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**Monetary Policy in
Russia and Effects of
the Financial Crisis**

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Monetary Policy in Russia and Effects of the Financial Crisis

Daniel Buikema Fjærtøft*

Abstract

Russian monetary policy is geared at containing inflation and a stable ruble exchange rate. Substantial export windfalls have, however, lead to a steady real appreciation of the ruble as not all profits have been sterilized in commodity funds. Managing money supply stands out as the dominant monetary policy tool rather than the interest rate. The Central Bank claims to aim at a transfer to a free float and inflation targeting using the interest rate in the medium term. Development over the past years supports this reform option, but the 2008 crisis could impede financial market maturity leaving the Central Bank dependent on money supply as its main tool. The Central Bank predicts a negative current account in 2009 if average oil prices drop below \$ 66/bbl. In 2010 and 2011 the current account is expected to reach negative values in the case of average oil prices below \$ 120/bbl. The 2008 crisis and the Central Bank's defence of the ruble have demonstrated how vulnerable Russian foreign currency reserves are. Therefore, other regimes than a free float hardly seem feasible even in a 2 year perspective.

Key Words

Monetary policy, interest rate, money aggregates, oil dependency, exchange rate regime

JEL Classification

Q43, Q33, P24, E60, P26

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1 Introduction

The starting point for this paper has been Russian monetary policy. The Russian macro economy is to a large degree influenced by Russian exports of natural resources, oil in particular. Over the last years oil exports have caused the trade balance and consequently current account to grow significantly, allowing an expansionist fiscal policy. This has led to Dutch disease pressures. In addition, financial markets' limited development affect monetary authorities' scope of action. Understanding how monetary policy has accommodated these challenges is therefore key to understanding the interaction between energy export revenues and overall Russian economic performance.

In the midst of a very serious, global financial crisis a discussion of monetary policy cannot be complete without discussing possible implications of the crisis. This paper will therefore commence this discussion. However the financial crisis is only just unfolding and its effects have yet to come fully into play. An exhausting discussion of the crisis in Russia will only become possible in time. Nonetheless, in order to understand the effects of the crisis, a comprehensive understanding of the framework within which Russian monetary policy is conducted and thus of this policy itself is needed. This paper will therefore attempt an investigation into the determinants of Russian monetary policy and reflect on the likely effects of the ongoing crisis.

Apart from Russia's dependence on its export markets, foreign credit has played an increasingly important role in the Russian economy. Thus, the financial crisis, and in particular the international credit crunch, may have severe effects for the future of Russia's economy, possibly reversing recent years' positive trend.

This paper employs a descriptive approach to Russian monetary policy. It is an attempt to make out main policy traits without using rigorous statistical analysis. Data availability is, however, reasonable and future research should try to stake out hypotheses that can be discussed in a more formal framework. With a transfer to inflation targeting high on the Russian monetary policy agenda, an investigation into the money market and determinants of inflation stands out as interesting subjects for future research.

Section 2 of this paper looks at Russian monetary policy using, primarily, Central Bank policy documents and data for the period 2000-2008. GDP data have been retrieved from the IMF, while inflation data have been retrieved from IMF and the Federal Statistics Service. Data on the Russian budget surplus have been retrieved from several issues of IMF's reports on the Russian economy.

Section 3 focuses on how the international financial crisis has unfolded in Russia. This section builds largely on newspaper excerpts following day-to-day events. However, when available, statistical data have been applied.

This paper concludes that the financial crisis has brought on the consequences of endemic trends through a sudden shock. It is therefore largely the pace and timing of changing circumstances rather than the new circumstances themselves that constitute the effects of the crisis.

2 Monetary Policy

The Russian trade surplus has been substantial over the last years leading to significant inflow of foreign currency. However, the trade surplus has been achieved by utilizing Russia's inherited resource rent rather than efficiency advances in the tradable sectors of the economy. Consequently Russia's tradable sectors have been, and are, subjected to the same pressures common to most resource based economies. Large foreign currency earnings tend to erode domestic competitiveness on domestic and global markets through upward pressure on the exchange rate. If foreign earnings are spent, windfall profits also tend to heat up the economy leading to inflationary pressures that both erode the domestic value of export earnings and put further strain on tradables' competitive position.

Energy sector dominance has never been a politically accepted development scenario for Russia. Some of the reasons are:

- Reliance on the energy sector makes the Russian economy excessively dependent on volatile oil and gas prices.
- The Russian public and authorities hold a vision for Russia as a world economic superpower. This vision is incompatible with succumbing to Dutch disease risks and requires support for alternative production.

- Although the major source of export revenue, the energy sector alone is hardly capable of ensuring broad employment.
- Pre- and post-1998 Russian monetary policies have been made the subject of several studies. Vdovichenko and Voronina (2004) estimate decision rules for monetary policy based on the Taylor and McCallum rules for the years 2000-2003.¹ The authors concluded that the interest rate has played a minor role in monetary policy as opposed to managing base money supply. The study furthermore concludes that inflation, output and the real exchange rate are the CBR's target variables, with the latter dominating the former two. Esanov et al. (2004) achieve similar results identifying also a structural break in the data in 1995 with the introduction of an exchange rate peg.

Ivanova (2007) estimates the equilibrium real exchange rate for Russia based on a trade-balance approach and thus provides an assessment of on-going real exchange rate targeting. She finds that the Russian real exchange rate was undervalued by 45-85 % in 2006 depending on the choice of price deflator when calculating the real exchange rate. Ivanova attributes this undervaluation to the Central Bank of the Russian Federation's (CBR) policy of balancing inflation and exchange rate concerns. Dabrowski et al. (2002) discuss the origins of inflation in Russia since 1993. Pre-1998, inflation is found to be caused by monetary financing of budget deficits while post-crisis inflation has been driven by the CBR's dual inflation-exchange rate targeting. The authors argue the success of a hard peg regime, claiming that only a hard peg would ensure the monetary commitment needed to contain domestic inflation. Noting the emerging budget surplus the authors furthermore comment:

“In this context, the continued CBR's attempt to target both the exchange rate and money supply seems to be absolutely hopeless and has to be changed.”

Dabrowski et al. (2002)

In sum Vdovichenko and Voronina (2004), Esanov et al. (2004) and Dabrowski et al. (2002) provide an informing picture of Russian monetary policy and challenges up to

¹ The McCallum rule assumes money growth to be the Central Bank's policy instrument rather than the Taylor rule's interest rate. See: <http://wpweb2.tepper.cmu.edu/faculty/mccallum/SOMCPolicyRules5.pdf>

2002/2004. At the present time these studies fall short by some four years and an update might be justified. Furthermore, the real ruble undervaluation found by Ivanova provides apparent testimony to the success of real exchange rate targeting by the CBR. As a new financial crisis is underway, a renewed investigation into past policy's relative success and future soundness should be timely.

As concluded in the abovementioned studies the effect of the interest rate on money demand appears weak. On this accord, liquidity has been withdrawn from the market by issuing bonds and raising banks' reserve requirements. In theory, a country practicing capital controls can counter foreign exchange interventions by issuing bonds for the equivalent amount leaving money supply unchanged. However after a ban on almost all capital controls imposed in 2006, the CBR has been left with even more limited opportunity to conduct such sterilizing operations. Since then increasing emphasis in CBR policy documents has been given to conversion to a free float in order to allow for full-fledged inflation targeting.

Officially, monetary policy in Russia remains geared at containing inflation while still managing the rubles float to avoid excess volatility. The latter goal claimed out of concern for domestic competitiveness. Managing the real exchange rate however, is possible only by fiscal measures. As long as some windfall export revenue is allowed to enter the domestic economy through the state budget or other, the real exchange rate will appreciate. With the real exchange rate beyond control of monetary authorities, monetary policy can only decide if real appreciation is to happen by nominal appreciation or due to inflation.

2.1 Exchange rate regime

While the CBR's true decision rule is unknown to outsiders, an attempted approximation of this rule and an estimation of its effects on the nominal and real exchange rates are beyond the scope of this paper. However, in light of the contradictory findings of Dabrowski (2002) and Ivanova (2007) the CBR's efforts to manage the nominal exchange rate and scope real exchange rate management deserve at the least a superficial discussion.²

² Readers are reminded that Dabrowski (2002) finds real exchange rate targeting infeasible, while Ivanova (2007) identifies a substantial real ruble undervaluation.

Exchange rate regimes are either fixed (the central bank commits to defending some nominal exchange vis-à-vis some foreign currency) or floating (exchange rates are market determined without interference) or something in between.³ The concept of long-run purchasing power parity is a common starting point for discussing the effects of choosing any particular regime. Assuming long-run relative purchasing power parity (PPP), the nominal exchange rate and domestic price growth will, all else equal, adjust in relation to each other to ensure a constant long-run real exchange rate. Equation (1.1) provides a crude mathematical illustration of this relationship.

$$\begin{aligned} e_t^r - e_{t-1}^r &= e_t - e_{t-1} + p_t^f - p_{t-1}^f - p_t + p_{t-1} \rightarrow \\ \Delta e_t^r &= \Delta e_t + \pi_t^f - \pi_t \\ \Delta e^r &\equiv 0 \rightarrow \Delta e = \pi - \pi^f \end{aligned} \tag{1.1}$$

Where e_t^r and e_t denote the natural logarithm of real and nominal exchange rates, and p_t^f, p_t, π_t^f, π the natural logarithm of foreign and domestic prices and inflation ($\pi_t = \Delta p_t = p_t - p_{t-1}$).

