

The Stability of Money Supply in the View of Monetary Unification

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Abstract

This study is focused on the effect of the money unification process of Albania and mainly in the effect of this process into the money supply. During the recent discussions about integrating our country into the European Monetary Union, a money illusion was conceived without taking into the consideration the rational effects of this process into the savers of the economy. Beyond this illusion— after analyzing the advantages and disadvantages of the unification process— this paper aims to look up into the main obstacles this process bears; for instance this article carefully observes the misalignment issue of inflation and exchange rate after the possible currency conversion in Albania. The main indicators on which our analysis is based are: money supply, interest rates, targeted inflation, GDP and velocity of money velocity. Further this paper aims to examine the relationship between money supply, GDP and targeted inflation. Based on this study we drive these following issues to a solution on the reference of Fisher's Quantitative Theory of Money. Based on an empirical analysis, we expect to find a controversial behavior of money supply after the currency substitution. This research paper opens a new lieu of discussion in terms of academic and decision making debates.

Keywords: *Euroization, Money supply, GDP growth, Targeted inflation, Albania, Financial system*

1. Introduction

During the last decade, Albania has exposed itself to euro, apart of its local currency Albanian Lek (ALL). Many transactions are done in euro. Therefore, Albania can be considered as a dual currency countries. This paper is focused on the effects that dual currency countries have on the macroeconomic factors such as real GDP Growth, inflation and monetary base growth.

This study is organized as follows: in the second section there is literature review part where the relation and effects of euroization on the macroeconomic factors are shown; third section shows a macroeconomic perspective for Albania; the forth section shows an empirical evidence about the relationship between euroization and monetary base growth and inflation.; the fifth section is a result analysis; the study ends with the conclusion section.

This study aims to give a clear overview of the effects of using dual currency. Firstly, the study aims to give a clear frame on the theoretical effects of euroization in the Albanian economy; secondly the study aims to empirically analyze the effect of euroization into the macroeconomic factors such as inflation, exchange rate and real GDP growth; thirdly the study aims to give some recommendation regarding euroization level in Albania. What is the impact of a dual currency country on the monetary policy?

Data and Methodology

This study covers a twenty one year time frame of yearly data from Albania. The variables taken into analysis are euroization of deposits, euroization of credit, inflation level and economic growth. The analysis is computed using a multiple regression analysis, where the level of GDP and inflation is the dependent variable and the M2 growth and euroization of deposits and credit is the independent variable.

2. Literature Review

We want to study the effects of partial euroization on GDP growth and inflation in Albania.

Early literature considered “euroization” or “dollarization” as a phenomena in terms of “currency substitution” (Quispe, Agnoli, 2002).

There are two methods of euroization, or dollarization, partial and full. Full euroization exists when the Central Bank of a country adopts a foreign currency and eliminates their national currency. This phenomena is more widely spread in Latin America countries. (Quispe, Agnoli, 2002). In our region Kosovo has adopted full euroization as well.

Partial euroization exist when individuals in a country take rational measures to protect their purchasing power of their money and exchange them for a foreign currency. Partial euroization is observed more in countries where there is macroeconomic de-stability and high inflation. Although euroization in Albania has increased in spite a period of normal inflation and macroeconomic stability after 2000. (The reasons for increased level of euroization are studied more in-depth by Manjani, 2014).

The effect of euroization on Economic Growth

We are very interested to know the effects of euroization on our economic development, the transmittal mechanisms of these effects and how policy makers can respond. In her study on the issue Eduards and Magendzo (2001) states that “We also find that dollarized nations have had a lower rate of economic growth than non-dollarized ones”.

Different conclusion are reached by Castillo (2006) where their findings suggest that “...increased dollarization is positively associated with economic growth. Dollarization has a stronger impact on inflation. Data suggests that dollarization significantly reduces inflation.”

We are interested in knowing how euroization impacts Albanian’s economic development and inflation and what should be the policy responses.

Measuring partial euroization

Going back to our topic, how much is Albanian economy “euroised” and according to Bank of Albania, we have three kinds of Euroisation: **Firstly**, it is the assets’ euroisation, which is measured as the ratio of deposits in foreign currency total deposits. Typically, deposits in foreign currency stand at 48% of total deposits in Albania. **Secondly**, it is the liabilities’ euroisation, which is measured as the ratio of loans in foreign currency with total loans in Albania. This indicator speaks for a high level of euroization, as it currently stands at 67.5% of total loans. **Thirdly**, it is the euroization of transactions, which is measured as the total number of transactions in foreign currency, out of total transactions in the economy. This is the hardest to measure because it’s not possible to measure all transactions by all individuals and the currency they use thus there are only estimates.

