Towards a Flexible Exchange Rate Policy in Russia

Roland Beck,

Geoff Barnard

OECD

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

18-Dec-2009
_____

English - Or. English

ECONOMICS DEPARTMENT

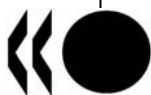**TOWARDS A FLEXIBLE EXCHANGE RATE POLICY IN RUSSIA**

ECONOMICS DEPARTMENT WORKING PAPERS No. 744

By
Roland Beck and Geoff Barnard

All Economics Department Working Papers are available through OECD's internet website at www.oecd.org/eco/working_papers

JT03276420

Abstract/Résumé

Towards a flexible exchange rate policy in Russia

In the years preceding the onset of the global financial crisis, the Central Bank of Russia (CBR) had two goals: to reduce inflation and limit the real appreciation of the rouble. Given the strength of Russia's balance of payments during the ten years through the first half of 2008, the *de facto* tight management of the nominal exchange rate resulted in large interventions which were only partially sterilised. As a result, inflation remained persistently high. During the global financial crisis in 2008-09 Russia's monetary policy was initially constrained by a large degree of private debt dollarisation. After a gradual adjustment of the exchange rate to the new oil price environment which was costly due to reserve losses, the CBR started to lower interest rates and to allow for a somewhat higher degree of exchange rate flexibility. Looking ahead, even greater exchange rate flexibility should be permitted since *(i)* commodity exporting countries can successfully run inflation targeting and *(ii)* we find that exchange rate pass-through has been limited and asymmetric and can be taken into account under inflation targeting. Preparations for inflation targeting should focus on a commitment to price stability as the primary goal of monetary policy. At the same time the authorities should enhance their understanding of how monetary developments affect inflation and financial stability and accelerate financial sector reforms aimed at financial deepening.

JEL Classification: E5; E52; E58; E31; F31
Keywords: Russia; economy; monetary policy; exchange rate policy; inflation; inflation targeting; exchange rates; interest rates

* * * * *

Vers une politique de taux de change plus flexible en Russie

Pendant les années précédant le déclenchement de la crise financière mondiale, la banque centrale de Russie avait deux objectifs : réduire l'inflation et limiter l'appréciation réelle du rouble. Étant donné le solde très positif de la balance des paiements pendant la décennie se terminant à la première moitié de 2008, la gestion du taux de change nominal a eu pour résultat des interventions importantes qui n'ont été que partiellement stérilisées. L'inflation est donc restée élevée. Pendant la crise financière mondiale en 2008-09 la politique monétaire de la Russie a été contrainte par le niveau élevé de dollarisation de la dette privée. Après un ajustement graduel du taux de change à la situation nouvelle des prix du pétrole qui a été coûteux à cause des pertes de réserves, la banque centrale a commencé à baisser les taux d'intérêt et à permettre plus de flexibilité du taux de change. Dans le futur, la Russie devrait permettre davantage de flexibilité du taux de change puisque *(i)* les pays exportateurs de matières premières peuvent gérer un régime de ciblage de l'inflation ; et *(ii)* nous trouvons que la transmission des mouvements du taux de change à l'inflation n'a été que modérée et asymétrique et qu'on peut en tenir compte sous un tel régime. Les préparations pour le ciblage de l'inflation devraient être focalisées sur un engagement à la stabilité des prix comme objectif principal de la politique monétaire. En même temps, les autorités devraient améliorer leur compréhension de la façon dont les développements monétaires affectent l'inflation et la stabilité financière ainsi qu'accélérer les réformes financières visant un approfondissement du secteur financier.

Classification JEL : E5 ; E52 ; E58 ; E31 ; F31
Mots clés : Russie ; économie ; politique monétaire ; politique de taux de change ; inflation ; ciblage de l'inflation ; taux de change ; taux d'intérêt

TABLE OF CONTENTS

Tables

Figures

Boxes

TOWARDS A FLEXIBLE EXCHANGE RATE POLICY IN RUSSIA

By Roland Beck and Geoff Barnard[1]

1. Introduction

Over the past decade, monetary policy in Russia has pursued two goals: to reduce inflation and limit the real appreciation of the rouble. The Central Bank of Russia (CBR) has had annual targets for the speed of disinflation since 1999, but traditionally also set an explicit ceiling for real appreciation of the rouble.[1] In terms of monetary policy instruments, intervention in the foreign exchange market has been the CBR's main tool for achieving those objectives. Therefore, Russia's monetary and exchange rate policy framework has often been referred to as *de facto* management of the nominal exchange rate (OECD, 2006). Given the strength of Russia's balance of payments during the ten years through 2008, the *de facto* tight management of the nominal exchange rate has resulted in large interventions which were only partially sterilised.