With PPP and a floating exchange rate, domestic price growth in excess of foreign inflation will be offset by nominal exchange rate depreciation, leaving the real exchange rate unchanged. I.e. if domestic prices rise relative to foreign, then foreign demand for domestic goods will drop which in turn leads to reduced demand for domestic currency and consecutively a nominal depreciation. If the exchange rate is fixed ($\Delta e_t = 0$), the same upward pressures will apply, causing the central bank to intervene by buying domestic currency thus withdrawing liquidity from the economy and thereby reducing inflation. This scheme was quite successfully used by Russia in the years 1995-1997 when inflation was brought down from 213 % to 11 %.⁴

Conversely, a nominal depreciation would lead to price growth domestically. Under a floating regime the relative price of foreign products increases leading both to an increase in foreign demand for domestic products (exports) and increased domestic demand for domestic products as consumers substitute away from imports. Both effects

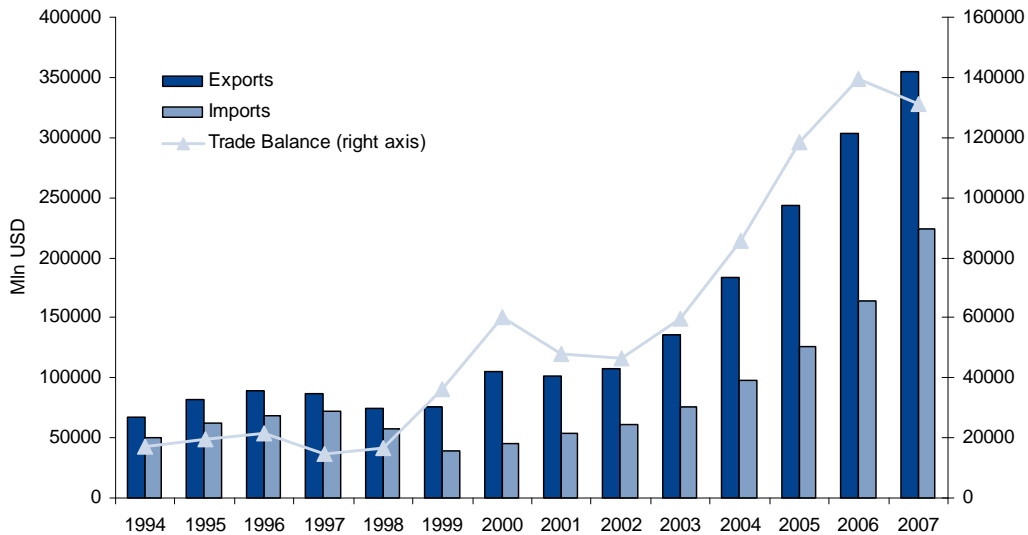
³ The IMF operates with a range of classifications, see <http://www.imf.org/external/np/mfd/er/2004/eng/0604.htm> for details.

⁴ The fixed exchange rate did not, however, withstand the 1998 **run on** the ruble.

lead to an increase in domestic aggregate demand fostering inflation.⁵ Under a fixed regime the central bank would sell domestic currency, creating an influx of liquidity leading to price increases.

These stylistic relations impose a set of steady state assumptions to the economy that might not be the most suitable to current Russian macroeconomic reality. Equation (1.1) explicitly assumes the real exchange rate to be at a fixed long-run level, which in turn implies balanced foreign accounts (exports equal to imports). Russia has, however, run a persistent trade surplus (goods account) for the last 15 years, see Figure 2.1. This trade surplus has throughout the 2000s been an important factor in determining Russian macroeconomic policy.

Figure 2.1 Russian Trade Balance



Source: Bank of Russia, <http://www.cbr.ru>

Returning to equation (1.1), relatively high inflation and nominal exchange rate pressures, illustrate that PPP has not held in the case of Russia. An appreciating nominal exchange rate and domestic inflation in excess of foreign inflation have lead to a decreasing real exchange rate.

⁵ Following the Marshall Lerner condition, provided the summed elasticities of export and imports with respect to the real exchange rate are greater than 1 a real depreciation of the exchange rate will improve the trade balance. i.e. increased exports and import substitution compensate reduced terms of trade. Improved trade balance is considered to have a positive effect on domestic aggregate demand.

Mathematically:

Steady state net exports: $NX_0 = X_0 - E^r M_0 = 0$

$$\frac{dNX_0}{dE^r} = M_0 \left[\frac{\partial X}{\partial E^r} \frac{E^r}{X_0} - \frac{\partial M}{\partial E^r} \frac{E^r}{M_0} - 1 \right] > 0 \leftrightarrow \frac{\partial X}{\partial E^r} \frac{E^r}{X_0} + \left[-\frac{\partial M}{\partial E^r} \frac{E^r}{M_0} \right] > 1$$

$$\begin{aligned}\Delta e_t^r &\equiv \Delta e_t + \pi_t^f - \pi_t \\ \Delta e_t^r < 0 &\leftrightarrow \Delta e_t < 0 \vee \pi_t > \pi_t^f\end{aligned}\tag{1.2}$$

Despite notational simplifications equation (1.2) provides a useful summary of important forces relevant to monetary policy. In contrast to PPP:

$$\Delta e_t < 0 \vee \pi_t > \pi_t^f \rightarrow \Delta e_t \neq \pi_t - \pi_t^f\tag{1.3}$$

It should be noted that $\Delta e_t < 0$ is not an undisputed fact. Russia claims to operate a managed floating regime that seeks to avoid excessive exchange rate volatility of the ruble against a weighted average of USD (0, 55) and euro (0, 45) (CBR, 2007).⁶ This weighted average could be used as a measure of e_t in equations (1.2) & (1.3). While the ruble has exhibited a clear downward trend vis-à-vis the dollar in recent years, the weighted average does not exhibit a clear downward trend because of the rubles RUB/USD and RUB/euro rates have held diverging paths in pace with the increasing weight of the euro.⁷

It is beyond the scope of this paper to judge whether the CBR's weights are appropriate to Russian foreign trade. Considering the euro's path vis-à-vis the ruble increasing the weight given to the currency ruble is strikingly convenient, however, for the CBR, allowing more ruble-dollar volatility while still showing a relatively stable exchange rate compared to the targeted basket.

In this paper focus is on two bilateral exchange rates the RUB/USD and RUB/euro. Trade with European countries has counted for more than 60 % of exports and more than 55 % of imports on average over the period 2000-2007.⁸ At first glance the euro seems an appropriate candidate for main trading currency. The dollar however holds an important role for Russian exports because of oil exports. This paper gives priority to the trade surplus in generating nominal exchange rate pressure. Given the size of the surplus, the main focus is on the RUB/USD rate. The dollar furthermore holds a strong position as an alternative currency in Russia and the RUB/USD rate is therefore important in the question of domestic currency substitution.

⁶ Often by textbook definition one understands a managed float as a free float with discretionary forex interventions by monetary authorities dependent on varying political priorities. The Russian managed float is somewhat different.

⁷ The euro was included in the CBR's benchmark in 2005, initially with a weight of 0, 1. Throughout 2005 the euro's weight was gradually increased to 0, 4. In February 2007 the euro's weight was raised again to 0, 45.

⁸ http://www.gks.ru/bgd/regl/b08_11/IssWWW.exe/Stg/d03/26-05.htm

Inflation in equation (1.2) is not country specified. Russian inflation has been well above the European average, but still lower than the CIS average. Russia exports little manufactured goods to Europe. Thus a lower European inflation is likely to affect Russian imports through changes in relative prices domestically more than exports. The CIS, however, remains an important market for Russian manufactured goods and in particular the automotive industry.

Whether Dutch disease (DD) effects have gained foothold in the Russian economy is a common topic of discussion, see Anker and Sonnerby (2008). According to Dutch disease theory, resource economies are threatened by an erosion of non-resource based industry's competitiveness through a real exchange rate appreciation due to nominal appreciation and domestic price growth. This is believed to harm long-run production growth in manufacturing industries. Whether $\Delta e_t < 0$ or not, the difference $\pi_t - \pi_t^f$ (albeit on the decline) has led to $\Delta e_t^r < 0$ – the prime symptom DD.

Much in answer to Dutch disease theory, concern for domestic competitiveness (i.e. avoiding excessive real exchange rate appreciation) is given priority by the CBR – with effects for its exchange rate policy.

In 2007 the following goal was stated for the CBR's exchange rate policy:

“Its [..CBR's..] exchange rate policy will aim to mitigate abrupt fluctuations in the exchange rate that are not caused by fundamental economic factors and take into account the necessity of curbing inflation and keeping domestic producer prices competitive.”

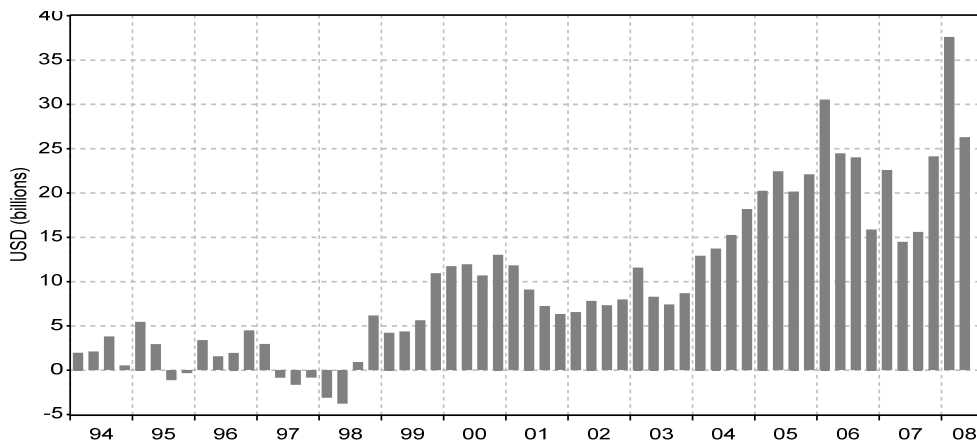
CBR (2007)

The CBR sets daily exchange rates that are intended to function as benchmarks for price formation. In periods of upward pressure to the exchange rate this involves issuing rubles to satisfy ruble demand due to oversupply of foreign currency. These open market operations extend domestic money supply with accompanying inflationary effects.

2.1.1 Balance-of-payments

Russia's economy under Putin's presidency has been characterized by an expanding current account leading to downward pressure on the exchange rate (= upward pressure on the ruble). Following the 1998 devaluation Russian the value of Russian exports has grown persistently. Imports growth was effectively turned negative till the first quarter of 1999 when imports again started to growth. However they did not reach past highs before the third quarter of 2003. Since then annual growth of goods and services imports has been substantial and increased from around 22 % in 2003 to 35 % in 2007. Nonetheless the value of Russian exports has grown *more* allowing the current account to increase continuously year-on-year for 5 years from 2002-2006. In 2007, however, Russia's current account shrunk by 20 % see Figure 2.2.

