

CONSIDERATIONS REGARDING MONETARY POLICY IN ROMANIA

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Abstract: *The main objective of this paper is to study the Romania's monetary policy, in the period 1996-2013. The research starts with a theoretical review of the monetary policy, whose main purpose is influencing the broad money supply and the lending requirements and the institution in charge of achieving this objective is the Central Bank, highlighting its impact upon the economic activity, through the Keynesian analysis model IS-LM and a correlation between the monetary policy measures and the phases of the economic cycle whose results indicate that during the recession periods it is recommended to reduce interest rates in order to stimulate investments, by raising the money supply, and during the expansion period it is recommended to increase the interest rate in order to cut back the money supply. Starting from this premises, the research takes into account the study of the monetary policy measures adopted by the governmental authority of Romania, making a quantitative analysis of the main macroeconomic indicators: the real interest rate, the lending interest rate, the deposit interest rate and the broad money supply and through a multifactorial regression, highlighting the impact of the interest rates upon the monetary aggregate M2. Moreover, a comparison between the monetary policy measures adopted in Romania and the monetary policies recommended by specialized literature has been done, and the results have indicated that during recession periods the attention of the governmental authorities is focused upon adopting the right measures, but during the expansion periods this doesn't happen. The results of this research highlight the economic situation in Romania and the way in which the governmental authority intervened, through the monetary policy measures, in order to mitigate the negative effects of the cyclical fluctuations.*

Keywords: monetary policy; business cycle; money supply; interest rate

JEL classification: E51; E52

1. Introduction

The monetary policy represents that component of the economic policy whose main objective is controlling the money supply, and the authorities have two ways of achieving that: (1) *the monetary intervention*, meaning taking control over rates by imposing certain limits on the internal market or certain restrictions on the currency market, and (2) the monetary non-intervention, which means changing the money supply, with the purpose of reaching a certain monetary aggregate, a certain inflation or interest rate. (Hulsmann, 2003)

This paper's objective is to study the Romania's monetary policy, in the period 1996 – 2013.

First, we made a quantitative analysis of the representative macroeconomic indicators for the monetary policy (interest rates and money supply) and we showed the impact of the lending and the deposit interest rates on the broad money supply through a multifactorial regression.

The research continues with the determination of the cyclical component of the GDP and

its trend, using Hodrick-Prescott filter in Stata software, to identify the regression and expansion periods. Finally, we analysed the dynamics of the monetary policy indicators in correlation to the phases of the business cycle and compared the results with the correct measures recommended by the specialized literature.

The research results highlight the ways in which the governmental authority intervened, through the monetary policy measures, in order to mitigate the negative effects of the cyclical fluctuation in Romania.

2. Literature review regarding monetary policy

Clement Juglar (1862) believes that the monetary policy represents a way of mitigating the cyclical fluctuations of the economic activity, by acting upon the broad money supply, by the mean of interest rate and credit. During the recession phase, in order to stimulate the economic growth, lower interest rates are imposed, which stimulate investments and credit, increasing production, workforce occupation rate and consumption. During the prolonged boom period, when prices tend to grow, restrictions upon credit approval are added, and the control upon the money supply is more rigorous.

A monetary policy tries to influence the credit terms to mitigate the negative effects of the cyclical fluctuations. Taking into account the fact that the credit terms represent just one of the influential factors on the company's investment decisions, directing the monetary policy of often a frustrating task; it is not unusual for governmental authorities to feel discouraged when spending on investments stays high, regardless of the tight credit or the other way around, when spending on investments stays low, in spite of the easy credit, and the monetary factor takes charge when the monetary crisis threatens the economy. (Knodell and Levine, 1984)

Unless applied correctly, the monetary policy can turn into a factor that causes cyclic fluctuations. When it is correctly applied the monetary policy ensures a favourable environment for development, which is defined by a general stable level of rates, or with a slight grow, with a predictable rhythm, missing the expensive element of uncertainty; determines a better management of resources and a higher economic efficiency; and contributes, up to a certain point, to counteracting the exogenous disruptive effects with several different origins, thus reducing the economic cycles' amplitude and their damaging fluctuations.