2. Monetary policy during the upswing in oil prices

As a result of rapid money supply growth, headline inflation, while on a downward trend since 1999, remained persistent and the CBR's inflation targets were frequently overshot (see Figure 1). While accelerating price pressures during mid-2007 to late 2008 were to some extent due to the rise in food prices (see Box 1), second round effects also started to materialize as the degree of underlying inflation had remained high.

Figure 1. Consumer price index inflation

Percentage change, year-on-year
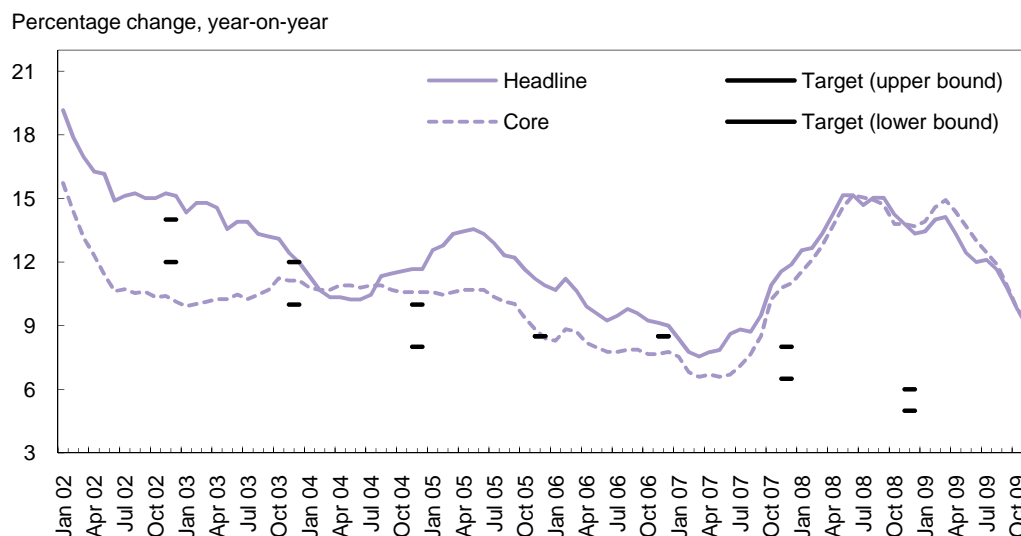
Source: Central Bank of Russia and OECD calculations.

Box 1. The impact of the 2007-08 surge in food prices on inflation in Russia

The share of food items in Russia's consumer price index (CPI), currently around 40%, has declined considerably (from more than 50%) but is still high when compared to other countries at similar levels of economic development (see section on inflation targeting). From mid-2007 through late 2008, domestic food price inflation in Russia accelerated sharply, peaking at an annual rate of around 20% in August 2008 (see Figure 2, left-hand panel).[1]