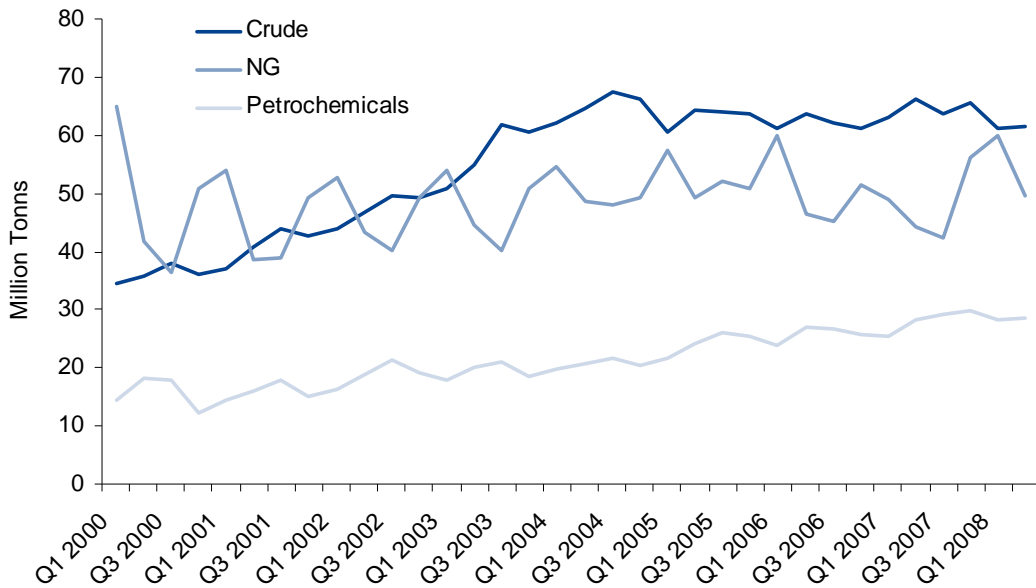
Figure 2.2 Russian Current Account Balance



Source: Reuters EcoWin

This trend seemingly turned, when in first two quarters of 2008, the current account rose by 67 % and 82 % respectively compared to the corresponding quarters of 2007. Russia's current account improvement can most likely be attributed to the surge in global oil prices starting in the second half of 2007. This relation was also underlined by the World Bank which in June 2007 warned that if oil prices did not increase, the Russian current account would continue to shrink (WB 2007).

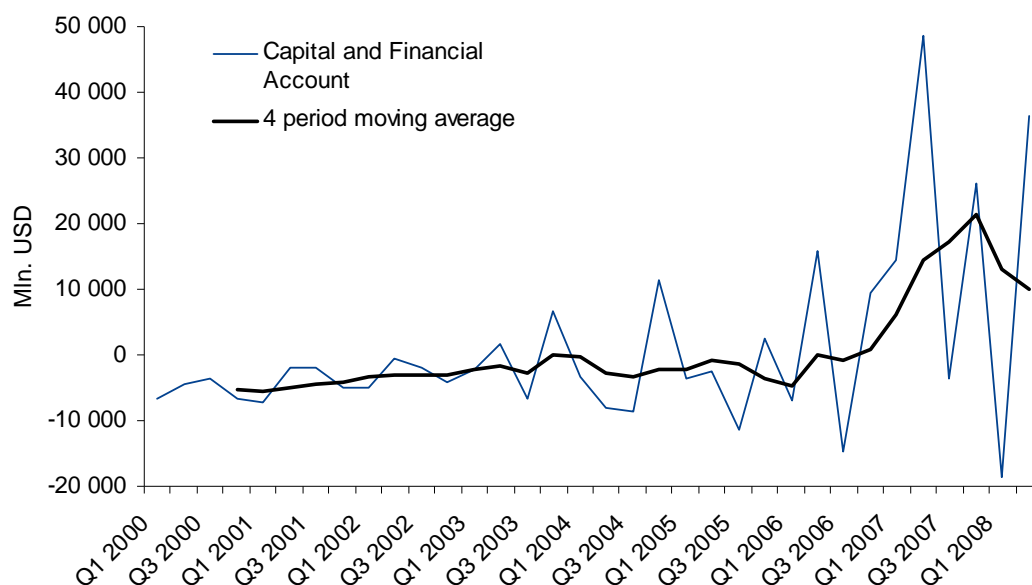
Figure 2.3 Quarterly Petroleum Exports (Volumes)



Source: Bank of Russia, <http://www.cbr.ru>

Figure 2.3 shows how the volume of exported crude has not grown since 2004. Russian oil exports constitute some 35 % of total exports value according to CBR figures (if one includes natural gas and petrochemicals the figure rises to near 70 %). Increases in export revenue can therefore largely be attributed to improved terms of trade. Oil price dynamics changed, however, in Q3 2008, see Figure 3.1 for reference. In its policy paper for 2009-2011, the CBR expects a current account decrease in 2009. However in a Urals price scenario of \$66/bbl in 2009, the CBR expects the current account to turn negative. Perhaps even more striking is that for the years 2010 and 2011, the bank counts on a positive current account only in the event of average Urals prices above \$120/bbl. For the time being it seems that the private capital inflows have stemmed the balance-of-payment reduction. In 2007 the increase in private capital inflows became particularly noticeable (WB, 2007). Russia's capital account over 2000-Q2 2008 is summarized in Figure 2.4.

Figure 2.4 Quarterly Capital Account and Moving Average



Source: CBR.RU

Summing up, Russia has run a persistent current account surplus and of recent has also experienced a net inflow of capital (2006, 2007). All else equal these flows apply downward pressure to the foreign exchange rate.

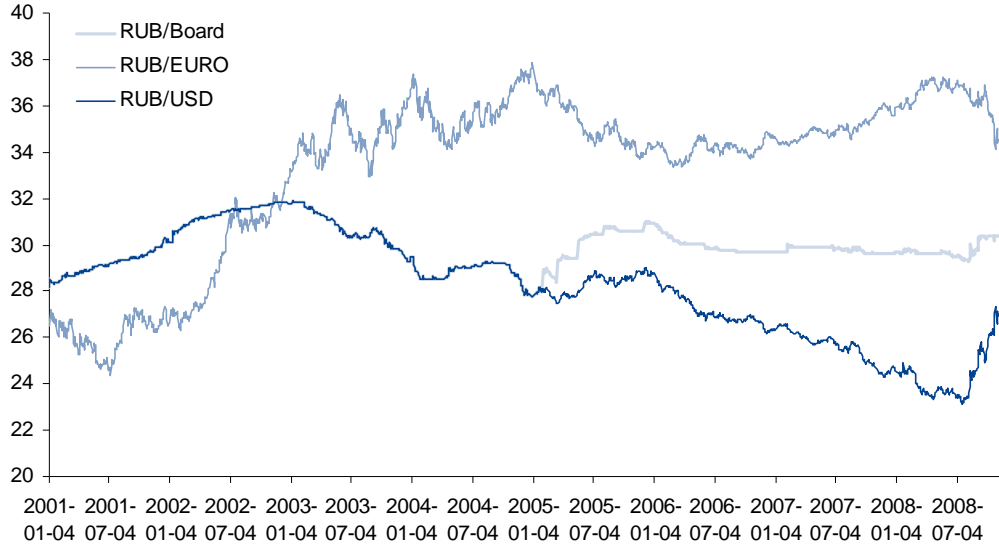
2.1.2 Exchange rate dynamics

As illustrated in Figure 2.5, the CBR has not kept the official ruble exchange rates within a strict stationary corridor. Nonetheless the CBR has a history of repeated intervention, swelling the bank's foreign reserves to 595 billion USD on August 1, 2008. Thus, despite the CBR's concern for domestic producers' competitiveness it may seem that the bank, realizing the inherent inflation trade-off, accepts the underlying exchange rate trends, albeit trying to influence them to the extent compatible with the perceived acceptable level of inflation.

Since 2003 the ruble has steadily appreciated vis-à-vis the dollar, and on average official exchange rates have decreased by 0.4 % a month in the period 2003-2007. The ruble/euro rate has exhibited less of a trend at least in the period 2003-2005), but starting in 2006 official exchange rates increased on average by 0.1 % each month. As visible from Figure 2.5, in 2008, and especially from its third quarter and on, recent exchange rate trends have changed – both in relation to the dollar and the euro. In total the ruble has appreciated 17 % in relation to the dollar and depreciated almost 40 % in relation to the euro in the period 2001-2008 based on yearly averages. However a

significant share of the depreciation vis-à-vis the euro took place in the euro's early years and can most likely be attributed to euro appreciation.

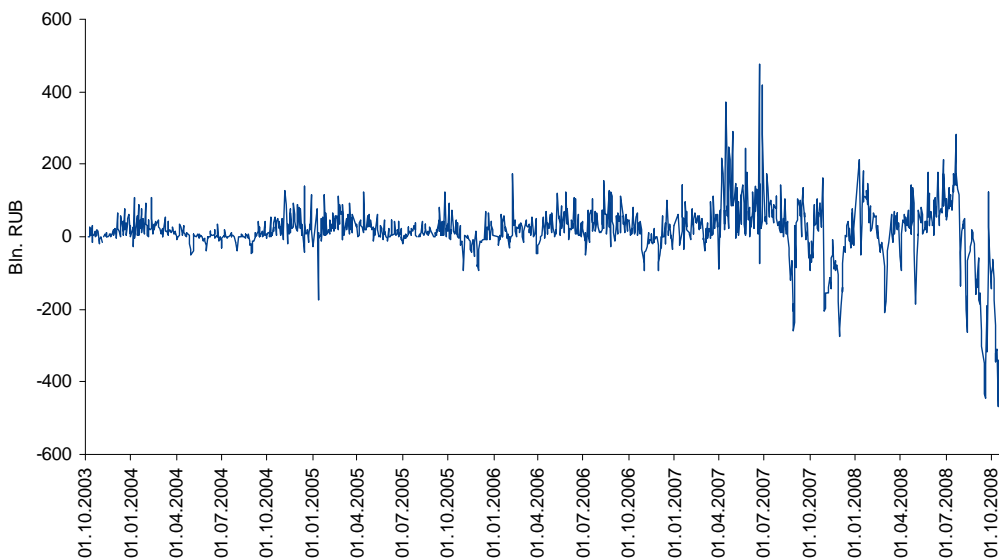
Figure 2.5 Central Bank Exchange Rates 2001-2008



Source: CBR.RU

Data on foreign exchange interventions by the CBR are not readily available, but net liquidity additions to the domestic money market by the Russian central bank, might perhaps serve our purpose as an appropriate proxy. As Figure 2.6 shows, net added liquidity by the CBR has been predominantly positive and also particularly pronounced in the first half of 2007 and 2008; both of which being periods of an oil price rally.