According to the Keynesian vision, a growth of the broad money supply, determines a drop in the interest rate, but monetarists believe that it happens exactly the opposite happens: "an expansionist monetary policy will determine high interest rates, at least after going through a short period of transition [...] an overly abundant monetary emission will entertain a rise in rates which will end up by being foreseen by the economic agents and will have repercussions upon the nominal interest rate" (Brăileanu, 1998: 122).

Keynes (2009) was sceptical about the success of a monetary policy directed only towards influencing the interest rate. He stated that: "the state, which is in charge of establishing the marginal productivity of capital goods on the long term and on the basis of general social advantage, has to undertake also a bigger responsibility in order to directly organize investments."

The intervention of the governmental authority on the aggregate demand, can be illustrated with the help of the IS-LM equilibrium model, which takes into account the actual and monetary factors in determining the aggregate demand and allows an explicit account of the interdependence ratio between the two markets. (Chiriță and Scarlat, 1998)

- *The IS curve* represents the geometrical spot and the combinations between the interest rate (R) and the income (Y) which ensures the balance on the market of goods and services, this having a negative slope (because of the indirect relation between the two variables).
- *The LM curve* represents the geometrical spot of combinations between the

interest rate (R) and the income (Y), corresponding to the monetary market balance, this having a positive slope.

- The simultaneous balance between the two markets is reached when the two curves meet (E)

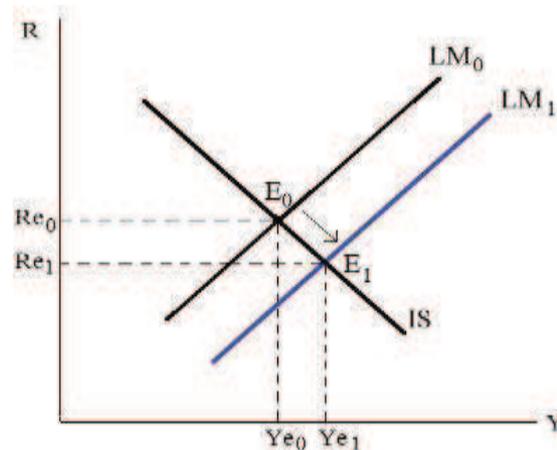


Figure 1. The impact of the expansion monetary policy on the economy
Source: made by the authors

If an expansionary monetary policy is adopted (increasing the money supply) the LM curve moves further to the right and downwards, as it can be seen in Figure 1, and the balance will correspond to the E_1 point. Through this measure, it can be noticed that the interest rate is reduced which encourages economic agents to loan even bigger sums of money and thus balance is reached for a higher income level (Y_{e1})

Any monetary expansion that goes over the balance level has positive results only on the short term. In turns, on the long term, this leads to great unbalances (economic and social costs).

Monetarists see the purpose of monetary policy as being that of balancing the money supply, because if there is too much money, inflation occurs, with its various negative consequences, and if there is not enough money, unbalance in the economic activity will take place. In these conditions, the task of the monetary policy is to ensure the correspondence between the currency and the other goods, and this purpose is achieved by modifying the currency quantity.

Milton Friedman (1948), in his work entitled "A Monetary and Fiscal Framework for Economic Stability", suggests a framework for monetary policy, adequate for an economy which is affected by cyclic fluctuations. He suggested a reform in the monetary and bank system through which is eliminated the private making and consumption of money and the discretionary control of the Central Bank's authority over the money supply.

In order to eliminate the discretionary authority, the existing power has to engage in transactions on the open market and the direct control over the credit supply has to be eliminated. These changes will put in charge the monetary functions of the bank systems: providing deposit and credit facilities.