2.1 Advantages of adopting Euro, as a single currency

The prevailing opinion in both academic and political area, is that the advantages of euroisation for a short term period are profoundly evidenced, especially in developing countries, where the aspiration to join the European Union is greater. Upon joining the monetary union through the use of the single currency, the exchange and interest rate shocks will be eliminated.

2.1.1 Reducing transaction costs

These kind of costs, even though presenting a loss to the banking balance sheet, do practically affect countries with an import-oriented economy. The implementation of a single currency reduces transaction costs that materialize in the form of appreciation or depreciation of the currency.

2.1.2 Reducing the interest rate

Application of such a stable currency would bring lower interest rates. The rapid and significant reduction of interest rate would encourage investment growth, and as a consequence, it would bring a positive impact on fiscal policies and towards reducing the cost of public debt. Naturally, the effect would be more sensitive in countries where the central bank pursues a policy of real interest rates.

2.1.3 Reducing the exchange rate fluctuations

Monetary unification would eliminate possible pressures on exchange rates and, consequently, prices (inflation) would be more stable. Given that a currency operating in a wide market would be adopted, its exchange rate would not be affected by the domestic market parameters.

2.1.4 Effects on inflation

There appears to be a consensus on the effects of euroization on inflation. Most studies conclude that partial dollarization, which is similar to euroization, significantly reduces inflation (Castilo, 2006). Similar conclusions are reached by Eduardo and Magendzo (2001) stating that: “Our findings suggest that inflation has been significantly lower in dollarized nations than in non-dollarized ones”. However partial euroization can be a risky position for a country. Countries like Russia and Turkey saw a drastic devaluation of their currency together with inflation. This devaluation of their local currency was due to the flight of the capital and dumping of the national currency as well as rational expectations for higher inflation. Expectations for higher inflation have contributed to increased euroization or dollarization adding to the effects of exchange rate volatility and more inflation.

2.2. Disadvantages of adopting euro, as a single currency

When analyzing “euroisation” as a phenomenon, we need to examine the costs it bears to the economic and monetary system of our country. In all economic literature and discussion papers on possible disadvantages of applying a single currency, the Central Bank takes the central role at the stage.

2.2.1 Money Supply Shock

A very strong negative impact is considered the insufficiency of foreign exchange reserves in euro. Euroisation as a process charges a high cost bill to our economy, which does not seem to generate the amount of necessary money reserves to implement euroisation.

2.2.2 “Elimination” of the Central Bank’s role

If we consider applying a single currency, euro, most of the basic and substantial functions of the Central Bank of Albania would “disappear”. Through euroisation, countries accept losing the independence of the monetary policy, by removing Central Bank’s instruments for implementing monetary policy.

2.2.3 “Seigniorage” Cost

Since the feudalism times, it was the ruler’s right named “seigneur” to issue coins; therefore this process is called seigniorage. It is defined as the difference between the nominal value of each currency issued and its printed value. The cost of printing money is insignificant compared to its nominal value. Consequently, incomes generated from seigniorage are considerable. But,

as a result of euroisation Albania would issue less local currency (ALL) if not at all, thus reducing this source of incomes, which is estimated to be up to 5 per cent of Albanian state budget. Therefore, rejecting the Albanian Lek means no more rights to benefit from this source. Duraj (2008) has concluded that its cost, referring to the period from 2002-2008, is on average 1.73 per cent of the GDP. Duraj observed a downward trend of its weight in government budget revenues through years. In fiscal terms, this income for Albania, during the period 2000-2008 was only 0.44 per cent of the GDP and actually stands at 1.92 per cent of fiscal revenues. In terms of opportunity cost, the seigniorage income was at about 1.85 per cent of GDP . Therefore, euroisation would be, and has been, so an expensive process for Albania.

2.2.4 Lender-of-last-resort

Central bank acts as lender of last resort for commercial banks. In terms of euroisation of Albania, the Bank of Albania will lose the possibility to act as a lender of last resort.

2.2.5 Structural Costs

An important cost to be considered is the process of adapting the appropriate structures and mechanisms established for managing the euroisation regime, which is an unfamiliar process for our country.

2.2.6 Negative Effects of partial euroization on banks and busseneses.

There are negative effects on banks because the asset and liabilities euroization exposes them to the exchange rate risks.(Kokenyne, 2009).Businesses face the same problem, and in addition their transactions, at least a good part of them, are in a foreign currency but their taxes and balance sheet must be prepared in ALL.