Figure 2.6 Net Added Liquidity 2003-2008, Daily Data

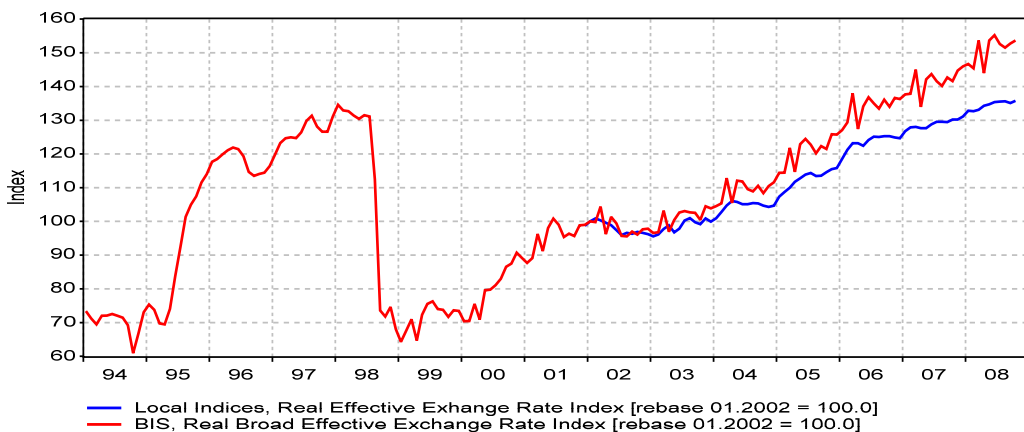


Source: CBR.RU

2.1.3 Managing the real exchange rate

Several authors have pointed out the futility of real exchange rate targeting (e.g. Harberger 2008). Referring to equation (1.1), the argument goes that the monetary influx created from foreign exchange interventions endogenizes inflation ($\pi = f(\Delta e)$), such that any attempt at bringing the real exchange rate below its exogenously given equilibrium level will only cause compensating price increases domestically.⁹ Thus, the tradeoff between inflation and exchange rate management (i.e. feasibility of real exchange rate management) ceases to exist as soon as $\Delta e \leq f(\Delta e)$.

Figure 2.7 *Real Ruble Exchange Rate*



Source: Reuters EcoWin

Figure 2.7 shows a steady appreciation of the real ruble exchange rate starting in 2003, despite the fact that the CBR has kept the nominal exchange rate vis-à-vis the dollar-euro currency board stable. The relations described above apply also to Russia, but notwithstanding a significant current account surplus inflation gradually decreased from 2000 through 2006. Nominal appreciation has no doubt played a part, but the evident interventionist activity cannot be said to have been accompanied by the accelerated inflation implied by the argument above.

The apparent discrepancy between theory and practice can most likely be attributed to the fiscal sterilization effects of the Stabilization fund (see Anker and Sonnerby (2008) for a complementary discussion of revenue management). Fiscal sterilization through commodity funds has become a rather common practice among global oil exporting countries. The effect in Russia is that the government, having accumulated a ruble

⁹ $\pi = f(\Delta e) \rightarrow \Delta e^r = \Delta e + \pi^f - f(\Delta e); f' < 0$

denominated surplus, buys large quantities of foreign exchange from the CBR which are placed abroad. This constitutes a policy induced, but real, additional demand for foreign exchange (capital outflow) that also allows additional foreign currency purchases by the CBR without expanding base money supply. Thus, while perhaps monetary instrument alone are not capable of managing the real exchange rate, a combination of fiscal and monetary measures seem to have proven effective.

Until recently, managing the ruble has mainly involved foreign exchange *purchases*. Of late, the ongoing global financial crisis has caused a significant negative shock to ruble demand putting strain to the CBR's reserves. This will be commented on in section 3.

2.2 Monetary Policy

Reading the yearly policy statements of the CBR, managing money supply stands out as the dominant instrument of monetary policy, at least in the period 2000-2005. The CBR focuses on expanding money supply proportionally to money demand growth which is described to be a function of GDP growth and velocity of money.

In its policy documents the CBR (2007 & 2008) highlights the goal of moderating inflation and in 2007 the Bank aimed to achieve a year-on-year inflation of 6-7 % in 2008, see section 2.2.1. The trade-off between exchange rate manipulation and inflation has been mentioned in the discussion of the exchange rate above. This trade-off arises along two channels:

- **Demand substitution in favor of domestic goods and services.** Exchange rate manipulation, geared at the ruble being valued below is *ceteris paribus* equilibrium level alters relative prices and increases domestic and foreign demand for domestic goods and services. Assuming some relation between output and capacity utilization, and capacity utilization and prices, increased capacity utilization following an increase in demand will trigger a rise in capacity prices that feeds into the price of output.¹⁰
- **Expansion in money supply.** When purchasing foreign exchange with rubles, the CBR expands the supply of rubles in the domestic money market. This reduces the ruble's real value measured in goods due to increasing prices.

¹⁰ This phillips-curve relation is a typical assumption about supply side relations between output and prices. See Sørensen and Whitta-Jacobsen (2005) for a text-book exposition.

Russian demand growth has been recognized as a strong and major contributor to economic growth over the past years (e.g. OECD, 2004 & BOFIT, 2008). Managing demand growth is therefore important in managing inflation. By the first argument above, an improvement in Russian terms of trade increases domestic substitution towards foreign products and thereby reduces inflationary pressures. Allowing the ruble to appreciate somewhat may therefore have functioned as a necessary valve letting out excess domestic demand.

The necessity of allowing the ruble to appreciate arises, however, most likely from more direct inflationary effects through the CBR's actions in the domestic money market. Demand substitution can therefore most likely be considered a fortunate side-effect.

In addition to the choice of exchange rate regime, the tools available to monetary policy makers are also dependent on the characteristics of the domestic money market. The Russian money market differs in this respect from its western counterparts and a brief discussion of two principal approaches to the money market may help illustrate these differences.

Money market equilibrium requires real money supply to equal money demand. As mathematical illustration of a typical approach to developed money markets one can suggest the following simplistic equation:

$$\frac{M}{P} = D_M(Y, r); D'_Y > 0 \vee D'_r < 0 \quad (1.4)$$

The right-hand side of (1.4) represents real money supply where M is nominal money supply and P is the price level. The left hand side, money demand, is function of income Y (real GDP) and the real interest rate r representing the opportunity cost of holding money.

Outside equation (1.4), an increase in M , reduces the nominal interest rate in the domestic money market (price of money) increasing money demand and reinstating equality of supply and demand. A decrease in r also has a positive influence on money demand through its effect on investment demand and consequently Y .¹¹

¹¹ Assuming: $Y(I(r))$; where $I(r)$ is investment demand

In the US in the late 1970s early 80s the exchange equation (1.5) received considerable attention (Hafer and Wheelock 2001).¹² The exchange equation says that nominal income over a certain period of time must move on par with the amount of money in the economy multiplied by the average times a unit of money is spent over the period of time (velocity of money). The idea is that an increase in income will increase the amount of money demanded for additional purchases. If money growth exceeds the growth of real income, this will lead to an increase in prices.

$$MV = PY \rightarrow M^*_{S/D} = \frac{PY}{V} \quad (1.5)$$

Where V is the velocity of money, and M^* is the nominal value of money satisfying supply and demand. V is assumed to be the reciprocal of the desired ratio of money to income.¹³ In short this means that if economic agents increase their demand for money at a given level of income, V will decrease.

The initial argument was that base money (M0) growth was more efficient than the interest rate as an operational variable for the Federal Reserve. M0 could be controlled directly by monetary authorities, while interest rates were market determined and could be influenced only indirectly. Later one argued that stable money growth would allow prices to grow in a stable and predictable manner. The exchange equation lost some of its gist in the second part of the 1980s because V became increasingly volatile making short-term relations between money growth and income growth hard to predict. It is quite interesting to what degree CBR arguments follow these same lines.

Differentiating equation (1.5) and rearranging gives us a handy expression for inflation in line with CBR arguments:

$$\frac{dP}{P} = \frac{dM}{M} - \left[\frac{dV}{V} + \frac{dY}{Y} \right] \quad (1.6)$$

This equation says that changes in prices are a function of changes in the money stock less of changes to velocity and real income. Thus money growth has to be managed so

¹² The so-called exchange relation arises from the Quantity Theory of Money pioneered by the American economist Irving Fischer. See ECB (2008b p. 47 for a brief overview)

¹³ $M_s = kPY, M_s = \frac{PY}{V}; M_s = M_s \rightarrow v = \frac{1}{k}$ (Santoni, 1987)

that the economy has the liquidity it needs without fostering inflation. To this end the CBR has practiced money programs stipulating scenario-based growth in M2.¹⁴

There may be several reasons why Russian monetary policy is formulated to a larger degree within the framework of equations (1.5) and (1.6). One reason that is also highlighted by the CBR is the interest rate's relatively modest effect on domestic money demand.

Following the collapse of the Soviet Union, the Russian economy became highly dollarized. Oomes (2003) provides estimates of currency dollarization in the Russian economy reaching 80 % of total currency during the 1990's. The 1998 devaluation of the ruble wiped out the population's savings, leaving little faith in the country's financial institutions and hence limited use of ruble denominated deposits and thus also limited scope for issuing ruble denominated credit.

The limited Russian mortgage market illustrates interest rate's different playing ground in Russia compared to Europe. The mortgage market has increased its share in the consumer credit market in recent years (from 3.6 % of total consumer credits in 2005 to 15.6 % in 2007 (CBR 2008)), nonetheless mortgage's share of GDP remains low. In 2006 total mortgages amounted to 0.3 % of GDP while in 2007 the share has risen to 1 %.¹⁵ For comparison, mortgage amounted to 38 % of GDP on average in the EU in 2006 (Mashkina 2007) and 80 % in Norway in 2007.

Although the CBR (2007) comments on the progress of de-dollarization, Russia's prevailing exchange rate regime hinders using the interest rate as a dominant policy instrument for containing inflation. If anything, the interest rate can be used for exchange rate targeting and in 2004, the CBR proposed that the most important role of the Bank's interest rate was to counter additional in- and outflows of capital arising on the basis of emerging balance-of-payments trends (CBR, 2004).

Observed velocity of money in Russia has decreased significantly over the past years. Reduced inflation stands out as a plausible main explanation. As the speed with which money loses its value is reduced, the attractiveness of holding money is increased. The speed with which velocity is reduced, and the observed de-dollarization suggest that the

¹⁴ M0, M1 and M2 are common monetary aggregates. M0 comprises the most liquid money assets or cash, M1 includes upon demand bank deposits while M2 includes time deposits with terms up to a few years.