Figure 2. Inflation decomposition

Year-on-year percentage change   Percentage points
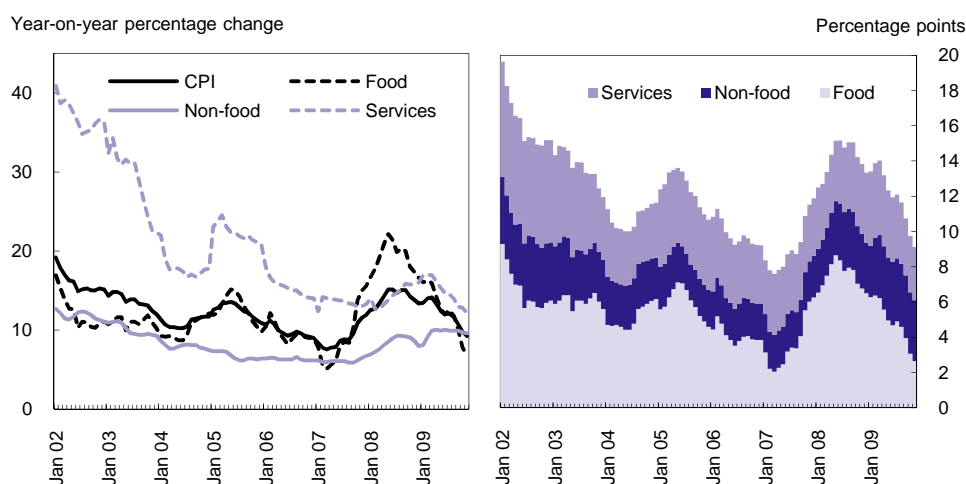
Source: Central Bank of Russia and OECD calculations.

As a result, the direct effects on Russia's headline inflation – which had been on a downward trend in recent years – were substantial: CPI inflation reaccelerated into double-digit territory in October 2007, peaking at 15.1% in mid-2008 before falling back following the onset of the global economic crisis. The contribution of food price to CPI inflation surged during 2008 to more than 50% (see Figure 2, right-hand panel). For second-round effects, the rise of

Russia's core inflation rate is not an adequate measure since core inflation includes food prices with the exception of fruits and vegetables prices. The fact that non-food and service price inflation also re-accelerated in early 2008, albeit much more gradually than food prices, is, however, likely to reflect a combination of second-round effects stemming from the rise in food prices and a high degree of underlying inflationary pressures due to an overly accommodative monetary stance, fiscal easing and macroeconomic overheating. This is confirmed by econometric findings which suggest that lagged money supply growth and producer price inflation are more robust empirical determinants of CPI inflation than past food price increases (see Annex A2).

_____

1. At the same time, administered domestic energy price increases have remained moderate. While an energy sub-component for Russia's CPI is not available (with the exception of gasoline and diesel prices which do exhibit more moderate price increases during the upswing in oil prices), non-food prices excluding petroleum suggest that price increases in this area have been moderate.

Past money supply growth has empirically been a robust determinant of consumer price inflation in Russia (see Annex A2). However, rapid money supply growth did not fully translate into rising inflation as demand for roubles increased within a broader process of de-dollarisation. More elaborated tools of monetary analysis take into account changes in the equilibrium stock of money and compute "excess liquidity measures" as the difference between the actual money stock and an estimate of the equilibrium stock (see *e.g.* ECB, 2001). The CBR has started to compute such measures for the Russian economy, and, according to its measure of the "money gap", rapid money supply growth in Russia has often resulted in excess liquidity, in particular in 2001, 2004-05 and between 2007 and the first half of 2008 (CBR, 2008a).

By *de facto* importing the monetary policy stance of the Federal Reserve and, since 2005, a linear combination of the stance of the Federal Reserve and the European Central Bank[2], the CBR's monetary policy has remained in general too accommodative between 2002 and late 2008, with real interest rates remaining negative throughout this period. In this regard, Russia's monetary and exchange rate policy framework is a manifestation of the so-called "impossible trinity" which states that a country can have only two out of the three policies of free capital flows, a fixed exchange rate, and an independent monetary policy.[3]

As a result of cheap access to credit, monetary and exchange rate policy contributed to a credit boom which led to some imprudent lending and which came to an end in late 2008. While rapid credit growth was to some extent a reflection of desired financial deepening, the pace of credit expansion had become unsustainable (see Figure 3).