The monetary policy that should be adopted, is fighting inflation and ensuring the stability of rates, by increasing the money supply by a certain percentage (5-6%), a percentage that must be kept at the same level and by applying the same rules regardless of the circumstances, going along with the idea of asserting the automatism of economic development on the free market.

Thus, Friedman reasons that the measures that the government delivers in the case of monetary policies influence through a time lag the demand, time lag that doesn't either

increase or decrease from one economic cycle to another, and this makes countercyclical policies lead to instability.

In conclusion, the monetary policy cannot accelerate the economic rhythm on its own, only together with the other countercyclical and structural policies, but it offers “a good set of wheels” (Okun, 1970: 59).

3. Methodology and data

Starting from these premises, the paper completes a quantitative analysis of the main macroeconomic indicators representative for the monetary policy using the data series from the World Bank database (www.worldbank.com) for the period 1996-2013:

- *Real interest rate*, which is the lending interest rate adjusted for inflation as measured by the GDP deflator;
- *Lending interest rate*, which is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing;
- *Deposit interest rate*, which is the rate paid by commercial or similar banks for demand, time, or savings deposits;
- *Money and quasi money*, which comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2 and it is expressed as a percentage of the GDP

Table 1: The dynamics of the monetary policy macroeconomic indicators, in Romania, in the period 1996-2013

Years	Real interest rate (%)	Lending interest rate (%)	Deposit interest rate (%)	M2 (% of GDP)
1996	6,86	55,13	37,26	34,34
1997	-30,24	72,53	55,83	31,56
1998	0,06	55,32	37,28	32,83
1999	12,09	65,64	45,87	33,82
2000	5,85	53,85	33,11	32,09
2001	5,51	45,40	26,87	26,01
2002	10,36	35,43	19,23	29,58
2003	1,56	25,44	11,02	27,58
2004	9,40	25,61	11,54	32,67
2005	6,78	19,60	6,42	33,57
2006	3,89	13,98	4,77	32,12
2007	-0,22	13,35	6,70	35,62
2008	0,25	14,99	9,51	33,82
2009	12,26	17,28	11,99	37,88
2010	8,13	14,07	7,31	38,72
2011	7,91	12,13	6,30	38,78
2012	5,87	11,33	5,51	37,79

Years	Real interest rate (%)	Lending interest rate (%)	Deposit interest rate (%)	M2 (% of GDP)
2013	6,49	10,52	4,55	38,26

Source: World Bank (www.worldbank.com)

Moreover, the real GDP of Romania has been estimated by using the Harmonized Consumer Price Index (HCPI) with the base year 1996, indicators were taken from the EUROSTAT database (<http://ec.europa.eu/eurostat>).

To obtain the percentage deviations of the series from its smooth trend, the data was converted into natural logarithms.

First, we had to test if the data series are stationary. For this operation we used the Stata software to apply the Augmented Dickey–Fuller unit root test, we choose the model with intercept, trend and 0 lags and obtain that T Statistic is 2,585 smaller than the critical value (-3,600) for 5% critical value, L1 value, -0,366 is negative, so the model with intercept and trend is valid and the null hypothesis is accepted: the time series data has a unit root and it is not stationary.

After that, we applied the Hodrick-Prescott filter to obtain the cyclical component of the GDP and its trend, in order to determine the phases of the business cycle.

The analyzed period starts with a crisis one, 1996 to 1998, when the GDP reaches his minimum point. The expansion period is from 1999 to 2008, with the economic boom starting in 2006 to 2008, when GDP reaches the peak, followed by a recession period and the economic crisis from 2008, second semester to 2010, after which the GDP shows a growth.

