The Impact of Monetary Policy and Exchange Rate Regime on Real GDP and Prices in the Republic of Macedonia

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Contents

1 INTRODUCTION

- The main objective of this paper is to examine the effect of monetary and exchange rate regime on real GDP and prices in the Republic of Macedonia (over the period from 1997 to 2008) in order to assess the relative cost and benefits associated with introducing more active monetary and different exchange rate regime.

- The research includes the money supply as an conventional channel of monetary policy and the exchange rate channel, that are assumed to operate in the Republic of Macedonia.

- Based on the available theoretical and empirical evidence, we employ SVAR in order to examine the effect of monetary and exchanger rate regime on real GDP and prices in the Republic of Macedonia.

2 REVIEW OF THE LITERATURE

- Monetary policy

Review of literature: the majority of the empirical evidence in countries in transition with regard to the effect of monetary policy shows that money supply channel is relatively weak as independent channel of monetary policy due to the significant role of the exchange rate within monetary transmission mechanism.

- Exchange rate regime

Review of literature: the data from countries in transition highlights a potentially strong exchange rate pass-through effect on prices due to relatively higher dollarization (asset substitution-both real and financial assets) within those economies.

- **Econometric model for testing short-term effects of money stock and exchange rate on real GDP and prices in the Republic of Macedonia-SVAR.**

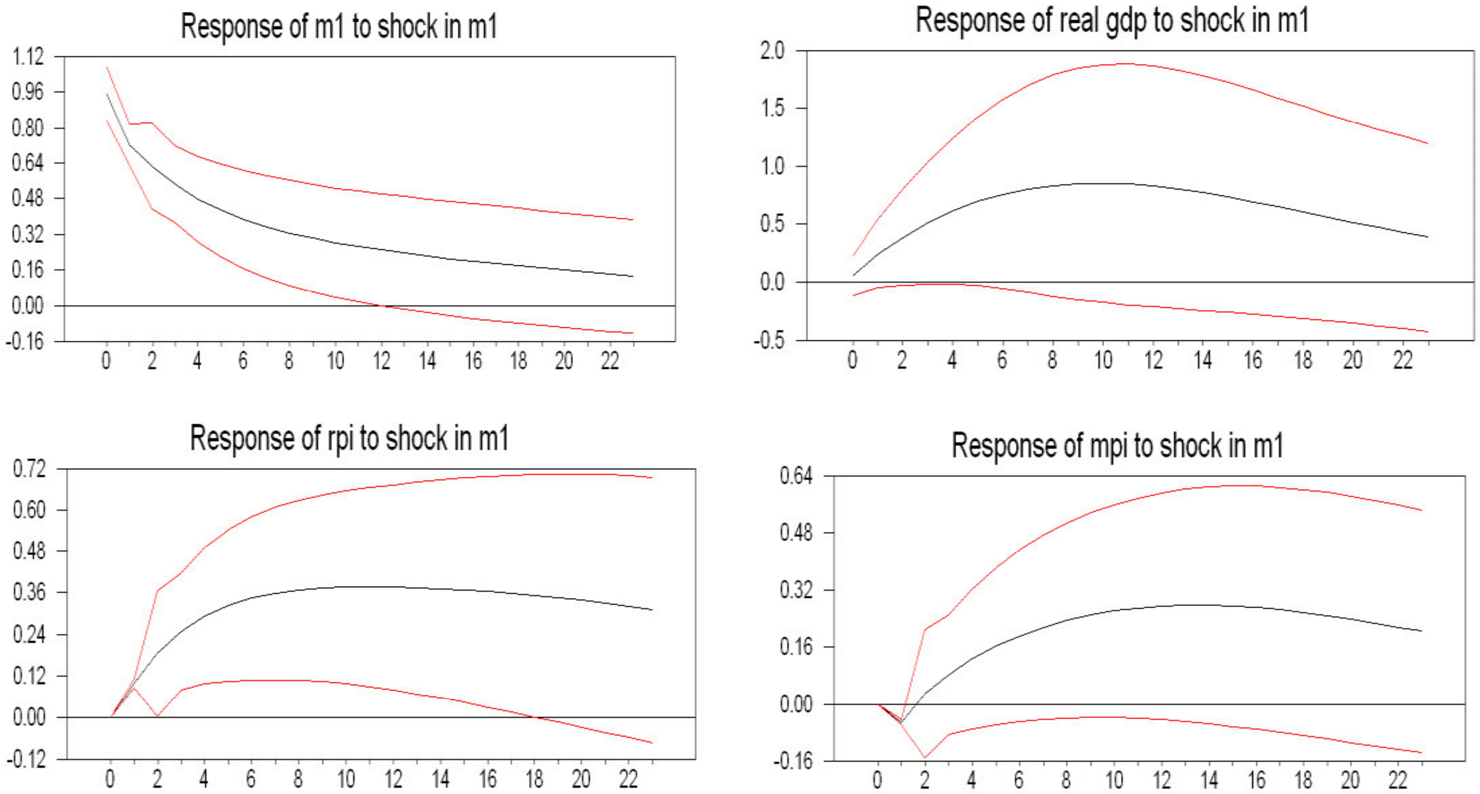
Tests: Seasonality adjusting test, criteria for VAR selection, diagnostic test –JB test for normality distribution, LB and LM test for autocorrelation and ARCH test for the presence of heteroscedasticity; the impulse response function.

