

## **THE DIRECTION OF THE RELATIONSHIP BETWEEN MONEY AND PRICES IN ALBANIA**

**Riada Berhani**

MSc (C) at Epoka University  
Department of Banking and Finance  
Epoka University  
Tirana, Albania  
riadaberhani@gmail.com

### **ABSTRACT**

One of the most important decisions of the policymakers is determining the best and most efficient macroeconomic policy. The main objective of this paper is to examine the direction of the relationship between money and prices in Albania. Examining this direction is crucial as per fact that many authors and researchers have indicated that money supply is one of the most important indicator that affect the inflation or deflation while other like Keynesians argue that money supply is not responsible for changes in prices. In order to determine the direction of the relationship between Money Supply and Prices in Albania, Johansen-Juselius Co-integration test and Granger Causality are used. Variables used in the empirical analysis are money and quasi-money and consumer price index in Albania over the period 1995-2013. According to the Johansen-Juselius Co-integration test, 1 co-integrated vector exist between the two variables. Moreover, Granger Causality indicated that between two variables exists an unidirectional causality that runs from money to prices in coherence with the monetarists theory, The Quantity Theory of Money.

**Keywords:** Money, Price, Growth, Quantity Theory, Albania.

**Jell Code:** C22, E31, E51

### **1. INTRODUCTION**

One of the main discussed issues among researchers, economists and policymakers has been the relation between Money and Price. The determination of this relationship among these two variables is crucial due to the fact that a well design relationship helps, especially the policymakers, in implementing the best and most efficient macroeconomic policy in order to have price stability. However, many researchers have debated the direction of the relationship between these variables. Monetarists claim that the direction of the relationship is from money to prices thus, in other words a change in money will lead in a change in prices. On the other hand, Keynesians claim that even though that money is an important macroeconomic variable it is not responsible for changes in prices. Furthermore many researchers as Dalziel (2000), indicated the most important factor affecting inflation or deflation is how fast the money supply grows or shrinks. The same theory is

stressed by Mankiw (2002), who indicated that the primary driver of the change in the general price level are changes in the quantity of money.

The performance of the Albanian economy throughout the transition period has been quite a fine one. Coming from a communist background, it start from a very low base in during the first years of democracy, but Albania was able to quickly achieve a high GDP growth and falling inflation, in combination with the first moves towards serious market reforms. These achievements were endangered but not permanently reversed by a period of turmoil in early 1997, when several pyramid schemes, into which much of the population had put their savings, collapsed and creating an economic and social shock. Since then, the Albanian economy has again been able to achieve high annual growth rates and low inflation. This combination has been achieved in an environment where financial sector development is still at an early stage and informal markets are thriving. Therefore, the role of monetary policy in influencing inflation and growth is intrinsically limited. Nevertheless, increasing attention is being paid in Albania to the role of monetary policy, and especially to the costs and benefits of introducing new instruments and of moving to more explicit inflation targeting. The Bank of Albania continues to play a stabilizing role in the economy through the continuation of prudent monetary policies and occasional exchange rate management to stabilize shocks.

Moreover, external influences have played an important part in keeping inflation low for most of the transition period. In addition the introduction of indirect instruments of monetary policy appears to have contributed to the effectiveness of exchange rate transmission mechanism of monetary policy into the real economy (Muço, et al, 2004).

The range of instruments of monetary policy available to the authorities has widened in recent years, leading to more stability and predictability regarding the relationship between changes in money supply and changes in the price level. (Muço, et al, 2004).

Yet the transmission mechanism is not yet well defined in Albania, and therefore the uncertainty about the effects of any change in monetary policy is high (Muço, et al, 2004).

Nonetheless, one of the biggest difficulties faced by policy-makers in Albania is the poor quality of data on the sector, because as the quality improves, the relationship between monetary and real variables will become more transparent (Muço, et al, 2004). Therefore, the policy-makers will need to back up their strategies and policies with real and provable data, in order for them to be clearly understood and implemented afterwards.