Table 2: The dynamics of the Gross Domestic Product in Romania, in the period 1996 - 2013

Years	HCPI (% 1996 = 100)	GDP (millions RON, current price)	Real GDP (millions RON)	Real GDP_In	HP Cycle GDP_In	HP Trend GDP_In
1996	100.00	11384.20	11384.20	9.340	0.079	9.261
1997	254.87	25529.80	10016.92	9.212	0.000	9.212
1998	405.48	37055.10	9138.69	9.120	-0.055	9.175
1999	591.20	55191.40	9335.49	9.142	-0.022	9.164
2000	861.26	80984.60	9403.06	9.149	-0.033	9.182
2001	1158.13	117945.80	10184.20	9.229	-0.001	9.230
2002	1418.91	152017.00	10713.66	9.279	-0.024	9.303
2003	1635.51	197427.60	12071.33	9.399	0.004	9.395
2004	1829.98	247368.00	13517.50	9.512	0.014	9.498
2005	1995.99	288954.60	14476.74	9.580	-0.024	9.604
2006	2127.84	344650.60	16197.19	9.693	-0.013	9.706
2007	2232.27	416006.80	18636.07	9.833	0.038	9.795
2008	2408.91	514700.00	21366.52	9.970	0.112	9.858
2009	2543.41	501139.40	19703.46	9.889	-0.002	9.891
2010	2697.88	523693.30	19411.33	9.874	-0.031	9.905
2011	2855.06	557348.20	19521.43	9.879	-0.032	9.911

Years	HCPI (% 1996 = 100)	GDP (millions RON, current price)	Real GDP (millions RON)	Real GDP_In	HP Cycle GDP_In	HP Trend GDP_In
2012	2951.68	586749.90	19878.54	9.897	-0.021	9.918
2013	3045.96	628581.30	20636.57	9.935	0.010	9.925

Source: EUROSTAT (<http://ec.europa.eu/eurostat>)

From the dynamics of the indicator we observe an expansionist gap (cyclical component of the GDP is positive) in four periods, but only for two consecutive years: 1996-1997, 2003-2004, 2007-2008 and 2013-2014, and in the rest of the years is a recession gap (cyclical component of the GDP is negative).

4. Results and Discussion

The first monetary policy indicator analysed is real interest rate, which is calculated as the difference between lending interest rate and inflation rate.

Real interest rate has a negative value only in one year, in 1997 (-30.24) and in three years is almost 0: in 1998 (0.06), 2007 (0.22) and 2008 (0.25). The biggest decrease was in 1997, when it dropped by 340% compare with the previous year.

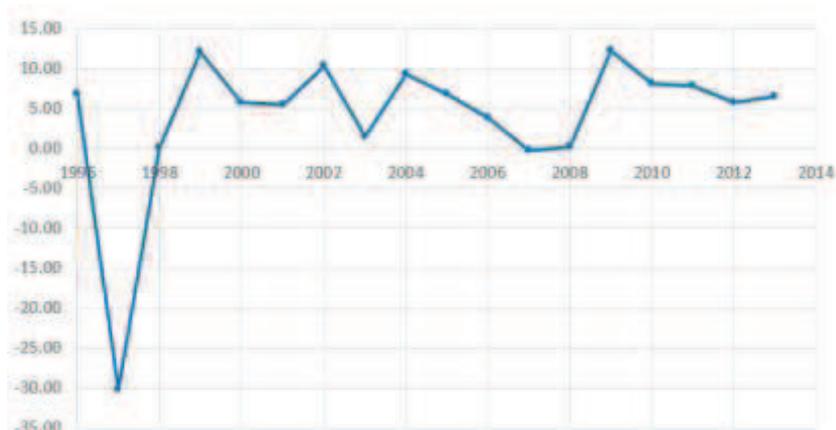


Figure 2: The dynamics of the real interest rate (%)

Source: Table 1

The highest growths were recorded in 1998, with 20000% compared to the value from previous year, and in 2009 with 4882% compare to the value from 2008, both years are in a crisis period. The average real interest rate, in the analysed period, is 4.05%.

