of inflation in Albania has arise in 1997 due to pyramidal schemes, as inflation rose to triple digits during 1996-1997. While the highest value of nominal interest rate is easily seen in 1998, which refers to the fact that the Albanian economy tended to be attracted for the investment by offering high interest rates, without taking into consideration the high values of inflation.

While the lowest value of inflation is noticed in 2007 which is tightly connected to global financial crises. According to the lowest value of nominal interest rate it can be observed in 2009, which is still the financial crises effect as well as the post global financial crises consequences.

Graph 2: Histogram and statistics of Inflation in Albania (1995-2011)



This sample has an average in between the interval of 2.0 and 28.4, which indicates the value in the Confidence Interval of 95% which means that it is 95% confidence that the true average of the process is in between these two values.

Graph 3: Histogram and statistics of Nominal Interest Rate in Albania (1995-2011)

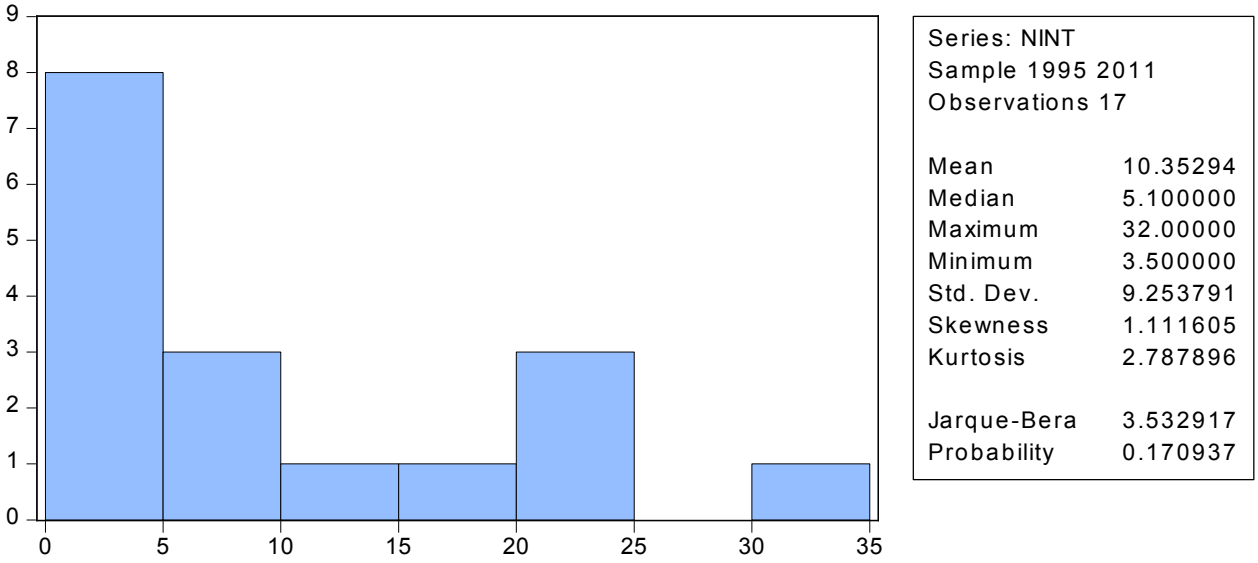


Table 1: Descriptive statistics of nominal interest rates and inflation series

	INFLATION	NINT
Mean	6.311765	10.35294
Median	3.500000	5.100000
Maximum	28.40000	32.00000
Minimum	2.000000	3.500000
Std. Dev.	6.684392	9.253791
Skewness	2.416760	1.111605
Kurtosis	8.169459	2.787896
Jarque-Bera	35.47774	3.532917
Probability	0.000000	0.170937
Sum	107.3000	176.0000
Sum Sq. Dev.	714.8976	1370.122
Observations	17	17

Mean refers to the average across the observations.

Minimum is the lower value of the variable and maximum stands for the higher value of the variable. The Standard Deviation serves for measuring the spread of observations, which is very high for remittances. While Skewness value should be near to 0 and measures the direction and the degree of symmetry. This means that the symmetry of the nominal interest rate and inflation is more symmetric than inflation but both variables has bad values with regard to Skewness.

Kurtosis is a statistical measure that shows the distribution of the observed data around the mean and trends in charts. The values of kurtosis for nominal interest rate is positive and is near to the expected value 3, which means that there are "well behaved" tails and there is normal distribution, but the value of the Kurtosis on inflation is positive but is not near to the value 3 which refers to non normal distribution.