The main purpose of this paper is to examine the causal relationship between money and prices in Albania. In order to examine the direction of relationship is used data from 2000 to 2013 from money and quasi money (M2) and Gross Domestic Product (GDP) deflator. The test this direction is used Granger Causality Test.

Following this section of introduction, the next section includes a theoretical approach regarding the relationship between money and prices and is followed by literature review and data and methodology. Lastly in the paper are included some interpretation of the results, conclusions and recommendations.

## 2. THE THEORETICAL APPROACH AND LITERATURE REVIEW

The Quality theory of Money was developed during the eighteen century by classical economists (monetarism) and claims that the relation between money and prices is direct and predictable. They believe that the direction of this relationship if from money to prices. This theory is derived by the equation below:

$$M \times V \equiv P \times Y$$

Where M stand for the money supply, V stands for Velocity which shows the average number of times a currency is exchange too buy GDP goods and for a period of time, P stands for prices and Y

stand for real GDP. Thus the right side of the equation ( $P \times Y$ ) shows the nominal GDP. Classical economist believed that the velocity of money and GDP remains constant over time. Thus, if that holds true than money supply and price are directly connected with each other. If the equation is rearranged prices can be determined as a function of money supply, velocity and output. Taking into consideration that velocity and output are constant, prices and be rewritten as function of money supply.

$$P = (M \times V) / Y = f(M)$$

The causality of the relation between money and price became a hot topic in the research society after the publishing of Sims (1972) who development a causality test based on Granger causality test. Unidirectional causality from money to prices was found by many researchers such as Brillcmobourg and Khan (1979) that examine the relationship in US during the period 1870-1975 and Lee and Li (1983) who investigated the direction of the relationship in Singapore. Bidirectional causality between money arid prices was found by Aghevli and Khan (1978) who used data from Brazil, Columbia and Dominican Republic. Using quarterly data for Pakistan in the period 1972-1981 Khan and Siddiqui (1990) concluded that the direction of the relationship between M1 and CPI is unidirectional while between M2 and CPI is bidirectional. However, for the same country but for the period 1972-1990, using quarterly data Khan and Sadaqat (1997) concluded that between money (both M1 and M2) and CPI exists bidirectional causality.

Moreover, Keynesian economic theory affirms that changes in money supply do not directly have an effect on prices, and that noticeable inflation is the consequence of pressure in the economy expressing themselves in prices. According to Gordon (1983), there are three major types of inflation, or what he commonly refers to as the "triangle model." Accordingly, the first type is Demand-pull theory, which states that the rate of inflation accelerates whenever aggregate demand is increased beyond the ability of the economy to produce its potential output. Therefore, any factor that increases aggregate demand can cause inflation.

O'Sullivan and Sheffrin (2003), argue that in the long run, aggregate demand can be held above productive capacity only by increasing the quantity of money in circulation faster than the real growth rate of the economy.

Gordon (1983) states that demand inflation is beneficial to a rapid economic growth in view of the fact that the excess demand and favorable market conditions will stimulate investment and expansion. Furthermore the author indicated that the second type is cost-push inflation, also called "supply shock inflation," which is a consequence of a drop in aggregate supply. This may be because of natural disasters, or increased prices of inputs.

The third type is Built-in inflation, which is induced by adaptive expectations, and is often linked to the "price/wage spiral". Gordon (1983) suggests that it involves workers trying to keep their wages up with prices (above the rate of inflation), and firms passing these higher labor costs on to their customers as higher prices, leading to a 'vicious circle'. He says that built-in inflation reflects events in the past, and so might be seen as hangover inflation.

The effect of money on inflation is most obvious when governments finance spending in a crisis, such as a civil war, by printing money excessively. According to O'Sullivan & Sheffrin (2003) money supply play a major role in determining moderate levels of inflation.