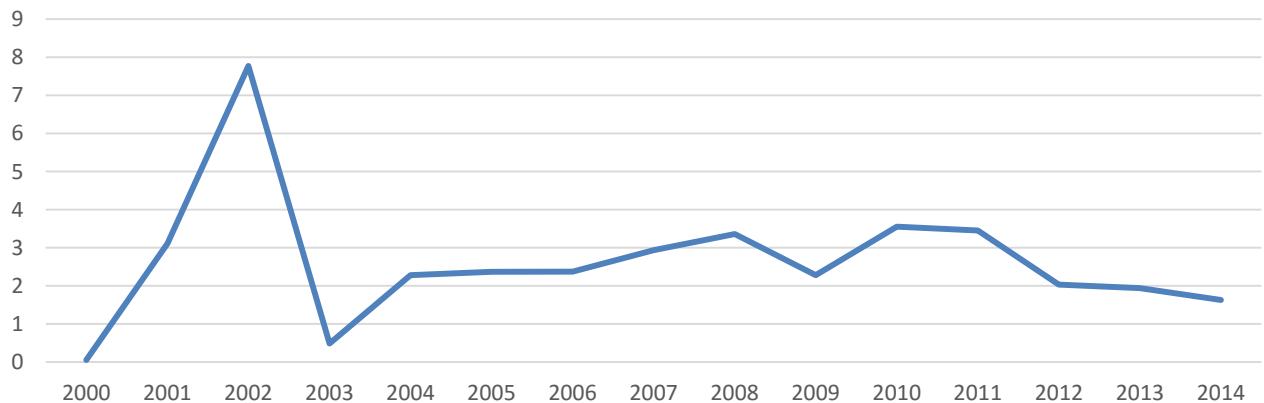
2.3 Brief Analyses of anti-deflationary policies

According to the World Bank the Central Banks have injected \$8 trillion in the world economy since the start of the last financial crises. The purpose of this massive growth of mony supply is to escape the vortex of deflation, grow consumption and reach the targeted inflation of 2 – 4 %. Reaching this target seems harder in some periods of history and difficult in some others. During the 1970 inflation in USA reached double digit figures but after the 2008 Great Recession maintaining inflation target seems a difficult task.

There may be different reason but mainly they have to do with the “liquidity trap” (Hicks, 1937 and Krugman, 1998) as interpreted by the Keynesian model of money markets.Krugman, a Nobel Price Laurate in 2008, explains the liquidity trap as “that awkward condition in which monetary policy loses its grip because the nominal interest rate is essentially zero, in which the quantity of money becomes irrelevant...” (Krugman, 98).Despite the massive growth of money supply deflation vortex continues to be a danger for the European and American

economies. Reported data on Eurozone inflation for August 2015 were at 0.1%, practically a flattening which means that prices were not changed. Similar trend appears to happen in Albania. The 2014 inflation recorded historical lows (except for 2001) of 1.63% with downward trends. The same trend has been observed through 2015 recording figures well below that of the targets of BoA.

Table 1: Inflation Trend in Albania during the period 200-2014



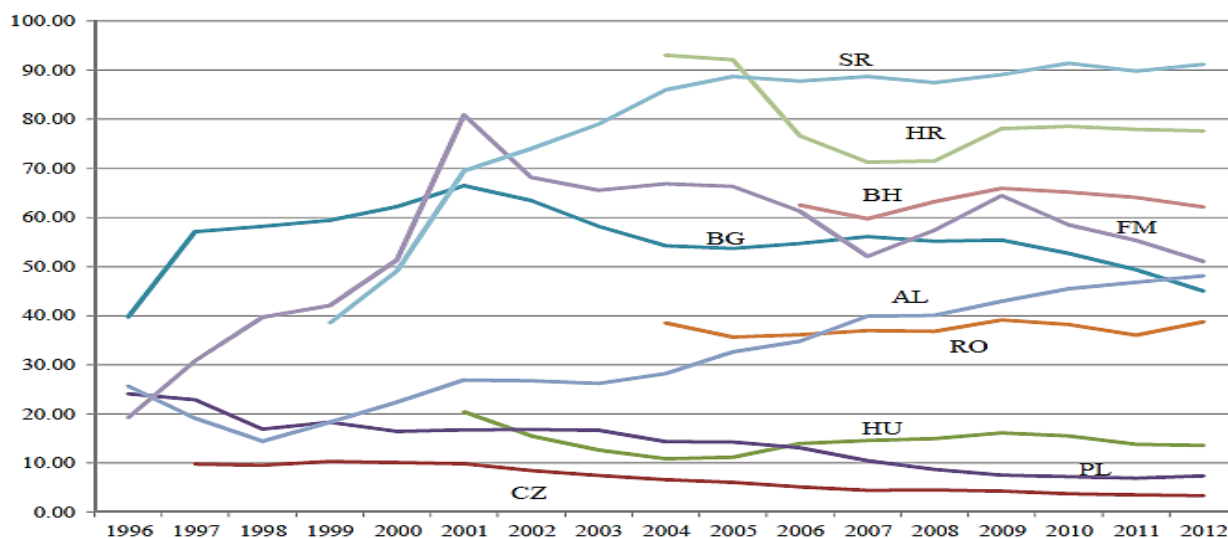
Source: Authors

In the Bank of Albania yearly report it was argued that mid-term inflation was within the BoA’s objectives.”Average yearly inflation for the period 2007 – 2011 was 3.1%, very close to the midterm objective of the BoA. This level of inflation has supported the dynamic, positive economic growth, which in yearly average for the mid-term was at 4.7%. In the meantime the average interest rate for ALL was at 5.6%. (Raporti Vjetor BSH, 2011)