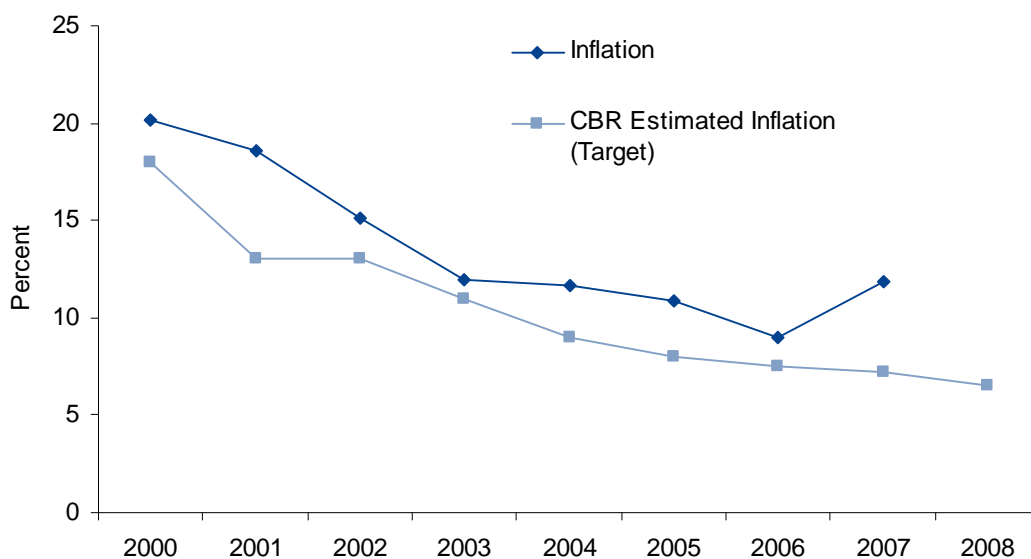
determinants of Russian money demand have been undergoing a significant transformation. Under such circumstances, the sensitivity of money demand to interest rate changes, and cannot be estimated. Formulating monetary policy within the exchange equation framework might be a more operational choice.

Common to both models is a positive relation between liquidity, output and prices. Liquidity expansion increases demand, which positively affects output. However, to the extent that an economy is resource constrained (e.g. steep input supply curve), increased demand following an expansion in M , will to a larger degree result in nominal price effects rather than an increase in Y . It follows that the more constrained the economy is, the larger the price effects relative to output effects of an increase in M . As the Russian economy appears increasingly capacity constrained, monetary expansion can be expected to have increasing inflationary effects (WB 2008).

2.2.1 Inflation and Money Growth

Russian inflation has declined year on year since 2000 with the exception of 2007, when inflation rose to 11 %. As can be seen from Figure 2.8, inflation has consistently been higher than CBR inflation targets. While the 2008 target stood at 6-7 % in mid 2007, inflation in 2008 is now expected to exceed 12 %.¹⁶

Figure 2.8 *Inflation, Actual and Targets YoY December 2000-2007*

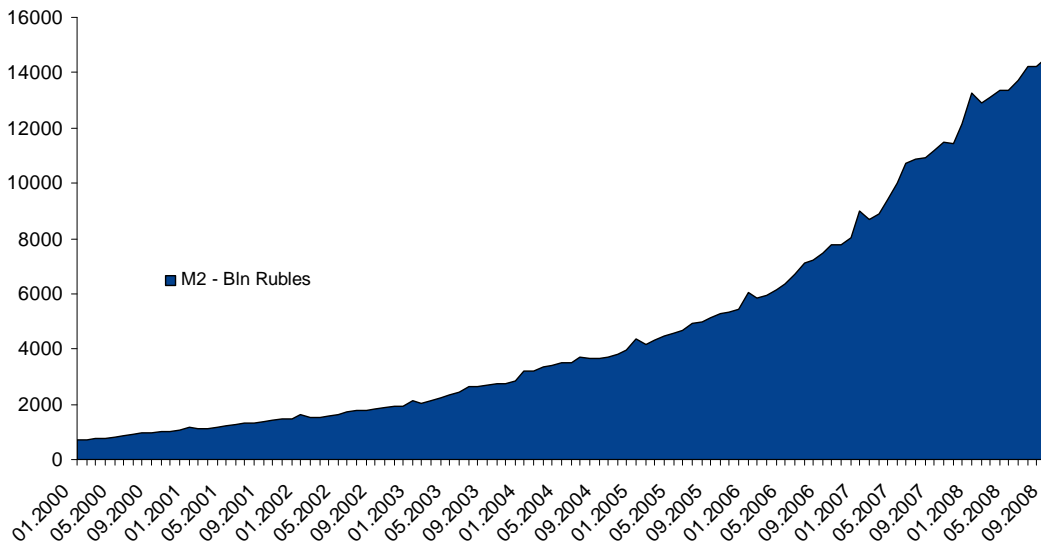


¹⁵ Calculated using CBR and IMF data.

¹⁶ <http://www.rg.ru/2008/09/25/dvorkovich-anons.html>

Source: GKS.RU, CBR.RU

Figure 2.9 Nominal Money Supply M2



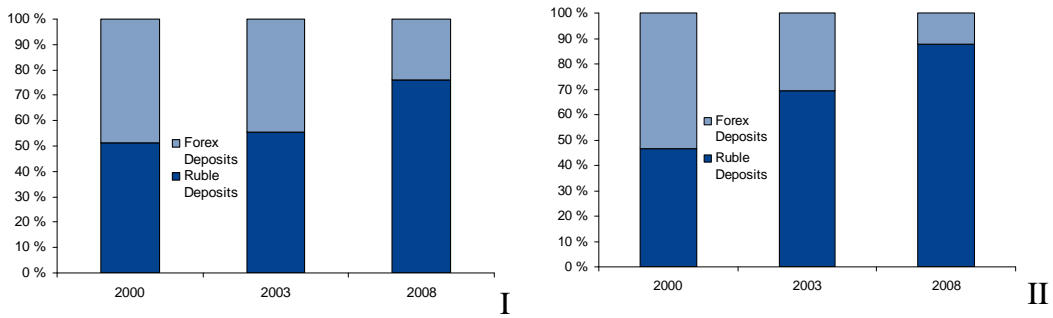
Source: CBR.RU

Russian M2 has grown approximately 40 % each year since 2000.¹⁷ During this period annual inflation has averaged 13 % and as mentioned in the introduction real GDP growth has averaged approximately 7 %. If equation (1.6) were to hold on average for the period, the percentage change in money velocity dV/V should average around - 20 %. Rudimentary calculations of M2 velocity based on IMF data for nominal GDP gives velocity measures close to the ones provided by the CBR. Average change in velocity amounts to -13 %. Nonetheless the annual movements largely reflect changes recorded by the CBR.¹⁸

¹⁷ In comparison yearly expansion of Norwegian M2 has been near 13 %. (<http://www.ssb.no/emner/11/01/m2/tab-05.html>)

¹⁸ It should be noted that over the period, apart from 2007, inflation was more falling. If calculated on a yearly basis dV/V should be lower and thus perhaps more in line with observed velocity.

Figure 2.10 Bank Deposits Currency Breakdown

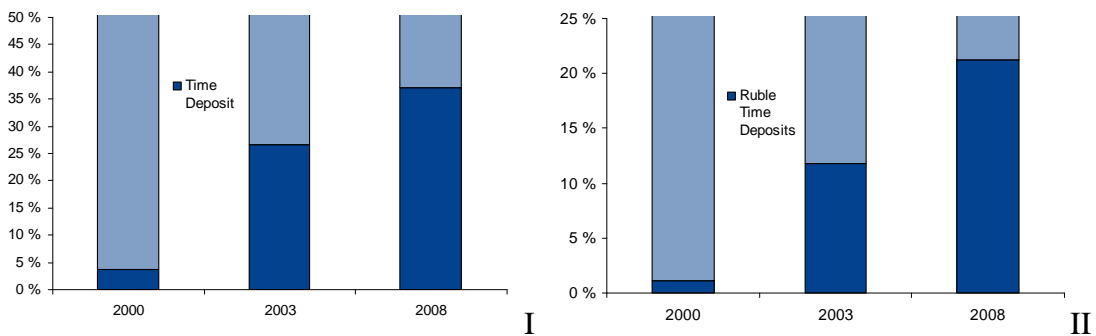


Source: CBR.RU

Following the theoretical foundation behind equation (1.5) decreasing velocity should reflect an increasing demand for money for all levels of income. This means that economic agents in Russia need more money than they used to. There is little reason to believe that transaction technologies have become less efficient. If, however, the propensity to save is increasing M2 demand will increase more than the income raise otherwise could explain. De-dollarization adds momentum to this effect. As Figure 2.11 shows time deposits have increased their share of total deposits significantly from less than 5 % of total deposits in 2000 to more than 35 % in 2008.¹⁹ Furthermore ruble time deposits have shown an equally impressive increase in their share of M2.

Figure 2.10 provides an illustration of how the ruble has gained foothold in relation to foreign currency has a preferred deposit currency.

Figure 2.11 Population's Time Deposits' Share of Total Deposits and M2



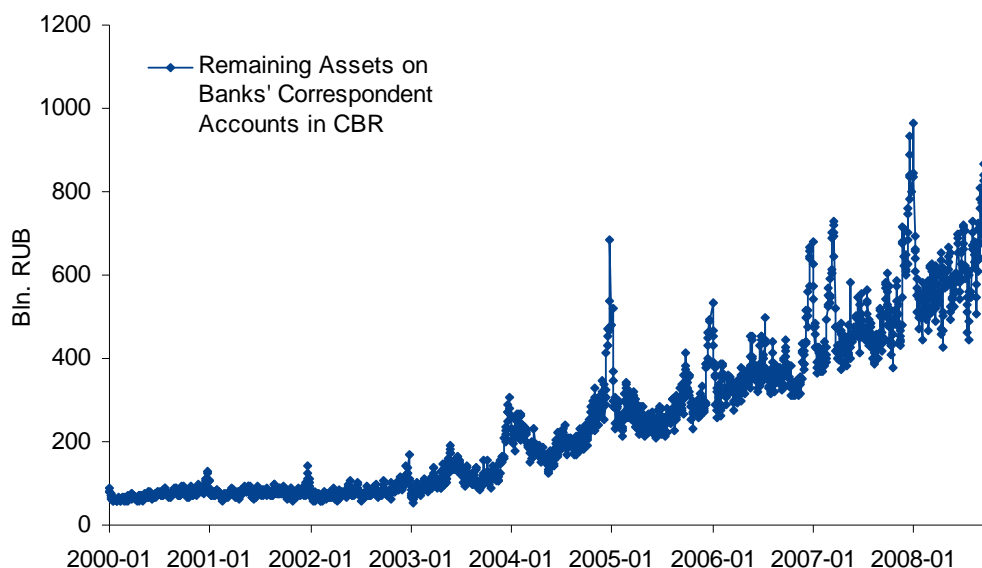
Source: CBR.RU

While only roughly half of Russian deposits were held in rubles in 2000, this share had increased to more than 75 % at the outset of 2008. Contrary perhaps to what one may

¹⁹ Deposits with a terms in excess of 1 year have been counted as time deposits.

expect, the ruble's share in savings deposits has shown an even larger improvement. In the beginning of 2008, almost 90 % of time deposits were ruble denominated as opposed to 46 % in 2000.