Figure 3. Real credit growth and real lending rate
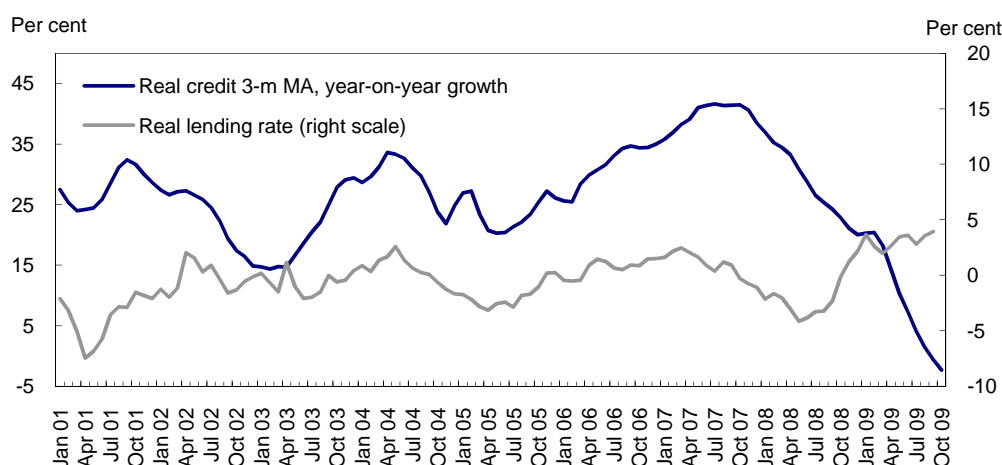
Source: Central Bank of Russia, Federal Service for State Statistics, OECD.

Another implication of Russia's exchange rate policy has been that the rouble's real appreciation in response to the large positive terms-of-trade shock materialized mainly through a positive inflation differential *vis-à-vis* the average of Russia's trading partners instead of nominal appreciation.[4] While such reasoning has been interpreted as suggesting that the exchange rate regime is irrelevant for the transmission of terms-of-trade shocks to the real exchange rate, some have also argued that in pegged exchange rate regimes inflation may become persistent so that the real exchange rate during a positive terms-of-trade shock may overshoot its equilibrium value (Svensson, 1997).

Statistical measures suggest that inflation in Russia is indeed relatively persistent. For example, the coefficient of one-month lagged inflation in a simple univariate inflation process in Russia can be estimated to lie around 0.8 (see Figure 4), suggesting that the time needed to halve the magnitude of a unit shock to inflation in Russia is around 3 months.[5] This estimate compares, for example to half-lives of one to two and a half months in Central European countries and around one month for Turkey.[6] While univariate measures of inflation persistence are subject to a number of statistical and conceptual caveats, richer models for inflation also suggests that inflation in Russia has a high degree of persistence (see Annex A2), possibly due to backward-looking price-setting behaviour (IMF, 2007).

Figure 4. Univariate inflation process with trend $\pi_t = \alpha_t + \beta \pi_{t-1} + \varepsilon_t$

Recursive coefficient estimates of ß in Russia
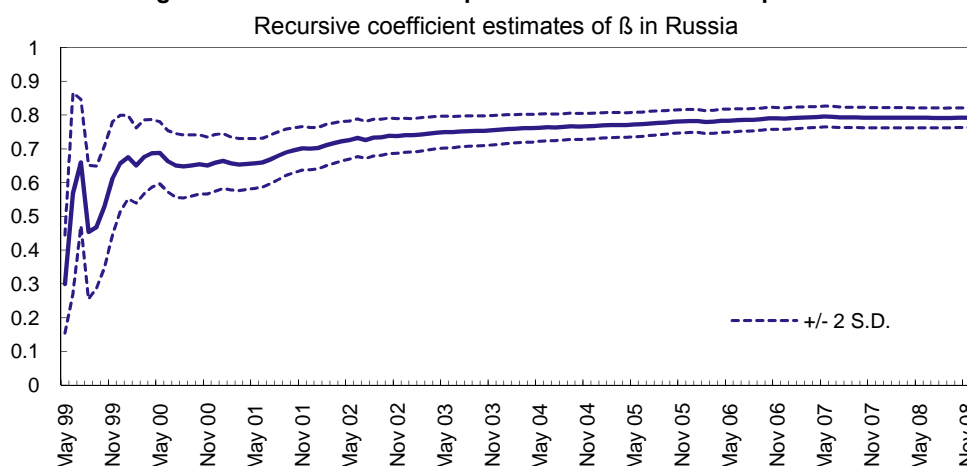
Note: The inflation rate p refers to monthly seasonally adjusted changes in core inflation.
Source: Central Bank of Russia and OECD calculations.