This analysis doesn’t mention the fact that these results were achieved thanks to expansionary budget deficit. This assessment is supported by the IMF in the yearly conclusions in 2012. The IMF concluding statement, issued on October 2012, says that “*since the onset of the global crisis in 2008, Albania has avoided a sharp fall in output and maintained banking system stability, thanks to a fiscal stimulus,...*”. (IMF, 2012)

Table 2

The figure shows aggregate shares of deposits in foreign currency (in %) for private households (and non-profit organizations) in the 10 countries covered by the OeNB Euro-Survey over the period 1996-2012. Source: National central banks.

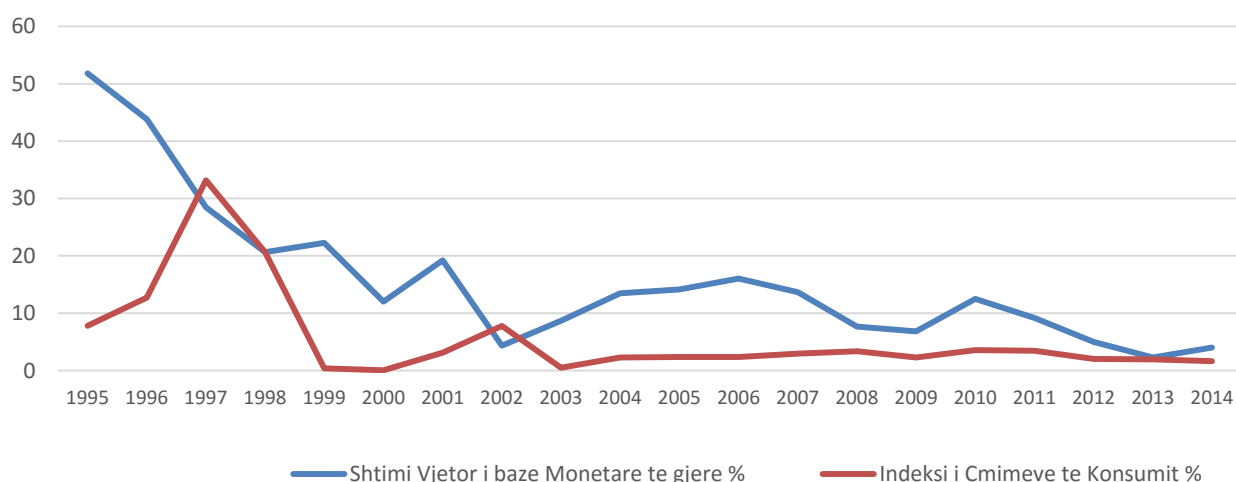


Average inflation for the period 2010 – 2014 was 2.5% me with a downward trend. The goal of this study is analyze the effects of euroization on the monetary base, inflation and economic growth. Albanian is one of the countries with higher levels of euroization compared to other countries in Eastern Europe. (Dvorsky et al, 2007, Brown et al, 2014) and euroization continues to grow. In his study Brown (2014), reports a 20% increase in the level of euroizatoin of family and NGO deposits compared to 2007.

This development is accompanied with lower levels of inflation, well below the targeted level of 3% (+-1%) (Bank of Albania).

As shown in the graph below there is an overall decrease in the consumer price index (CPI) in Albania. There has been a stable trend from the year 2003 to year 2014. While the monetary base has faced a more stable increase during the period from 1995 until 2014.