Figure 2.12 *Banks' Deposits in CBR*



Source: CBR.RU

This paper does not allow a further investigation into a possible increased savings rate of the Russian economy. However, Figure 2.12 provides some support to the notion that an increasing share of money included in M2 is kept out of immediate circulation.

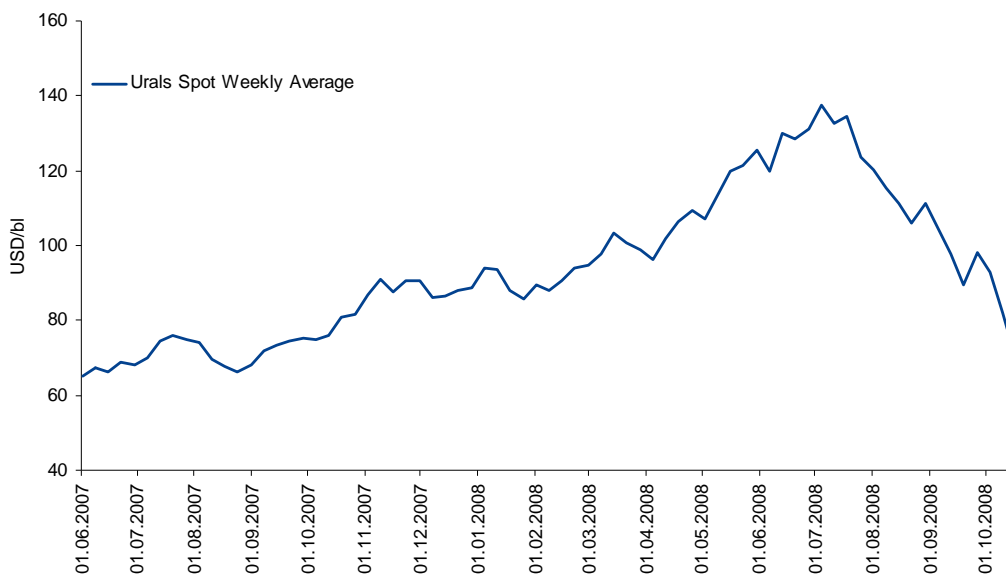
If the ruble is gaining foothold as a preferred asset, this should in time increase the interest rate's influence over money demand and lay the foundation for interest rate based inflation management.

3 The 2008 Financial Crisis

Following the crash in the US subprime mortgage market and the ensuing global credit crunch, financial markets around the world have been ravaged. Both the Dow Jones Average and the FTSE All Share have sunk approximately 50 % in 2008, with the most marked downfalls starting in August and September. The Oslo Stock Exchange was kept up by rallying oil prices, but has fallen 75 % since its May high. The failure of international credit and stock markets have given name to the 2008 financial crisis.

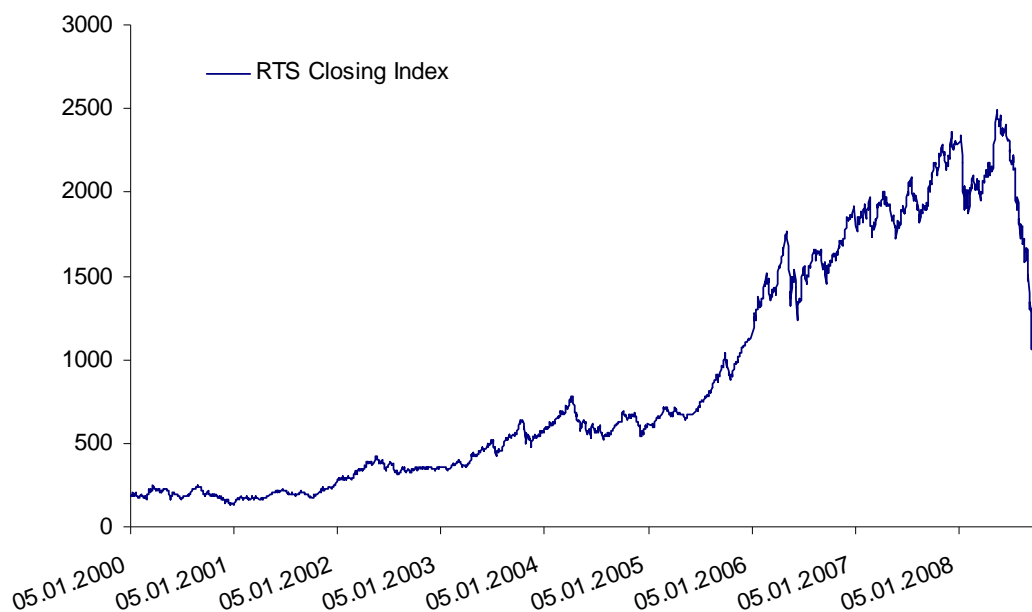
After reaching all-time highs in July 2008, the oil price has plummeted back to less than \$50/bl nullifying growth over 12 months in the course of three months. The Russian stock market collapsed in May 2008, after a three year rally that had brought the Russian RTS Index up 275 % starting 2005. After a week of consecutive growth in the end of October, it may seem that markets have stabilized. Although the RTS broke 800 points at closing time November 1 up 3, 8 % from the day before, it remains far below its May high of near 2500. Last time the RTS stood at 800 was in August 2005, meaning that after a period of strong growth the Russian market is back to start.

Figure 3.1 Urals Spot Price June 2007- October 2008



Source: EIA

Figure 3.2 *Russian Trading System (RTS) Closing Index*



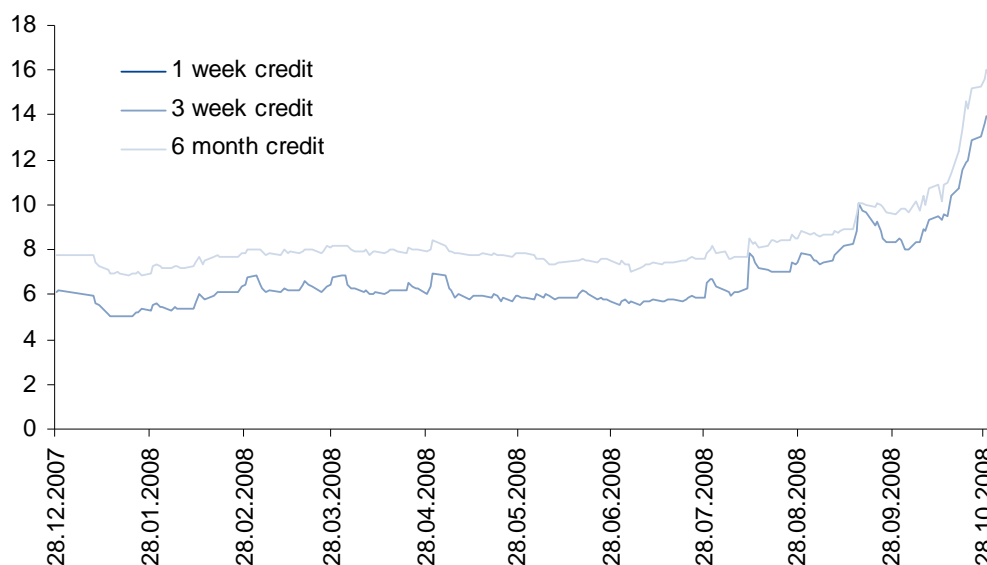
Source: RTS.RU

The first reports of faltering liquidity in the Russian interbank market appeared in late 2007.²⁰ In February 2008, the CBR reportedly acknowledged a credit crunch on the interbank market, promising to give the task of maintaining liquidity priority.²¹ Any detailed assessment of the Russian credit crunch is beyond the scope of this paper. We restrict ourselves to noting that, as illustrated by Figure 3.3, interest rates on the Russian interbank market roughly doubled from August to November 1 2008.

²⁰ E.g. <http://www.promved.ru/articles/article.phtml?id=1322&nomer=48>

²¹ <http://www.kommersant.ru/doc.aspx?DocsID=847942>

Figure 3.3 *Interbank Interest Rates 2008*



Source: CBR.RU

An explanation of the rapid interest rate increase might be related to the fact that Q1 and Q2 of 2008 were characterized by record-high oil prices. Thus the task of supporting liquidity coincided with defending the ruble against even stronger upward pressure. Recalling Figure 2.6, net added liquidity by the CBR was strong in this time period. However, starting in Q3 the falling oil price and depreciating ruble prohibited continuing this course of action.

3.1 Run on the Ruble

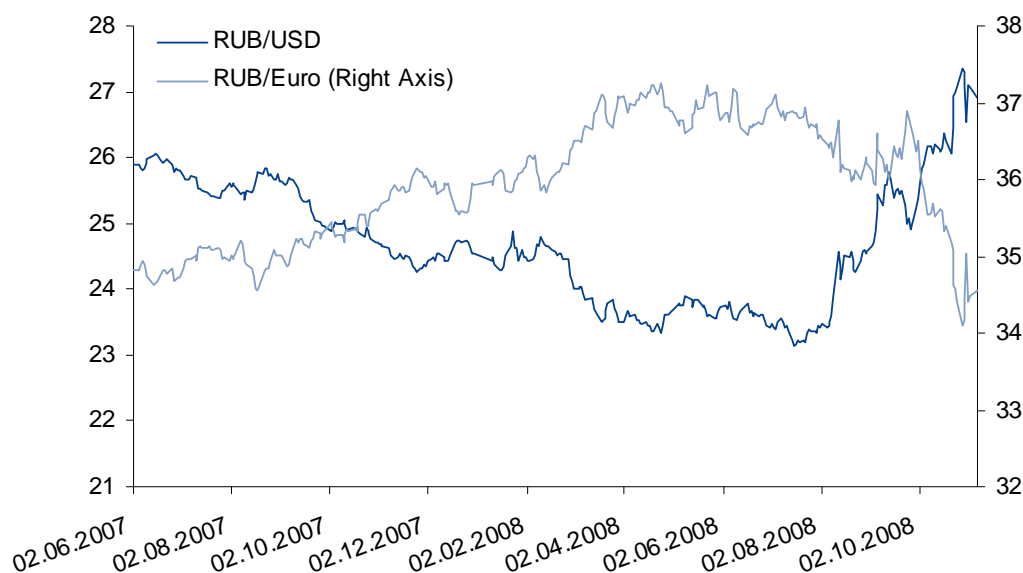
The failing Russian stock market reflects a trend that became evident across world markets as the financial crisis unfolded. Investors withdrew from assets deemed insecure and broke for safe assets such as government bonds in familiar currencies such as the dollar. This action has brought about an abrupt strengthening of the dollar, despite market fundamentals (sustained budget deficit) pointing the opposite direction. Marginal currencies on the other hand have been weakened. From Jul. 14 to Oct. 22, the Norwegian kroner fell from 5 to 7 NOK/USD, a near 30 % depreciation in just over three months.

