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The effects of foreign exchange and monetary policies in Russia

Shigeki Ono *

Asahikawa University, 3-23-1-9, Nagayama, Asahikawa City, Hokkaido 079-8501, Japan

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ABSTRACT

This paper examines the effects of Russian foreign exchange and monetary policies under conditions of abundant natural resources during the period 1999–2011 using structural VAR models. The results suggest that monetary policy shocks, which are identified as money supply disturbances, have a persistent effect on real output, and more than half of the volatility in real output can be explained by changes in the money supply. Furthermore, the analysis reveals that stock prices are a more significant transmission channel of monetary policy than bank loans.

1. Introduction

Russia is one of the largest oil producers in the world.[1] The abundance of natural resources has enabled Russia to obtain large export revenues. However, foreign currency earnings have been a substantial pressure for ruble appreciation. What effects do foreign exchange and monetary policies have under the existence of plentiful natural resources? Although this aspect is significant for the analysis of policy effects, former studies have not explicitly examined this area.

This paper measures the effects of foreign exchange and monetary policies on real output and financial markets in Russia. Since Sims (1980) initiated the recursive system of the structural vector autoregressive (VAR) model, many empirical studies have conducted analyses on the effect of a monetary policy shock on the basis of this method. While extensive research on Russian monetary policy has been conducted,[2] there exists only a small body of VAR-based monetary policy literature on

* Tel.: +81 166 48 3121; fax: +81 166 48 8718.
E-mail address: s-ono@live.asahikawa-u.ac.jp.

[1] Russia became the world's largest oil producer in 2009 (BP, 2011, p. 8).

[2] For example, see Choudhry (1998), Esanov et al. (2005), Oomes and Ohnsorge (2005), and Vdovichenko and Voronina (2006).

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Russia. Starr (2005) examines the effects of monetary policy on the basis of a VAR model in Russia, Ukraine, Belarus, and Kazakhstan and finds that interest rates have a significant impact on output in Russia. Vymyatnina (2006) examines the nature of the money supply in 1995–2004 using a VAR model and clarifies two sources of endogeneity in Russian money supply: credit demand of the "new" sector of the economy and credit demand of old-type enterprises. Granville and Mallick (2010) analyze monetary policy during the period 1995–2009 using a vector error-correction model and claim that exchange rate changes have had a stronger impact on inflation in the long run.

This paper extends former studies and analyzes the effects of foreign exchange and monetary policies after the Russian financial crisis in 1998 with a VAR model, considering price changes of crude oil. This analysis also has considerable implications for the analysis of the relationship between financial development and economic growth. Ono (2012) claims that money supply leads economic growth while economic growth leads loans, which reflects the characteristics of the Russian economy. Oil price increases and the appreciation of the ruble increased the money supply in a situation where there were insufficient sterilization instruments, which, in turn, fostered economic growth. On the other hand, the Russian economic boom provided an incentive for banks to increase loans. This paper contributes to clarifying the influence of money supply changes on economic growth and transmission channels of monetary policies.

The main findings of this paper are as follows. First, in almost all cases, a money supply shock has statistically significant positive impacts on real output. Second, the variance decomposition results suggest that the money supply explains more than half of the volatility in real output. Third, the historical decomposition results show that the money supply had a significant influence on the boom and bust of the Russian economy, whereas the interest rate, exchange rate, stock price and bank loan disturbances contributed to the changes of real output to a lesser extent. Fourth, stock prices are a more important transmission channel of Russian monetary policy than interest rates, the exchange rate and bank loans.

The outline of this paper is as follows. Section 2 provides a brief history of the Russian financial system. Section 3 describes methodological issues and data sources, while Section 4 presents the empirical results of the benchmark model. Section 5 investigates alternative specifications. Section 6 confirms the robustness of the results. The last section concludes the paper.

2. The Russian economic situation after the financial crisis in 1998

The financial crisis in 1998 seriously damaged the Russian economy. The output of industrial production continued to decrease at the beginning of 1999. However, it turned positive in May and demonstrated an increasing tendency subsequently. This rapid economic recovery is attributed to the three-fold depreciation of the Russian ruble and the low dependence of firms on banks in raising funds (OECD, 2000). Moreover, international oil prices hit bottom at US$ 11.31 per barrel in December 1998, and exceeded US$ 100 in March 2008.[3] High oil prices contributed to the rapid development of the Russian economy, which grew at 7.3 percent per annum from 2003 through 2007 on average.

Although oil price increases enabled Russia to achieve high economic growth rates, it has often been indicated that Russia suffers from Dutch Disease because of the increase of energy prices and the appreciation of the Russian ruble (see, e.g., World Bank, 2005; Ollus and Barisitz, 2007).[4] The Central Bank of Russia repeatedly intervened in the foreign exchange market in order to prevent the ruble's sharp appreciation. One of the reasons for the considerable money supply increase is the lack of instruments for sterilized intervention (Tabata, 2009; Uliukaev, 2009; Granville and Mallick, 2010). Under the repetitive intervention in the foreign exchange market, the amount of international reserves increased from US$ 12.6 billion at the end of 1999 to US$ 569.0 billion at the end of June 2008.[5] The amount of

[3] Monthly average values of futures prices of New York Mercantile Exchange light sweet crude oil at Cushing, Oklahoma, Contract 1 (near month).

[4] Oomes and Kalcheva (2007) found evidence of Dutch Disease, that is, real appreciation of the Russian ruble, a declining manufacturing sector, an expanding service sector, and rapid real wage growth. They also claim, however, that more research is needed to determine that these symptoms are not caused by other factors.

[5] Data are available at the website of the Central Bank of Russia.