### **3. AN ALBANIAN OVERVIEW**

#### **3.1.1. The Albanian Economy**

Albania is one of the countries of the Western Balkans, and a formerly closed state, with a, centrally-planned economy. Yet, with the collapse of the communism, the state undertook the difficult path of the transition of its economy to a more modern open-market economy. Before the

global financial crisis, Albania was one of the fastest-growing economies in Europe, enjoying average annual real growth rates of 6%, accompanied by rapid reduction in poverty. Poverty fell to about 12.4% but in 2012, it increased again to 14.3%. Unemployment increased from 12.5% in 2008 to 16.9% in 2013, with youth unemployment reaching 26.9% (World Bank, 2014).

Despite, there have been undertaken measures to shift the economy of the country from the agriculture toward the industry, the agriculture remains one of the most important sectors in Albania, being the main source of employment and income, especially in the rural areas, and it represents 19.5% of GDP. Nonetheless, even though this sector represents accounts for almost half of employment, it continues to face several challenges, such as small farm size and land fragmentation, poor infrastructure, market limitations, limited access to credit and grants, and inadequate rural institutions. The rest of the GDP is composed of industry, which represents 12%, and of services, which represents 68.5% (CIA World Factbook, 2014).

Another problem of the economy of the country is a relatively high dependence on the remittances. Remittances, which represent a significant tool for the economic growth of the country, have significantly decreased in the last few years, from 12-15% of GDP before the 2008 financial crisis to 7% of GDP in 2012. The remittances mostly come from Albanians residing in Greece and Italy (The World Bank, 2014).

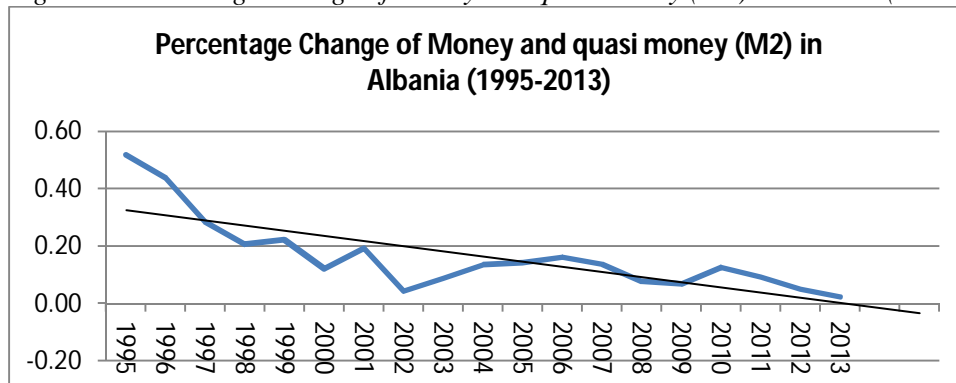
The government is undertaking all the necessary measures to create an attractive and friendly business environment for the national and foreign investors, in order to erase the current major impediments for foreign investments, such as the complex tax codes and licensing requirements, a weak judicial system, poor enforcement of contracts and property issues, and obsolete infrastructure (CIA World Factbook, 2014).

Therefore, it can be said that Albania has a long way to transform its economy from a state-controlled economy into a market economy and make it more attractive to foreign investors. Yet, it has quite a long and difficult way to go in order to turn its economy of the European standards (CIA World Factbook, 2014).

#### 4. DATA AND METHODOLOGY

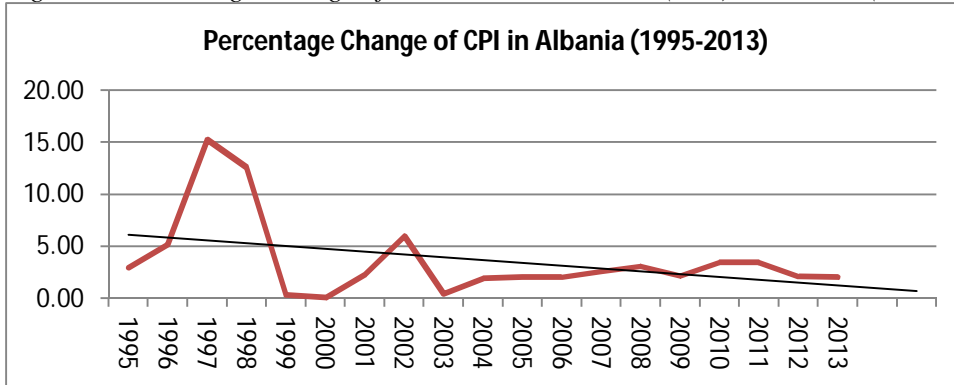
In order to conduct this study are used annual data from 1991 to 2013. This period correspond with the period when Albanian was under the free economy regime. Money supply is measure by money and quasi money (M2) while prices are measured by consumer price index. In the figure 1 and 2 are shown trends of these two variables.