Section 2.1.1 focused the compensating role of capital inflows in the face of a narrowing current account. A beginning decrease in capital inflows can be seen in Figure 2.4 starting Q1 2008. Balance-of-payments data for Q3 have yet to be made available however, and concluding the financial crisis' effects on capital flows would be

premature. However glancing at Figure 3.4, the ruble's dynamics vis-à-vis its main trading currencies show a strikingly different trend post August 2008. The ruble has been weakened considerably vis-à-vis the dollar falling four rubles from 23.1 on July 15 to 27.5 RUB/USD on October 28. The previous strengthening of the ruble can be assumed to have largely been caused by price driven increases in foreign trade revenue in addition to a weakening USD. Although the price of Urals blend has fallen, balance-of-trade effects to the exchange rate are more long-term, and the recent rapid depreciation can with reasonable plausibility be attributed to capital movements.

CBR has intervened heavily in the foreign exchange market in defense of the ruble. Since their maximum value of \$ 597.5 billion on August 8, Russian international reserves had shrunk by near \$ 113 billion by October 24.²² A one-week decrease of \$ 31 billion from October 17 to October 24 raised significant interest in the press.²³ Part of the decrease might be explained by a depreciation of Russian non-dollar reserves. However, CBR foreign exchange action is hard to undermine, taking into consideration a reported reserves sell-off of \$ 5-6 billion the following week.²⁴

Figure 3.4 Ruble Exchange Rates



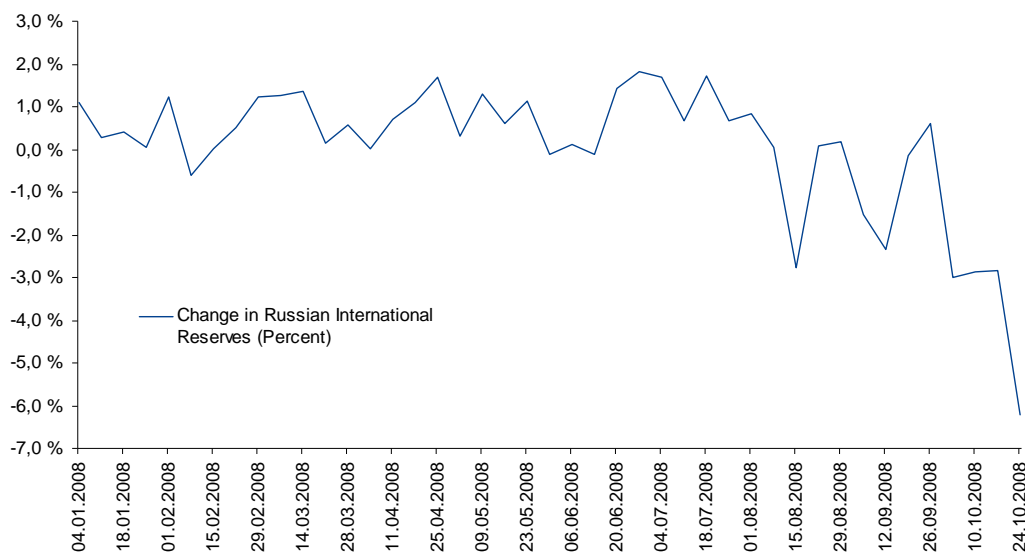
Source: CBR.RU

²² Part of the reduction was also caused by revaluation of foreign exchange reserves. It is, however, impossible to calculate the share actually spent on defending the ruble. The CBR claims to have spent \$ 38,5 billion on currency interventions in October 2008.

²³ http://www.ng.ru/economics/2008-10-31/1_rubl.html?insidedoc
<http://bankir.ru/news/newsline/30.10.2008/171264>
<http://www.rbcdaily.ru/index5.shtml>

²⁴ <http://ru.reuters.com/article/businessNews/idRUMSE49U1DX20081031>

Figure 3.5 Weekly Changes in Russian Foreign Reserves Measured in USD



Source: CBR.RU

As the ruble seemed sure to continue losing value, banks seemingly spent the liquidity acquired in liquidity actions to buy foreign currency, thus playing against the ruble.²⁵ On August 20 \$ 500 billion was suggested as the limit after which the CBR would cease open-market operations and succumb to the will of market.²⁶ The CBR however has shown a stronger commitment to managing the ruble as reserves now most likely stand more than \$ 20 billion from this limit.

Open-market operations alone seem however not to have been sufficient and in a bid to ward off the speculative attack, the CBR has taken to regulatory measures. First the maximum value of currency swaps was reduced from RUB 150 to 10 billion, later minimum interest rates of the liquidity auctions were raised by a percentage point.²⁷ However, at the end of October the CBR published a letter requiring banks to hold unchanged foreign reserves in order to be eligible for liquidity auctions.²⁸

At present it remains unclear whether measures taken by the CBR are adequate, or if the downward pressure on the ruble has subsided. What remains to be answered is why the CBR has put up such a staunch defense when its clear-spoken policy goal has been for the ruble to float. In the following we will suggest a couple of possible reasons for this seeming shift of CBR policy.

²⁵ <http://www.kommersant.ru/doc.aspx?DocsID=1048647>

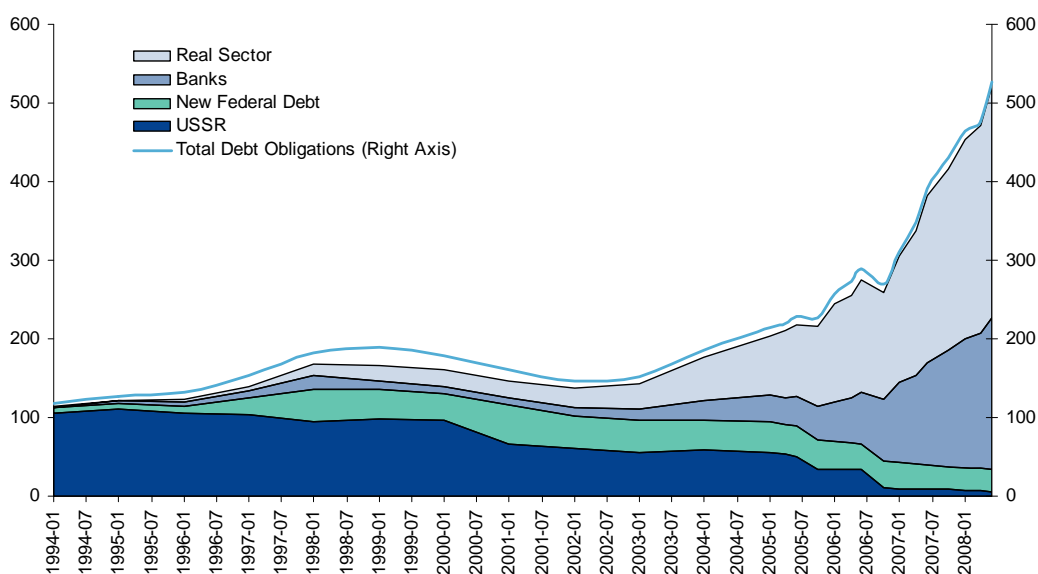
²⁶ <http://www.kommersant.ru/doc.aspx?DocsID=1044611&NodesID=4>

²⁷ <http://www.kommersant.ru/doc.aspx?DocsID=1048168&ThemesID=437>

3.1.1 Private Sector Debt

Contrary perhaps to popular belief, the Russian economy has not as a whole reduced its foreign debt obligations. The positive capital account depicted in Figure 2.4 has been largely debt driven. While the state component in Russian foreign obligations has decreased, private sector debt has grown substantially making up 93 % of Russia's over \$ 500 billion foreign debt. Real sector debt has grown considerably to near \$ 300 billion outstripping bank debt by \$ 100 billion.

Figure 3.6 Foreign Debt Breakdown (Billion USD)



Source: CBR.RU

Real sector debt increases reflect that the Russian growth at least of late has been partly investment driven (WB, 2008). Real sector debt increases also reflect the fact that considerably lower foreign interest rates over the last years and an established trend of ruble appreciation have made foreign loans preferable over Russian to a large extent. But as foreign credit comes due, the sudden 18 % depreciation of the ruble has led to an 18 % increase in Russian companies' ruble denominated debt burden of dollar loans. The shock to the real sector can be expected to already have become substantial and fear of widespread credit default might therefore also explain the CBR's actions in defense of the ruble.

²⁸ <http://kommersant.ru/doc.aspx?DocsID=1050125>

On the other hand, while the currency composition of private sector debt is not readily available, it does not seem implausible that a fair share if not the majority of foreign debt is denominated in euros. As Figure 3.4 shows, the ruble has appreciated vis-à-vis the euro. The debt argument for defending the ruble then makes less sense.

3.1.2 Income Effect and Faith in the Ruble

The 1998 devaluation eradicated the purchasing power of the population's ruble endowments. A new 1998 devaluation would be detrimental to domestic demand and have a serious impact on the economies ability to recover from the crisis, let alone for economic growth in coming years. It is not possible to evaluate the effect of devaluation in detail, but the income effect from increased prices of imports is likely to be significant.

As noted the progress in de-dollarization and savings has been built on a growing faith in the ruble. Psychology is therefore perhaps equally important as pure economic arguments for defending the ruble. In risk of parody: there is perhaps nothing Russian's hate more than inflation and fear more than devaluation. Switching to a free float at a time when this would imply a sharp devaluation would likely come at a significant political cost.

3.2 Government Bailout

In October 2008 the CBR has conducted four liquidity auctions totaling RUB 1.4 trillion.²⁹ On November 6, an additional auction was announced for the sum of RUB 150 billion. Although during the first four auctions only 630 billion were issued, the mechanism caused some challenges vis-à-vis the managed float.

The credit crunch took its toll in the energy sector causing Russia's largest oil and gas companies to ask for government support.³⁰ The automotive industry cut production in early October as a result of the crisis.³¹ In mid October the State Duma passed a government bailout package including real sector support, extra-ordinary loans to the

²⁹ http://www.cbr.ru/search/print.asp?File=/press/of/081017_204344auction-kredi.htm
http://www.cbr.ru/search/print.asp?File=/press/if/081022_201025depozit22.htm
http://www.cbr.ru/search/print.asp?File=/press/if/081024_134552auction-kredi.htm
http://www.cbr.ru/search/print.asp?File=/press/if/081105_145059auction-kredi.htm

³⁰ <http://www.kommersant.ru/doc.aspx?DocsID=1037542>

³¹ <http://www.kommersant.ru/doc.aspx?DocsID=1037547>

banking sector, additional private deposit securitization by the state (from RUB 200 000 to 700 000) and direct support to key banking institutions.³² The government bailout is currently under execution. In early November the government announced a second wave of action. Reportedly this plan is intended to address real sector challenges more directly.³³ It is therefore not possible to draw a clear picture of how the plan is put into life, and its effects, yet. However, a preliminary picture has started to take form.