However, Russia's real exchange rate is unlikely to have overshot its equilibrium value during the upswing in oil prices. In fact, large current account surpluses throughout this period rather suggest that Russia's real exchange rate remained undervalued. Likewise, various measures of Russia's external competiveness were preserved despite the recent rapid pace of real appreciation (IMF, 2008).

Over the past few years, and in particular during the first half of 2008, the CBR intensified its efforts to allow for somewhat greater exchange rate flexibility and to counter inflationary pressures by using interest rate policy and reserve requirements. During conditions of excess liquidity in the banking system, the CBR's deposit rate had some impact on interbank money market rates, but its overnight credit rate remained largely irrelevant. However, increases in the CBR's deposit rate were too small to actually tighten credit conditions as large interventions until mid-2008 continued to fuel money supply growth and most real interest rates have remained negative (see Figure 5). In view of the risk of further accelerating capital inflows during the upswing in oil prices, excessively low interest rates are a natural implication of the CBR's exchange rate target and capital account convertibility, given the "impossible trinity". At the same time, the CBR, with assistance from the International Monetary Fund, has started to publish quarterly inflation reports in order to strengthen its commitment to price stability as a primary goal of monetary policy and to prepare the ground for the transition to formal inflation targeting.

Figure 5. Nominal interest rates and inflation

Per cent
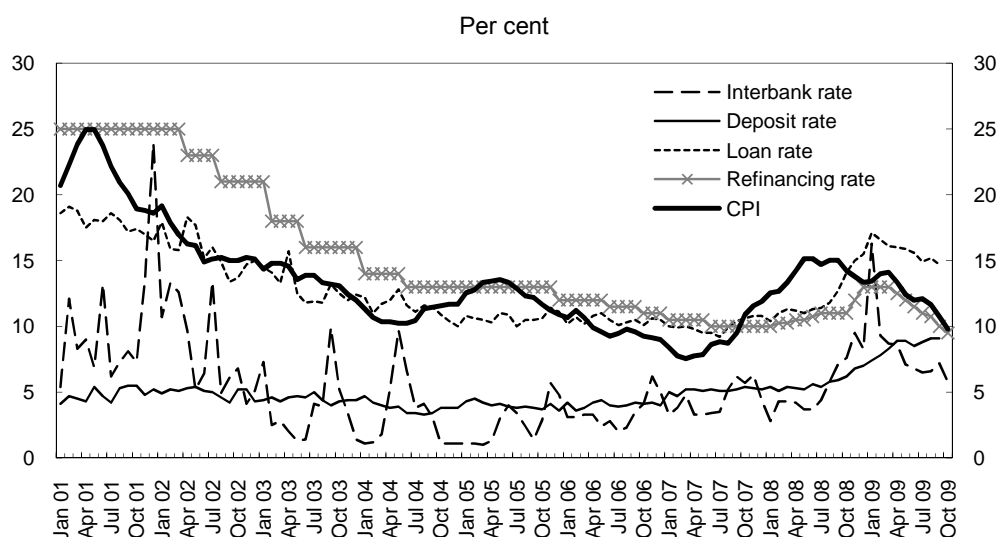
Source: Central Bank of Russia, Russian Federal Service for State Statistics.

3. Monetary policy during the global financial crisis of 2008/2009

From August 2008 until early 2009 the rouble was under depreciation pressure due to heightened political risk, a large adverse shift in Russia's terms of trade, and doubts about the robustness of the Russian banking system. Through stepwise depreciations the CBR allowed the rouble to fall by around 30% against the currency basket from early August 2008 to its low point in early February 2009. In late January 2009 the CBR defined a new trading band for the rouble against the dollar-euro basket of +/-10% (see Figure 6). The new band was sufficiently wide that the CBR was not forced to intervene significantly to defend the rouble after that point, with the recovery in oil prices and in international investors' appetite for emerging market assets leading surprisingly quickly to a substantial strengthening of the rouble within the band.