Results: As to the diagnostic test, I can conclude that, despite an unstable VAR due to the inclusion of non-stationary time series in all models, *the diagnostic test is satisfactory and consistent with the assumption of white noise process with constant variance over time* (tests are displayed in appendices I and II).

For countries in transition with short spans of data (which are sometimes of questionable quality), empirical results are to be indicative rather than definitive. With that caveat in mind, my main findings and their implications are as follows:

Dynamic effect of money stock on real GDP and prices: Choleski decomposition

Figure 1: Dynamic effect of money stock on real GDP and prices: Choleski decomposition M1-VAR level



Source: Author's calculations

Interpretation of result

- As seen in Figure 1 a shock in the money stock does not generate a significant effect on real GDP.
- The response of the retail price index is significant at around 0.35 percent for 18 months.
- The money stock shock can cause an increase in the price level.
- As a result, we can conclude that dynamic effect of money stock does not have a significant impact on real GDP, but that it can affect the price level.

Interpretation of result

- This result is in line with the ***monetarist view*** that an increase of money growth by one percent causes the price level to rise by 0.35 percent.

- *The result also supports the view that the primary role of monetary policy should be to control inflation in the Republic of Macedonia.*

- We expect this empirical research to demonstrate that the money stock channel is weak as an independent channel of monetary policy in the Republic of Macedonia.

- *The impact of money supply on economic outcomes does not yet operate in the Republic of Macedonia the same way as it does in developed countries, namely by the asset price effect, the wealth effect, the bank-lending effect, and the firms' balance sheet effect.*

Interpretation of result

- *In adition, an increase in the money stock in the Republic of Macedonia causes a decrease of foreign exchange reserves in the foreign exchange market.*

- As a result, an increase in the money stock will not **boost domestic credit**, but it can leak in the form of capital outflows, which results in very little or no increase in the amount of credit the banking system extends to the private sector.

- The dollarization in the Republic of Macedonia is motivated by asset substitution, both real and financial assets.