Table 3 Consumer Price Index and % and monetary base expansion

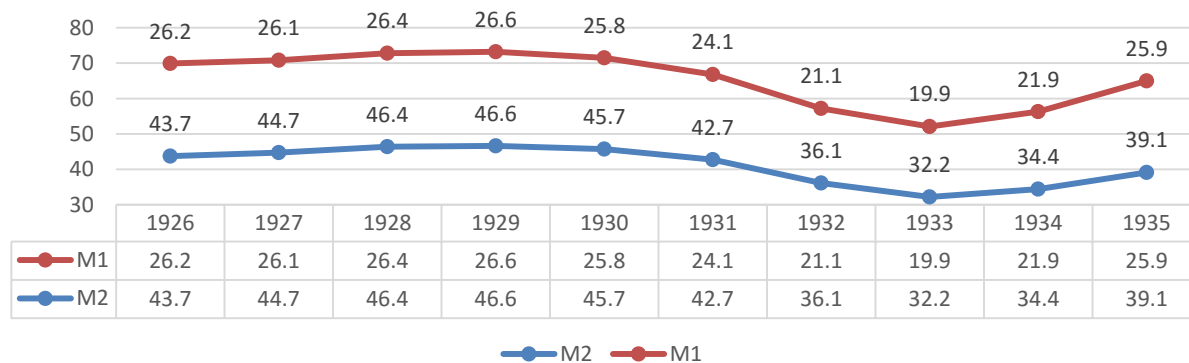


Source: Authors

Experience from the History of the Great Depression.

Monetarists Theorists maintain that reasons of the prolonged crises in the US, and the world, are due to the sharp decline in the monetary supply. Monetary Supply declined by as much as 30 percent. It practically put the brakes on the economy. The real economy contracted by as much as 40%, deflation was 25% and unemployment rose to 24.5%. Another fundamental was affected greatly. Money supply, M1 and M2, fell by about 30%.

Table 4: Money Supply Trend in Albania



Source: Historical Statistics of United States

Milton Friedman says: “The contraction is - a tragic testimonial to the importance of monetary forces... Different and feasible actions by the monetary authorities could have prevented the decline in the stock of money... [This] would have reduced the contraction’s severity and almost as certainly its duration (Friedman, Schwartz 1963, pp. 300-01).

Money Supply exercises its pressure on the real economy through deflation. The Monetarist believes that in the short run prices fall but not as fast as the money supply effectively reducing money supply.

The American FED learned its valuable lesson. Ben Bernanke would say on Milton Friedman’s 90th birthday “I would like to say to Milton and Anna: Regarding the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again.” (Bernanke, 2002). Thus the FED monetary policy in response the last Great Recession was “great” as can be seen from the chart below:

Table 5: Adjusted Monetary Base 2002-2014



Source: Federal Reserve

A brief history of economic policy

One can say that the 40’, 50 and 60’ were the Keynesian years. It went so far that Nixon declared with confidence that “we are all Keynesians” (Friedman, 1965). ‘70s and ‘80s were a resurgence of neoclassical school of thought spearheaded by Milton Friedman with his Quantitative Theory of Money. An important role was played by George Lucas with his Nobel Prize paper on Rational Expectations. Philips curve brings more employment only when inflation is not expected. If rational agents of the economy expect inflation they will adjust the prices (wages) and higher money supply, in the long run, leads only to inflation and sometimes can even lead to higher unemployment.

Friedman suggested that growth of the monetary base should be done at a fixed rate every year. His famous saying that “inflation is always a monetary problem” and that “We don’t need a Fed, I have, for many years, been in favor of replacing the Fed with a computer, would print out a specified number of paper dollars” to augment the money supply. “Same number, month after month, week after week, year after year.” (Murdock, 1999). ‘90s and ‘00s softened the Monetarist dominance because velocity of money, V , was unstable and raising questions about

the relationship of inflation with money supply.(it is outside the scope of this study to consider the merits of criticisms and the responses).

As we will see below this relationship between money supply and Albania holds true for Albania but because of the euroization money supply has not had its full effect on inflation.

This summary serves as a prologue to the next point as we discuss the case of Albania.

Theory and Model

Quantitative Theory of Money for a dual currency country like Albania

QTM states that: “... *if* a change in the quantity of (nominal) money were exogenously engineered by the monetary authority, then the long-run effect would be a change in the price level (and other nominal variables) of the same proportion as the money stock, with no change resulting in the value of any real variable.” (McCallum, Nelson. 2010)

The QTM is expressed as a mathematical identity in the form of:

$$M*V = P*Q. \quad (1)$$

In other words: GDP of Albania = M*V.

So according to this identity, by taking V as stable BoA needs to print money at the speed the GDP grows plus the targeted inflation.