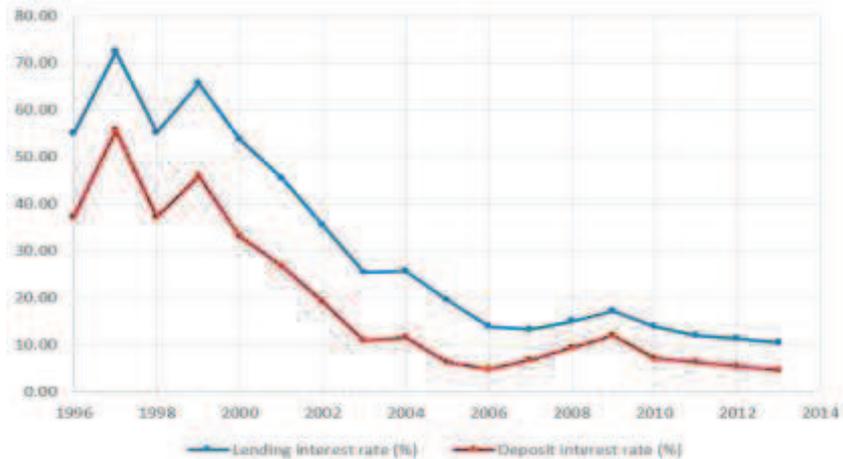


Figure 3: The dynamics of the lending interest rate and the deposit interest rate
Source: Table 1

We can observe a downward trend of the interest rates (in the analysed period the lending interest rate decreased, in average, by 7.32% and the deposit interest rate by 6.54%), in 1997 and 1999 was recorded the highest values and after that, the rates decreased every year until 2006. From 2006 to 2009 the lending interest rates increased by 7.6% and the deposit interest rate increased by 36.1%.

The average lending interest rate, in the analysed period, is 31.2% and the average deposit rate is 18.9%.

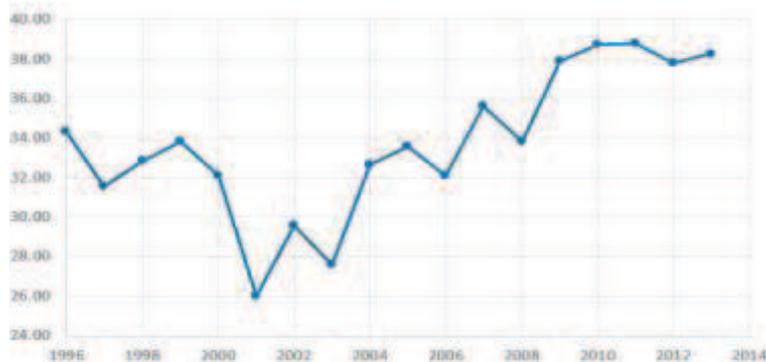


Figure 4: The dynamics of the money and quasi money (% of GDP)
Source: Table 1

The broad money supply as percent of GDP is oscillating, in the analysed period, from 1996 to 2001 has a downward trend and from 2001 to 2013 an upward trend. In average, the money supply represents 33.72% of the Gross Domestic Product of Romania, the biggest growth was in 2004 when increased with 18% compare with the previous year and the biggest decline was in 2001 (reaching the lowest value of 26.01%), when it dropped by 19% compare to the year 2000.

To highlight the impact of the interest rates upon the monetary aggregate M2 (as % of GDP) we made a multifactorial regression from which resulted that the multiple correlation coefficient, Multiple R is 0.75, which indicates a strong link between the broad money supply and the lending and deposit interest rates, the coefficient of determination, R Square is 0.57, which shows that 57% of the variation of broad money is influenced by the interest rates.