The bailout started with a \$ 50 billion transfer to Vneshekonombank to refinance foreign debt. This sum was quickly deemed insufficient, however Vneshekonombank estimated the need for foreign debt financing at \$ 120 billion by the end of 2009.³⁴ The first payments were made at the end of October – \$ 7.8 billion to oil and gas companies.³⁵ Later, Rusal, the world's second largest aluminum producer controlled largely by the oligarch Oleg Deripaska, received a \$ 4.5 billion loan to cover foreign liabilities.³⁶ Vneshekonombank was also to administer a RUB 225 billion support package for the banking sector.

The four banks Sberbank, VTB, Gazprombank and Selkhozbank were initially defined as market bearing and found eligible for extraordinary loans exceeding RUB 700 billion.

The government is reported to having intervened in the stock market, buying first companies with a state-owned majority and later moving into shares of private companies.³⁷ The first interventions reportedly took place on October 22 after a RUB 175 billion transfer from the National Welfare Fund to Vneshekonombank for stock market operations was approved by the State Duma.³⁸ Later, First Deputy Prime Minister Igor Shuvalov confirmed that the government was also considering acquiring stakes in private companies as a means of supporting real sector firms.³⁹

The Putin-era track record of increased state involvement has raised questions whether the government is taking advantage of the situation to expand state control. The loans issued by Vnesheconombank have taken security in company shares. But the conditions

³² <http://www.kommersant.ru/doc.aspx?DocsID=1040105>

³³ <http://www.gazeta.ru/finacial/2008/11/07/2876122.shtml>

³⁴ <http://www.kommersant.ru/doc.aspx?DocsID=1040659>

³⁵ <http://www.veb.ru/ru/about/press/news/index.php?id32=4796>

³⁶ <http://www.newsru.com/finance/30oct2008/rusal.html>

³⁷ <http://www.kommersant.ru/doc.aspx?DocsID=1046555&ThemesID=437>

³⁸ <http://www.kommersant.ru/doc-rss.aspx?DocsID=1045800>

of these loans should be made subject to greater scrutiny before concluding as to their reasonability.

The November initiative focuses on mechanisms by which state support to the banking sector should pass on to real sectors such as the automotive, agricultural machineries, aviation and home construction industries. Various temporary amendments to tax and toll regulations aimed at the energy sector as well as the above have also been put forward.

Thus while bailout measures are still in the making, the second package's real sector focus suggests increased awareness of negative supply-side shocks to economy caused by the financial crisis.

3.3 Consequences for Monetary Policy

Briefly summarizing the discussions above, the room for maneuver in Russian monetary policy has largely been dictated by the prevailing exchange rate regime. In particular Russia has, in common with all fixed exchange rate regimes, been prohibited from using the interest rate to influence inflation rates. Large foreign currency purchases in defense of the ruble have expanded money supply being a possible cause of inflation persistently in excess of targets.

The interest rate has been a monetary instrument of limited potency due to relative modest savings and a limited mortgage market, restricting money demand's responsiveness to interest rate changes. The CBR has accentuated factors typical of a transaction approach to money demand and M2 targeting stands out as the dominant target variable for inflation control. However, emphasis on money targeting has been less in recent years and the CBR has not published a money growth program since 2004.

In an apparent attempt to avoid its current Catch-22, the CBR has stressed over the last three years the need to allow increased ruble volatility to accommodate transition to a free float and interest-rate based inflation targeting. Transition to inflation targeting will however depend on the Russian interest rates' effect on aggregate demand and the government's commitment to free float. With respect to the latter, a decreasing current

³⁹ <http://www.kommersant.ru/doc.aspx?DocsID=1048631>

account can be expected to relieve the ruble of some upward pressure and reduce transition cost to society related to rapid appreciation. Whether caused by the financial crisis or not, prevailing oil prices are going to close the Russian current account more rapidly than anticipated.⁴⁰ The current account risks turning negative in 2009 if imports do not adjust.

The upward pressure to the ruble described in section 2.1.2 should subside if not be reversed. If the current account levels out, the CBR will be relieved of having to issue liquidity in defense of the ruble. Thus monetary policy could be allowed to focus on managing inflation alone. Net-liquidity additions (illustrated in Figure 2.6) should subside and the 2006-2008 100 % annual growth in cumulated added liquidity should fall to a mean growth more in line with equation (1.6).

The financial crisis has put significant downward pressure to the ruble. Taking into account the substantial foreign debt incurred by Russian companies, the question arises whether Russia can afford to switch to a free float and how long the CBR can defend the ruble. However, large private sector debt makes an immediate transfer to a free float hard because of the strong downward movements of the ruble

If oil prices are not sufficient to support current imports, the CBR will have to follow through with its mid-term goal of a free float. If not, presently abundant foreign reserves risk swift depletion. Whether the CBR opts to float or allows devaluation, a nominal depreciation will, recalling section 2.1, spark inflation through more expensive imports and import substitution correcting the real exchange rate.

The income effect from reduced oil and gas revenues, a cut-off of foreign capital inflow and more expensive imports is potentially grave. A negative demand shock might therefore prove a greater worry than inflation. Rising import prices will have negative effects on the economy's supply side as imports are also inputs to domestic production.

Combined with weakening demand this could have serious implications for economic growth in coming years and the CBR could face both accelerated inflation and faltering demand. The monetary remedy using tools available to the CBR in this situation is not obvious.

⁴⁰ Of course, that the Urals Blend has sunk to \$ 60 /bl., need not mean that it will stay at this level. On the backdrop of an imminent US recession and global slowdown, however, it seems less likely that prices will pass the

Yearly increments in public expenditure will have to be reduced in response to lower oil prices. This should in itself reduce overall demand and make inflation more manageable for the CBR. However, as the economy starts to contract, fiscal elbow room is a greater blessing than curse. The government has already put to use its rainy-day reserves. If the current account goes negative, these funds will have to continue to be spent rather than accumulated.

To the extent that Russian growth over the past years has been driven by the demand side through increased public expenditure, money market supply shocks coming from the CBR's defense of the ruble and ample supply of investment credit, the Russian economy seems to be ahead of a serious slump. As an indication, September seemingly has turned out to be a zero-growth month.⁴¹

The financial crisis has at least two potential effects on the development of the financial market pulling in separate directions.

De-dollarization, growth in the mortgage market and increased savings suggest a commencing shift in the adequate approach to money demand in line with equation (1.4). Thus the prerequisites might be coming in place for the interest rate to take the place of money targeting as the dominant tool of monetary policy.

On the one hand increased ruble savings has been built on the back of reclining inflation and expected ruble appreciation. The financial crisis could potentially lead to lost faith in domestic currency and financial markets, halting or reversing recent development in ruble saving. Credit scarcity will likely limit mortgage market growth. Thus, the financial crisis might lead to setback in the development of a foundation for mature capital markets and Russian monetary policy will have to continue to concentrate on money targeting. Uncertainties related to measuring money aggregates and estimating future velocity make this an imprecise science and the CBR is likely to be less efficient in its inflation targeting behavior.

On the other hand, lamed international credit markets will possibly increase demand for Russian credit (apparently, for now the Russian government has been attempting to satisfy this demand). The financial crisis could in this way hypothetically aid a switch

⁴¹ necessary \$ 120 /bl. to keep the current account non-negative.
<http://www.kommersant.ru/doc.aspx?DocsID=1044451>

from predominantly foreign to increased ruble denominated credit in the Russian market. A larger share of ruble denominated credit will increase the interest rate's demand effects, making it a more potent tool of monetary policy.

The financial crisis has altered the prerequisites for Russian monetary policy. It remains to be seen if the crisis constitutes a temporary setback or leads to a reversal of past achievements.

4 Summary Remarks

Russia has conducted a policy of a managed floating exchange rate since the 1998 devaluation. The exchange rate is managed in the sense that the Central Bank of the Russian Federation (CBR) has set daily rates vis-à-vis the ruble's main trading currencies, the euro and the USD. These rates have not been stationary, but followed market trends. Because of the longstanding trade surplus and recently positive capital account, the ruble has been subjected to prevailing upward pressure. Out of concern for domestic competitiveness the CBR has intervened in the foreign exchange market, buying foreign currency. This practice has been upward restricted by inflationary effects of increased money supply. Following the financial crisis the ruble has been subjected to significant downward pressure losing 18 % of its value vis-à-vis the dollar in three months. The falling oil price is likely to lead to a current account deficit over the coming 2-3 years that will continue the downward pressure to the ruble.

The CBR has a midterm goal of implementing a free float and transferring to inflation targeting using the interest rate. The CBR has however defended the ruble over the course of the financial crisis and Russia's foreign currency reserves have been reduced by \$ 113 billion as of early November 2008, although some of this reduction due to asset revaluation. This action could be understandable in the light of the private sector's substantial foreign debt and public's sensitivity to inflation and ruble depreciation. If the ruble were allowed to depreciate freely, this would substantially aggravate the financial crisis' shock to the real sector. In the mid term, Russia will mostly likely opt for a free float because finite international reserves make supporting ruble demand unsustainable in all but the short term.

Demand responsiveness to changes in the Russian interest rate has been modest due an array of factors related to underdeveloped financial markets. The CBR has seemingly operated a monetarist approach to the money market putting significant weight to managed money growth as a means of containing inflation. However, managing money growth is generally considered an imprecise practice due the challenges of adequately estimating demand growth, velocity and measuring the money base. This might serve as part explanation why actual inflation has been consistently above target. Alternately this divergence stems from short term weight being given to exchange rate priorities.

The financial crisis might help inflation targeting's potency in Russian monetary policy if foreign credit remains less ample and demand substitutes in favor of domestic sources of credit.

The Russian government has launched substantial bailout measures in support of the financial and real sectors. These measures are still under execution and a full assessment is not feasible at present. However, the practice of refinancing the real sector's foreign debt might help increase the share of ruble denominated debt in the Russian economy.

Russia's Reserve and National Wealth Funds have been put to use in government bailout. If the current account does go negative, and non-energy exports do not grow sufficiently, Russia will not be able to continue fund accumulation, but will have to draw on its rain-day reserves. This would represent a marked change compared to Russian macroeconomic reality over the past years.

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