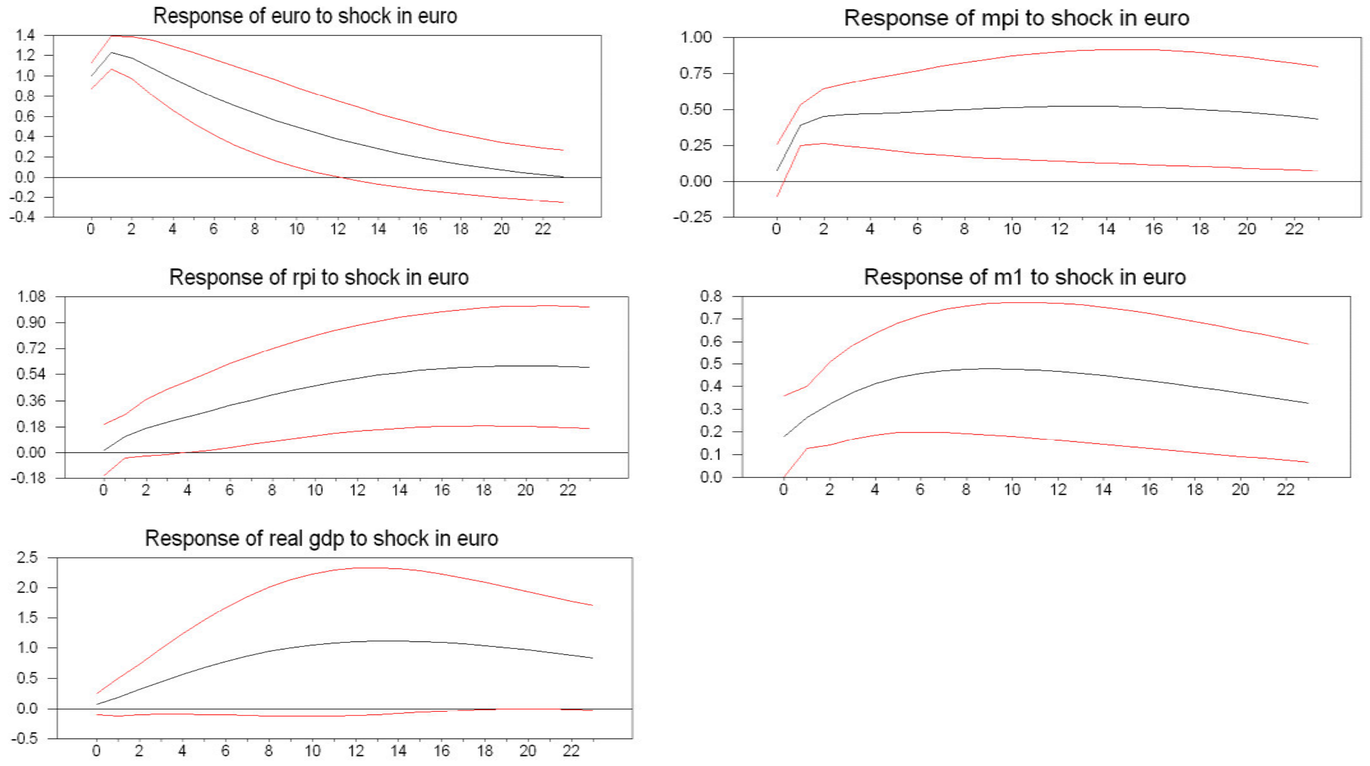
- Asset substitution: many prices of real estate and consumer durable goods are to some extent indexed to foreign currency, and residents use the foreign currency (as domestic currency) for buying and selling real estates (houses, lending, cars).

- As to financial assets, residents deposit or hold large proportions of their savings in foreign currency deposits either in the banking system or outside of the banks.

- As a result, the scope of monetary policy to increase exogenously the money supply over the demand for money in order to maximizing real GDP is limited.

Dynamic effect of exchange rate on real GDP and prices: Choleski decomposition

Figure 2: Dynamic effect of exchange rate on real GDP and prices: Choleski decomposition EXCH.E-VAR-level



Source: Author's calculations

Interpretation of result

- *The shock in the exchange rate triggers:*
- *(i) A depreciation of the exchange rate; (ii) a sharp and rapid increase of the manufacturing prices index; (iii) an increase of the retail prices index; (iv) an insignificant effect on real GDP; and (v) an increase of money stock.*
- The manufacturing prices index responds in the first month, and thereafter it shows a permanent increase after twenty-four months of around 0.52 percent.
- The retail prices index shows a significant response, and it continues to show a permanent increase after twenty-four months of around 0.59 percent.
- Money stock shows a significant effect in the first month and a permanent increase after twenty-four months of around 0.32 percent.

Interpretation of result

- The results of the empirical research suggest that the **direct channel** of the exchange rate has a strong pass-through effect on prices.

- The **indirect channel** of the exchange rate does not have an effect on real GDP.

- Figure 2 highlights this potentially strong pass-through exchange rate effect on prices in the Republic of Macedonia.

- There is strong transmission of the effect of changes in the nominal exchange rate ***via import prices*** to prices in the economy; therefore, a deprecation of domestic currency causes price levels to rise approximately 0.59 percent.

- Even within the first month, manufacturing prices react to changes in the nominal exchange rate, which reflects a strong pass-through effect of exchange rate changes into domestic prices via import prices.