Table 2: Estimation equation output of regression

Dependent Variable: INFLATION
Method: Least Squares
Date: 05/29/14 Time: 10:09
Sample: 1995 2011
Included observations: 17

Variable	Coefficient	Std. Error	t-Statistic
NINT	0.576316	0.080609	7.149564

R-squared	0.535769	Mean dependent var
Adjusted R-squared	0.535769	S.D. dependent var
S.E. of regression	4.554379	Akaike info criterion
Sum squared resid	331.8778	Schwarz criterion
Log likelihood	-49.38016	Hannan-Quinn criter.
Durbin-Watson stat	2.750487	

The Johansen Fisher panel co integration test aggregates the p values of individual Johansen maximum eigenvalues and trace statistics. The value of the chi-square statistic is based on the Mackinnon et al. (2001) p-values for co integration trace test and maximum eigenvalue test. The result indicates one co integrating vector. (Johansen`s, 1988)

The test of sationarity check of the time series is prerequisite for the cointegration analysis. A time series that have time invariant mean, variance and covariance is called stationary time series. Unit root test serves as a pre-test to avoid spurious regression results (Granger, 1986). The worker's remittances increase the growth of the recipient economy as it reduces the current account deficit of the economy. Inflows of worker's remittances also help to reduce the external borrowing and thus reduce the external debt burden. Worker's remittances improve the foreign exchange position as it is an important source of foreign exchange inflows. Its role in the improvement of the balance of payment and reduction in external dependence has positive impacts on the economy. There are some evidences that the remitted foreign exchange is also used as "productive investment". The inflow of worker's remittances is concluded to be third important source of the capital for the growth of an economy. (Iqbal and Sattar, 2005).

Table 3: Augmented Dickey-Fuller unit root test statistic on inflation

Null Hypothesis: INFLATION has a unit root
Exogenous: Constant
Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.373708	0.0008
Test critical values:	1% level	-3.959148	
	5% level	-3.081002	
	10% level	-2.681330	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 15

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATION)
Method: Least Squares
Date: 05/29/14 Time: 10:10
Sample (adjusted): 1997 2011
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATION(-1)	-0.456090	0.084874	-5.373708	0.0002
D(INFLATION(-1))	-0.168528	0.077625	-2.171052	0.0507
C	1.284146	0.743689	1.726723	0.1098

R-squared	0.847902	Mean dependent var	-1.693333
Adjusted R-squared	0.822552	S.D. dependent var	4.450918
S.E. of regression	1.874930	Akaike info criterion	4.271876
Sum squared resid	42.18436	Schwarz criterion	4.413487
Log likelihood	-29.03907	Hannan-Quinn criter.	4.270368
F-statistic	33.44817	Durbin-Watson stat	2.245733
Prob(F-statistic)	0.000012		

For estimating if the null hypothesis has a unit root or not it can be observed through the ADF test is by comparing the p-value. If p-value is greater than 0.05 there is unit root, in the analysis results it is shown that the p-value 0.0008, so lower than 0.05, thus reject the the null hypothesis is of a unit root. By observing the analyzing with the result of rejecting the null hypothesis which is on the unit root, it can be stated that the inflation has not has a unit root. And the same thing can be observed for nominal interest rate.

Table 4: Johansen Co-integrated Test

Date: 06/10/14 Time: 10:03
Sample (adjusted): 1997 2011
Included observations: 15 after adjustments
Trend assumption: Linear deterministic trend
Series: INFLATION NINT
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.845383	38.64573	15.49471	0.0000
At most 1 *	0.508149	10.64370	3.841466	0.0011

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.845383	28.00203	14.26460	0.0002
At most 1 *	0.508149	10.64370	3.841466	0.0011

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

INFLATION	NINT
-0.161462	-0.013374
0.833260	-0.520189

Unrestricted Adjustment Coefficients (alpha):

D(INFLATION)	2.789321	-0.385669
D(NINT)	1.358189	1.272590

1 Cointegrating Equation(s): Log likelihood -55.97167

Normalized cointegrating coefficients (standard error in parentheses)

INFLATION	NINT
1.000000	0.082829
	(0.08951)

Adjustment coefficients (standard error in parentheses)

D(INFLATION)	-0.450369
	(0.06377)
D(NINT)	-0.219296
	(0.09139)

According to the results shown in Table 4 on the LR test statistics and critical values, it is observed that there is a co integration relationship between nominal interest rate and inflation at the 5% significance level. This means that there is a long run stable relationship between nominal interest rate and inflation, which shows that between nominal interest rate and inflation move together in the long run in Albania.

Conclusion

Since 1997, BoA has adhered to a tight monetary policy. This come due to the increase in the interest rates and the stabilization of the exchange rates low rated on deposits and went on with the prudent restrictions on the non-governmental lending by the state owned bank. Thus Tight Monetary Policy results in decrease inflation will lead to increase the interest rate, increase in exchange rate and increase in the unemployment rate. The results were shown in the econometric model as well. The correlation between dependant variable and independent variable is shown by Multiple R which has the value 0, 73. While the value of R square is 0.54 which means that only 45% of the equation can be explained. To conclude, the Null Hypothesis is accepting getting to the needed that the tight monetary policy has a significant impact in the interest rates, though it is worth to be mentioned that in order for the monetary

policy to have a considerable effect in the macroeconomic conditions in general there are needed several years.

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