Figure 1: Percentage Change of Money and quasi money (M2) in Albania (1995-2013)



Source: World Bank

Figure 2: Percentage Change of Consumer Price Index (CPI) in Albania (1995-2013)



Source: World Bank

According to the World Bank, both Money and Quasi-money annual percentage change and CPI percentage change tend to decrease. Moreover, both the variables have down-wording trend thus it can be predicted a positive relationship between them.

In order to conduct the long run relationship between these two variable is used Granger Causality. One of the conditions to run Granger Causality Test is that all the variables should be stationary. Thus, it has to be tested if the variables included in analysis are I(1) in other words if the variables are stationary and have no unit root. To test the stationarity of the variables is conducted the Augmented Dickey-Fuller test. The second condition for conducting the Granger Causality is that all the variables should be co-integrated with each. Thus, Johansen-Juselius Co-integration test is conducted. This method test the co-integration in two techniques: Trace and Maximum Eigenvalue. However, before running the Johansen-Juselius Co-integration test the lag criteria that will be used in the test should be determined. To determine these criteria VAR Lag Order Selection Criteria is used.

## 5. RESULTS

### 5.1. Stationary Tests

Table 1 shows the P-value of the Augmented Dickey-Fuller test conducted for both variables.

Table 1: P-Value Results of ADF tests

Variables	Intercept		Intercept and Trend	
	Level	First Difference	Level	First Difference
Money	0.0286	0.0028	0.1227	0.0060
Price	0.0000	0.0022	0.0009	0.0004

Accordingly the null hypothesis that indicate in the variable exist a unit root is rejected at significance level 0.05% as they have a p-value of less than 0.05 except money with intercept and linear trend which is stationary only at first difference. Thus, it can be conclude that both the variables are I(1), stationary.

### 5.2. Co-integration test

Table 2 shows the results. Accordingly, the lag with the most start (\*) should be used, thus 3 lags while table 3 shows the results of Johansen-Juselius Co-integration test. As it can be seen on table 2, that the number of lags that should be used in co-integration is 3.

Table 2: VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria						
Endogenous variables: MONEY PRICE						
Exogenous variables: C						
Date: 04/19/15 Time: 18:43						
Sample: 1995 2013						
Included observations: 15						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2.634714	NA	0.006362	0.617962	0.712369	0.616956
1	0.054213	4.302282	0.007658	0.792772	1.075992	0.789755
2	7.956307	10.53613*	0.004747	0.272492	0.744526	0.267464
3	15.88996	8.462566	0.003116*	-0.251995*	0.408852*	-0.259034*
4	17.57318	1.346577	0.005267	0.056909	0.906569	0.047858

\* indicates lag order selected by the criterion

Accordingly to table 3 the null hypothesis that indicates that there are no co-integrated vectors is rejected in both Trace and Max-Eigenvalue test as per fact that the P-Value of the 1<sup>st</sup> hypotheses that indicate that there is no cointegration is 0.0001. Moreover both the test indicate that 1 co-integration vector exist at significance level 0.05%.

Table 3: Johansen-Juselius Co-integration Test Result

Null Hypothesis	Alternative Hypothesis	Test Statistics	0.05% Critical Value	Probability
Trace Statistics				
r=0	r=1	33.10113*	15.49471	0.0001
r=1	r=2	1.561778	3.841466	0.2114
Max-Eigenvalue statistic				
r=0	r=1	31.53935*	14.26460	0.0000
r=1	r=2	1.561778	3.841466	0.2114

*r* represent the number of co-integrated vectors

\* denotes rejection the null hypothesis as per t-statistic is higher that critical value

### 5.3. Granger Causality

As both conditions needed to run Granger Causality test (stationary of all variables and co-integration between all variables) are conducted, the test is performed.