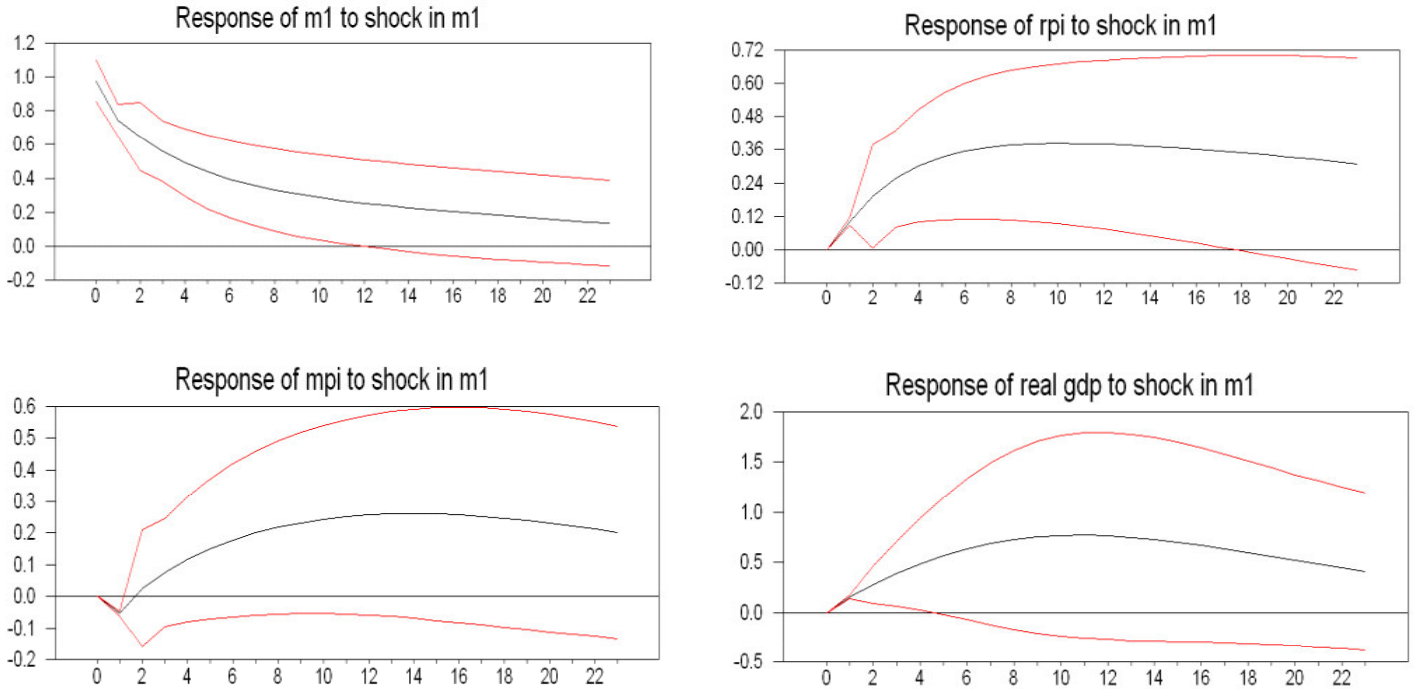
- On the other hand, a depreciation of the domestic currency does not show a significant effect on real GDP in Republic of Macedonia.

Interpretation of result

- We expected a potentially strong pass-through effect of exchange rate on prices in the Republic of Macedonia.
- This is made clear when assessing the characteristics of the Republic of Macedonia's economy, such as:
  - small open economy, high degree of dollarization at around 51.50 percent, a large imports share (particularly of raw materials), and the lack of influence of the Republic of Macedonia in the world economy.
- Moreover, many prices, mainly of property and consumer durable goods, are to some extent indexed to the exchange rate. Wages are even indexed to the exchange rate in some economic sectors.