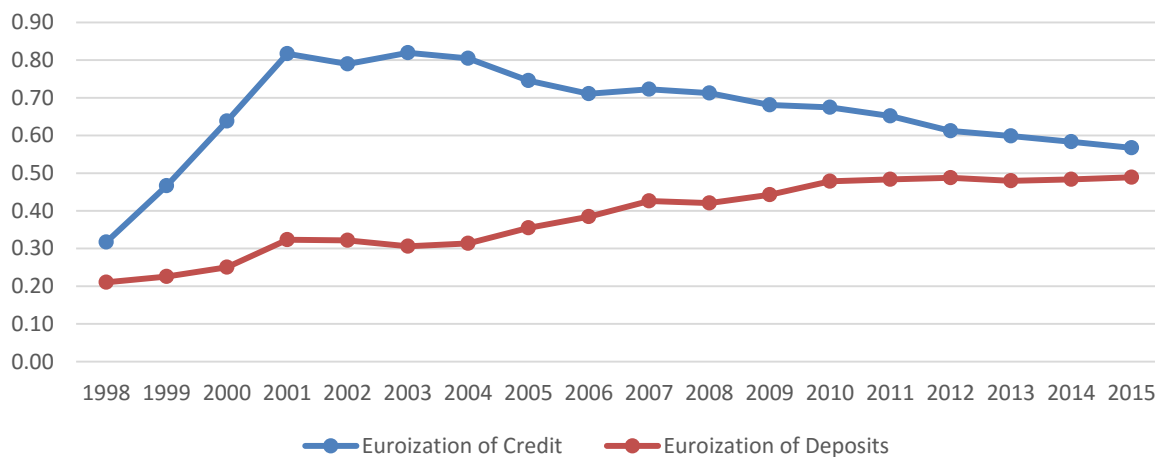
If GDP grows at 3% a year and the targeted inflation is 3 percent a year than BoA needs to print 6 % more money, increasing the monetary base by 6%.

This theory does not predict a state of being like Albania’s where about 50% the economy is based on FC. If euroization, or dollarization, was 100% than BoA would have no leverage on the money supply. On the other had if euroization was 0% the money supply would be under BoA’s control. (There are other factors that influence money supply besides the ability to print money but this analyses is beyond the scope of this study.).

The research questions of this study is if the increase of the euroization has any effect at all in the economic growth and inflation. If euroization does affect these indicators than we ask how? Does money supply serve as a transition mechanism for the effects of euroization onto GDP growth and inflation?

First let’s look at Albania’s euroization of credit. Our time series shows a staggering levels of partial euroization of credit and deposits as seen in the table below:

Table 6: Euroization of Credit Deposits



Source: Bank of Albania

There's no official data on the euroization of currency holding by the consumers but some studies have suggested that the figures are above 50% (Narazani, 2013).

These data suggest that in excess of 50% of the money supply used to fuel the economy is already in FC.

The adjusted Phisher's identity for such country would be:

$$(DMB + FMB)*V = GDP \text{ of Albania} \quad (2)$$

Where: DMB = Domestic Monetary Base, FMB = Foreign Monetary Base, V = velocity, times money changes hands in a year.

The relationship between DMB and FMB is such that foreign currency monetary base is a percentage of the domestic monetary base.

$$FMB = x*DMB \quad (3)$$

Where x = a quotient that express the relationship between FMB and DMB.

In this case we can change in Phisher's identity as:

$$(DMB + x*DMB)*V = GDP \text{ of Albania} \quad (4)$$

This identity can be simplified to take the form as below:

$$DMB*(1+x)*V = GDP \text{ of Albania.} \quad (5)$$

This conclusion is very important for monetary policy. It states that if the GDP grows at 3% and BoA's goal is to have 3% inflation than:

$$\text{Monetary Base increase} = 6\% (1 + x).$$

This formula (5) implies that if money supply in Albanian Lek is equal to Foreign Currency, or x = 1, GDP growth is predicted to be 3% and targeted inflation is 3% then than BoA needs to increase monetary base by:

Monetary Base increase = 6% (1 + 1) = 12%.

This is a very important conclusion and we are going to test it using the long term relationship between M2 and Inflation as well as a bivariate function of the influence of credit and deposit euroization on inflation and GDP growth.

As suggested and supported by many studies, we expect to find a strong positive relationship between inflation and M2 and a negative relationship between euroization (of deposits and credit) and inflation. The data on the relationship of these variables in the case of Albania, supports those studies that conclude with a negative relationship.

Monetary Base and Inflation– An Econometric Model

A simple linear regression model is used. First we want to discuss the relationship between Money Supply, euroization of deposits and credit.

$$\text{GDP growth} = \beta_0 + \beta_1 * \text{M2\%Growth} + \beta_2 * \% \text{CreditEuroization} + \beta_3 * \% \text{DepositEuroization} + \varepsilon$$

Results of the analysis with OLS model

$$\text{GDPgrowth} = 0.277 + 0.31 * \text{M2\%Growth} - 0.14 * \% \text{Cr. Euroization} - 0.33 * \% \text{Dep.Euroization}$$

Box 1: Regression Output

Model 1: OLS, using observations 1998-2014 (T = 17)				
Dependent variable: GDPGrowthPerc				
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	0.277***	0.0706899	3.9207	0.0018
PercDepozitavene FC	-0.327***	0.108008	-3.0344	0.0096
M2growthyear	0.306	0.174523	1.7579	0.1023
PercKrediseneFC	-0.144**	0.0611528	-2.3604	0.0345
R-squared	0.789059	Adjusted R-squared	0.740380	

M2growth and R² of 0.58 and statistically important even at 1%.