Figure 6. Official exchange rate against dollar-euro basket
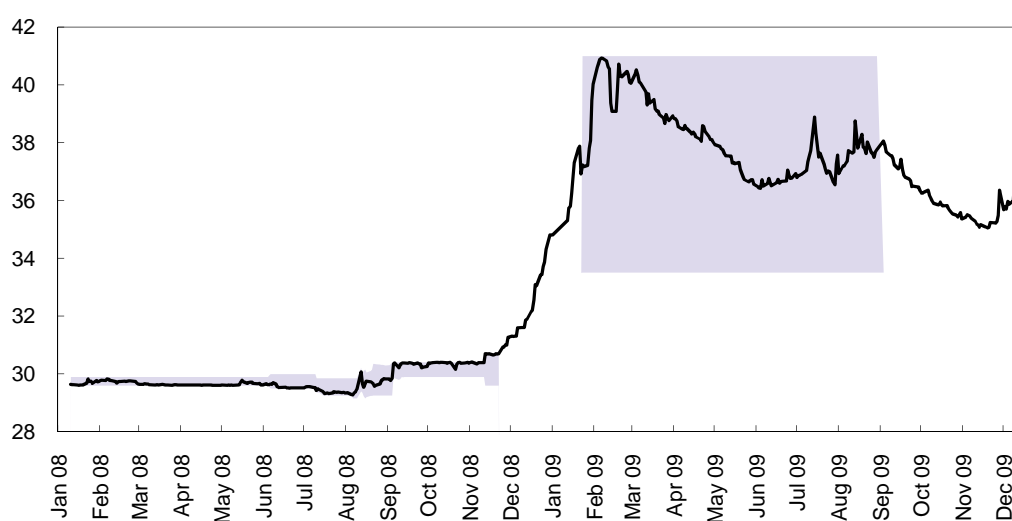
Source: Authors' calculations based on Central Bank of Russia.

9

The policy of allowing the exchange rate to adjust only in small steps was costly. First, it was contractionary, exacerbating increases in interest rates in December 2008 (see Figure 5). Second, during the period of the stepwise depreciations the CBR lost more than $ 200 billion in foreign exchange reserves (around 36% of the end-July level). In addition, the strategy fuelled speculation against the rouble, given widespread market expectations of further depreciation. In fact, rates in the non-deliverable forwards market suggested that market participants continued to factor in a sizable depreciation of the rouble against the dollar until early March 2009 (see Figure 7).

Figure 7. Forward rate premium over RUB/USD spot rate and interest rate differential
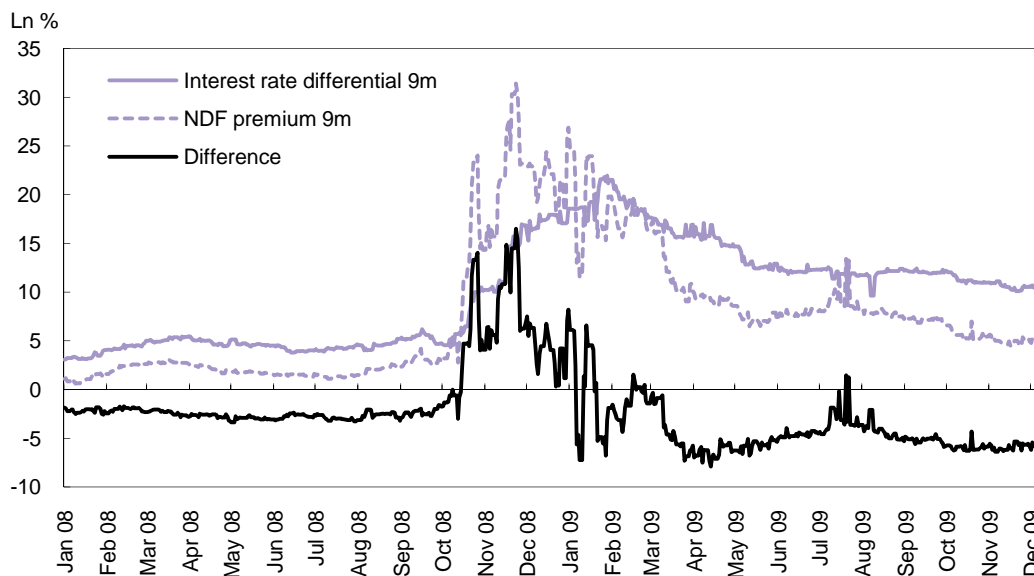
Source: Authors' calculations.