Dynamic effect of money stock on real GDP and prices: Benanke-Sims decomposition

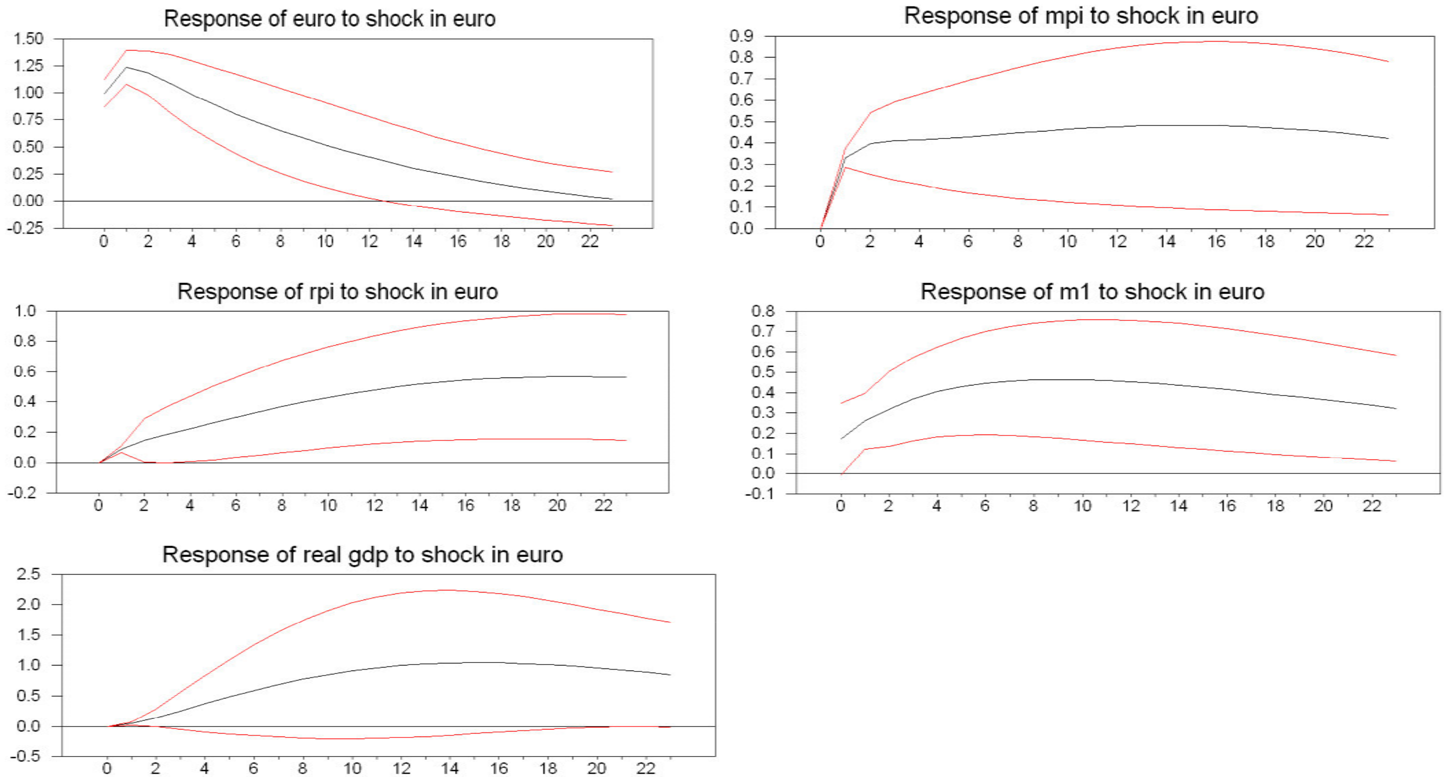
Figure 3: Dynamic effect of money stock on real GDP and prices: Bernanke-Sims-decomposition. M1-VAR- level



Source: Author's calculations

Dynamic effect of money stock on real GDP and prices: Benanke-Sims decomposition

Figure 4: Dynamic effect of the exchange rate on real GDP and prices: Bernanke-Sims decomposition EXCH.E-VAR-level.



Source: Author's calculations

Interpretation of result

- As seen Figure 3 and 4, the similar results we obtain and by Bernake-Sims decomposition.
- This suggests that the model is robust, since similar results are obtained by the different decompositions.

Conclusions

- Assessing the relative costs and benefits associated with introducing a more active monetary policy and a different exchange rate regime in the Republic of Macedonia, the econometrics result, show that introducing such policies in order to promote rapid economic growth could easy disturb macroeconomic stability (after having achieved it at a substantial cost) without any significant economic benefits.

- Introducing more active monetary policys and a different exchange rate regime is likely to incur more costs than benefits, since changes of money stock and exchange rate regime type do not show a persistent effect on real GDP, while changes of money stock and exchange rate regime do show a strong and persistent effect on prices level.

- An increase in the money supply does not have a significant effect on real GDP by either the asset price effect, the wealth effect, the bank-lending effect, or the firms' balance sheet effect.

Conclusions

- An increase in the money stock will cause a decrease in the level of foreign exchange reserves in the foreign exchange market, as a result of currency substitution between domestic currency and foreign currency in the Republic of Macedonia.

- Finally, the result shows that any change in the current monetary strategy of exchange rate targeting carries a likely risk of financial instability, due to higher dollarization in Republic of Macedonia, and such changes would adversely affect the NBRM's ability to control inflation due to the higher pass-through effect of the exchange rate regime change on prices.

THANK YOU VERY MUCH FOR YOUR ATTENTION