These results differs somewhat from the QTM which predicts that changes in the monetary base in the long run increase inflation be the same percentage. This difference is explained by our model of adjusted QTM for dual currency country. Our model explains that the mechanism as summed below:

- A country has a shock on Money Supply
- Euroization of the economy grows
- The economy and money supply finds a new equilibrium

- Monetary base should grow taking into account the new equilibrium

It is also important to notice is the negative effects of euroization on GDP growth. Our study suggests that because policy makers have failed to take into account the negative effects of euroization on money supply the monetary policy has been tighter than suggested by QTM. This tight monetary policy has exerted deflationary pressures and has negatively influence GDP growth.

Euroization and Inflation

The second econometric model we want to look at is the relationship between euroization of deposits and credit, M2 growth and inflation.

We use a similar model with multiple regression analyses using the OLS. Now we want to study inflation as dependent variable and keep euroization of deposits and credi as well as M2 growth, “ceteris paribus”.

$$\text{Inflation} = \beta_0 + \beta_1 * \% \text{CreditEuroization} + \beta_2 * \% \text{DepositEuroization} + \epsilon$$

Our model shows that euroization of credit is negatively related to inflation. Asix percent increase of credit in FC lowers inflation by 1%, with n = 17 and R² = 0.35.

Box 2: Regression Output

Model 10: OLS, using observations 1998-2014 (T = 17)				
Dependent variable: Inflationconsumerpricesann				
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	0.199***	0.0612014	3.2629	0.0057
PercDepozitavene FC	-0.122	0.108604	-1.1269	0.2787
PercKrediseneFC	-0.176**	0.0798073	-2.2157	0.0438

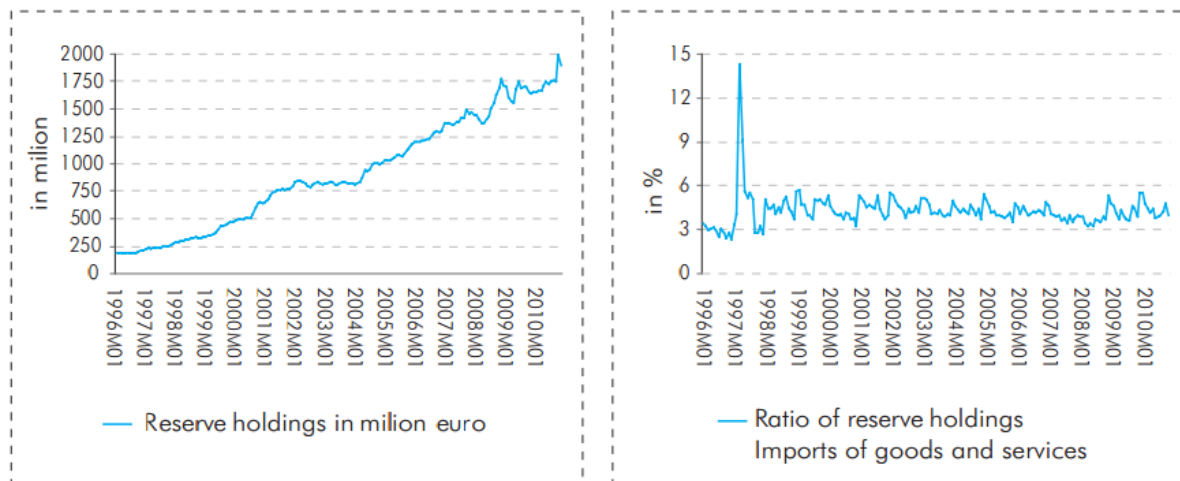
a new equilibrium. The Central Bank must take into account the new reality where the economy has cleared, a reality in which the local currency fuels only a percentage of the transactions in the economy. The increase ofFC that funds the rest of the transactions is out of control of the Central Bank, it can only control the base of local currency. In the short run an increase of 6% of monetary base of ALL does not respond to aneconomic growth of 3% plus targeted inflation of 3%, this pushes toward a strong local currency and deflationary pressures.

Thus euroisation creates deflationary pressures. Moron and Winkelried (2005), for example, find same conclusion that “inflation targeting policies are compromised in highly dollarized economies”.

Euro to ALL Exchange rate

One final indicator to look for evidence for our theory is Euro exchange rate. Despite the staggering reduction of the remittances for immigrants, a reduction of 43%, Euro has been relatively weak vs. ALL. There are other factors that theoretically would suggest a stronger Euro vs ALL.