Table 4: Granger Causality Results

Direction of Causality	Lag	Probabily	Decision
VAR Granger Causality/Block Exogeneity Wald Tests			
PRICE does not Granger Cause MONEY	3	0.8326	Accepted
MONEY does not Granger Cause PRICE	3	0.0012	Rejected
Pairwise Granger Causality Tests			
PRICE does not Granger Cause MONEY	3	0.8316	Accepted
MONEY does not Granger Cause PRICE	3	0.0223	Rejected

According to the table 4, the VAR Granger Causality Test indicate that there is not enough evidence to reject the hypothesis that price does not cause money as it has a high P-value (0.8326) thus, it is accepted. On the other hand, at significance level 0.05 there is enough evidence to reject the hypothesis that money does not causes price as per fact that it have a P-value of 0.0012. therefore, it can be concluded that the result indicate that the direction of the relationship between



money and price is unidirectional causality and runs from money to price thus confirming the theory of monetarist, the quality theory of Money.

## 6. CONCLUSIONS

The main aim of this paper was to determine the direction of the relationship between money supply and prices in Albania for the period of 1995 to 2013. To determine this direction is used Granger Causality test. Moreover, through the empirical analysis is conducted the Johansen-Juselius Co-integration test that indicated that money supply and prices in Albanian have a long run relationship. According to the Granger Causality test between variable exists a unidirectional causality from money supply and price. In other words changes in money supply affects the prices in Albania, thus it is a monetary phenomenon.

## 7. REFERENCES

- Aghcvli, B., & M.S.Khan. (1978). Government Deficits and the Inflationary Process in Developing Countries. *International Monetary Fund Staff Papers*, 383-416.
- Blanchard, O., & Galí, J. (2007). Real Wage Rigidities and the New Keynesian Model. *Journal of Money, Credit and Banking*, 39(s1), 35-65.
- Brillcmobour, A., & Khan, M. (1979). The Relationship Between Money, Income and Prices: Has Money Mattered Historically? *Journal of Money, Credit and Banking*, 11, 358-365.
- CIA World Factbook. (2014, May 1). *Albania*. Retrieved May 24, 2015, from CIA World Factbook: <https://www.cia.gov/library/publications/the-world-factbook/geos/al.html>
- Dalziel, P. (2000). A Post Keynesian Theory of Asset Price Inflation with Endogenous Money. *Journal of Post Keynesian Economics*, 22(2)(January), 227-245.
- Gordon, R. J. (1983). The Conduct of Domestic Monetary Policy. *NBER Working Paper Series*(1221).
- Khan, A., & Sadaqat, M. (1997). Money, Income, Prices, and Causality: The Pakistani Experience. *The Pakistan Development Review*, 37 : 3 Part II (Winter 1998), 1155–1161.
- Khan, A., & Siddiqui, A. (1990). Money Prices and Economic Activity in Pakistan: A Test of Causal Relation. *Pakistan Economic and Social Review*, 121- 136.
- Lee, S., & Li, W. (1983). Money, Income and Prices and their Lead-lag Relationship in Singapore. *Singapore Economic Review*, 73 - 87.

Mankiw, N. G. (2002). *Macroeconomics*. US: Worth Publishers Inc.,U.S.

Muço, M., Sanfey, P., & Taci, A. (2004). *Inflation, exchange rates and the role of monetary policy in Albania* (Vol. Working Paper 88). London: European Bank for Reconstruction and Development.

O'Sullivan, A., & Sheffrin, S. M. (2003). *Economics: Principles in Action*. New Jersey: Prentice Hall.

Sims, A. (1972). Money, Income and Causality. *The American Economic Review*, 62.

The World Bank. (2014). *Albanian Overview*. Retrieved May 24, 2015, from The World Bank: <http://www.worldbank.org/en/country/albania/overview>