To test our hypothesis we used „Student test”, that showed that *t Stat* parameter assigned for α is 25,73, *t Stat* parameter assigned for β_1 , is -3.88 (the negative coefficient shows an indirect relation between the indicators) and *t Stat* parameter assigned for β_2 , is 3.45 (the positive coefficient shows a direct relation between the indicators), all greater than *critical t* (2.10 is the critical value of the variable table according to 17 degrees freedom and probability of 5%), which means that the null hypothesis is rejected, thus we can say that there is a 95% probability that the parameter estimate is significant, and the model is statistically correct. Also, the *P-value*, which expresses the probability of failure of the test is very low. To test the validity of the model, we used ANOVA and obtained that: F parameter is 9.95, a score greater than the critical F, which means that the econometric model is good.

In the end we obtain the following econometric model: *Real money and quasi money (%GDP) = 40.12 – 0.68 Lending Interest rate + 0.79 Deposit interest rate.*

If the lending interest rate increases with 1% and deposit interest rate increases with 1%, then the broad money supply (as % of GDP) increases with 0.51%.

As we establish, four periods were considered in the analysis of the countercyclical measures: expansion in 1996-1998 and 2008-2010 and recession in 1999-2008 and 2011-2013. The comparison between the dynamics of the monetary policy indicators, in correlation to the phases of the business cycle, and the measures recommended by the economic literature are presented in the Table 3, with the correct measures adopted underlined.

Table 3: Synthesis of countercyclical policy measures adopted in Romania during expansion and recession periods

Countercyclical measures recommended in expansion periods	1999 – 2008	2011 - 2013
Contraction of the money supply	M2 (as % of GDP) increased by 0.8%, in average	<u>M2 (as % of GDP) decreased by 0.4%, in average</u>
Increasing interest rates	The lending and deposit interest rates decreased with 9.4%, in average, but the <u>real interest rate increased by 6%</u>	The lending and deposit interest rates decreased with 11.9%, in average, and the real interest rate decreased by 6%
Countercyclical measures recommended in recession periods	1996 – 1998	2008 - 2010
Increasing the money supply	M2 (as % of GDP) decreased by 1,4%, in average	<u>M2 (as % of GDP) increased by 3%, in average</u>
Decreasing the interest rates	Lending and deposit interest rates increases by 4%, in average and <u>real interest rate decreased by 213.8%</u> .	<u>Lending and deposit interest rates decreased with 13.7%, in average, but the real interest rate increased with 1544%.</u>

Source: made by the authors

The results indicate that during recession periods the attention of the governmental authorities is focused upon adopting the right measures, in 2008 – 2010 the broad money supply evolved like the economic literature recommends and lending and deposit interest

rates the same, but during the expansion periods not all the indicators followed the literature recommendation, only broad money supply decreased, like it should, but only by 0.4%.

5. Conclusion

The research performs a theoretical review of the literature associated with monetary policy and using scientific observation and comparative case studies, as research methods, illustrates the objectives of monetary policy and the instruments that have an impact on the economy, in opinion of important economists, like J. M. Keynes and M. Friedman.

Correlating the phases of the business cycle with the monetary policy, the economic literature recommends that in recession periods the money supply must increase and the interest rate decrease, and in expansion periods the money supply must contract and the interest rate increase.

From the analysis of the main instruments of monetary policy, we obtained that:

- (1) The average real interest rate, in the analysed period, was 4.05%
- (2) The average lending interest rate, in the analysed period, was 31.2% and the average deposit rate 18.9%.
- (3) In average, the money supply represents 33.72% of the Gross Domestic Product of Romania and the biggest decline was in 2001, reaching the lowest value of 26.01%.
- (4) The multifactorial regression shown that 57% of the variation of broad money supply, as percent of GDP, is influenced by the interest rates

As a general conclusion we can say that, the recession periods attract more attention from the governmental authority to adopt the right measures, the ones recommended by the economic literature, in comparison to the expansion periods.

The results of the empirical research highlights the main particularities of the economic activity in Romania and the way in which the governmental authority intervened, through the monetary policy measures, in order to mitigate the negative effects of the cyclical fluctuations.

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