Table 7: Foreign Reserve Holding By the Bank of Albania

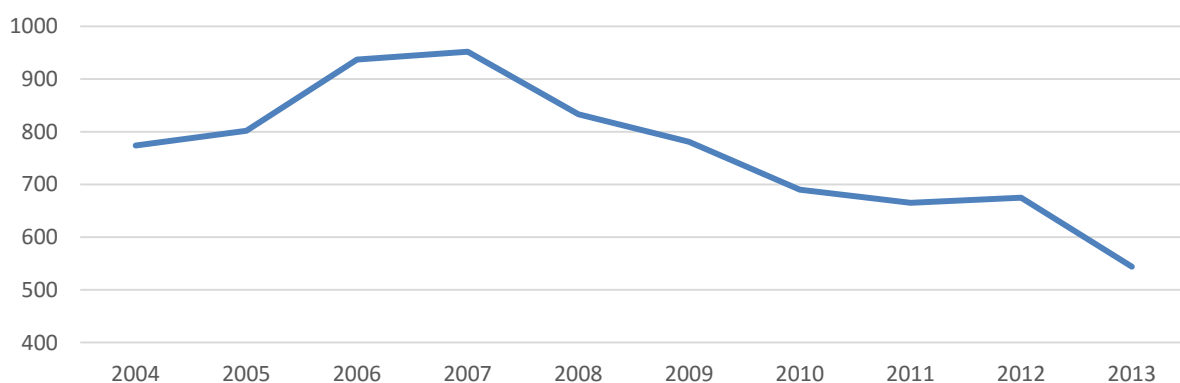


Source: Shijaku, Genti (2012)

First a worsening of the Balance of Payments would reduce the amount of Euros in the country needed to fund imports and thus pressure Euro exchange rate upward. Second BoA increased its Euro holdings, as shown below, primarily to accommodate for the fluctuations of remittances (Shijaku, 2012).

Third, Reserve Holdings of BoA were accompanied by a decrease in remittances as shown in the chart.

Table 8: Remittances in Albania 2004-2013



Source: Bank of Albania

Why did the Euro not appreciate against the ALL? The answer seems to point to the same conclusion reached above regarding the inflation and euroization effects on money supply; Euroization has contributed to lower inflation in Albania, and thus a stronger ALL. Despite the decrease of the supply of Euros, because of the fluctuations of remittances and increased foreign currency reserves by the bank of Albania, ALL exchange rate to Euro currency has remained strong and steady. This indicates that the Bank of Albania has maintained a tight monetary policy which has contributed to deflationary pressures and lower GDP in the short run.

Concluding Remarks

In the aftermath of the Great Recession central bankers have pulled out of their toolbox unusual tools to tackle fears of a second Great Depression. After this crisis Albania economy finds itself with a different structure of monetary base. Euroization has increased both in household liabilities and bank deposits. All studies suggest the same is true of currency holdings by the public. The purpose of this paper has been to study the effects of euroization on our economic activity and inflation and suggest policies to respond. We have used time series data from the Bank of Albania and analyzed these data using econometric model of OLS in multiple regression model.

We found that euroization has a negative effect on our GDP. A 7% increase on the level of euroization tends to negatively impact GDP growth by 1%. Deposits euroization has an even stronger effect.

Also we found that credit euroization has a strong influence on inflation but deposit euroization has no statistical influence on inflation.

These indicators were substantiated by strong ALL toward major currencies, primarily Euro. Fall of remittances, growth of foreign currency reserves by the Bank of Albania and worsening of trade deficit and balance of payments have not led to stronger euro and weaker Albanian Lek.

The response from BoA has not been adequate and proportionate compared to that of other countries. Base interest rate has been lowered but other tools in central bank's arsenal have not been used. In order to adequately respond to the current crises the BoA and the new reality should change its monetary policy.

As suggested by the Fisher mathematical identity, the monetary base increase should be adjusted to take into account the current structure of Albania's money supply. What would be the effect of a more expansionist monetary policy to compensate for the euroization?

- First growing money supply would result in higher inflation that would move closer to the 3% targeted inflation of the Central Bank.
- A monetary expansion, beyond current levels, would weaken ALL toward other major currencies, USD and EURO. Kadareja (2014) explains what would happen with a weaker ALL:
 “A depreciation of local currency against other currencies would temporarily increase the competitiveness of our goods and services. On the other side it results with higher inflation because imported goods and services become more expensive.”

Both of the above results are desirable in the current state of our economy. The correction of this asphyxiating monetary policy brings the desired results of better competitiveness of Albania goods and services. Secondly it results with higher inflation and better chances of escaping the dangers of deflation.

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