In addition to involving a major loss of reserves, the strategy of resisting pressure for depreciation made it initially questionable whether the new level of Russia's exchange rate achieved a large enough improvement in competitiveness to offset the sharp deterioration in the terms of trade that had occurred. In nominal and real effective terms the rouble depreciated less than against the basket, as the currencies of some key trading partners weakened even further against the dollar and the euro and, to a lesser extent, as Russia's inflation differential *vis-à-vis* its trading partners remained positive (Figure 8). Assuming that Russia's real effective exchange rate was close to its equilibrium level in the run-up to the crisis, as argued in IMF (2008), a larger adjustment of the real effective exchange rate (REER) would have been needed to offset the fall in oil and other export commodity prices. In the end, however, there was a substantial rebound in oil and metals prices in the spring of 2009 as signs emerged that the global recession was waning and that some major emerging economies, notably China and India, had continued growing throughout the crisis.

Even if there had not been such a rebound in the prices of Russia's major export commodities, there would still have been some rationale for resisting disorderly depreciation. In particular, in view of the high degree of foreign-currency borrowing in the corporate sector, the gradual depreciation of the rouble allowed the corporate sector to address some of its currency mismatches by acquiring foreign assets. A sudden large depreciation of the rouble, on the other hand, might have led – in addition to a sharply increasing rouble value of foreign-currency denominated corporate debt – to bank runs and an even broader re-dollarisation of the economy.

Figure 8. Oil price and Russian exchange rates

Index July 2008 = 100
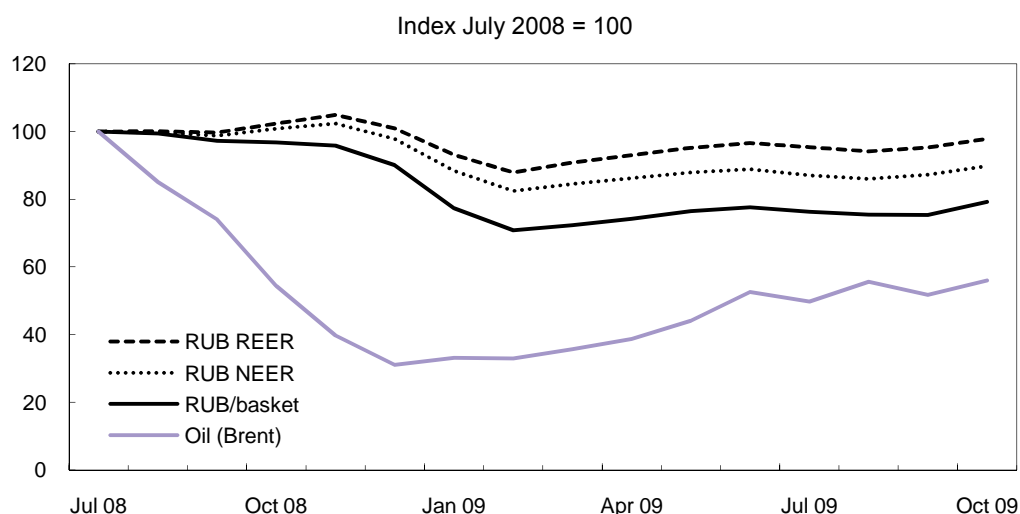
With the rebound in commodity prices beginning in the spring of 2009, along with a recovery in international investors' sentiment towards emerging market assets, the downward pressure on the rouble waned and gave way to renewed appreciation pressure. Beginning in April 2009, the CBR responded to the strength of the rouble and ebbing inflationary pressures by reducing interest rates - through November 2009 the CBR's refinance rate was cut 9 times for a cumulative decline of 400 basis points. The CBR also allowed for exchange rate flexibility, although it backtracked somewhat as appreciation pressures continued.[7]

4. The transition to inflation targeting

With the exchange rate already playing less of a nominal anchor role, the authorities' should accelerate preparations for a framework in which price stability is the primary goal of monetary policy. The CBR has already stated its intention to move to inflation targeting within the next few years[8], and has allowed for more exchange rate flexibility than in the past.

In general, the experience of other countries suggests that inflation targeting may work in Russia despite its emerging market status and its exposure to commodity price fluctuations and volatile capital flows (see Annex A1). In fact, many of the traditional pre-conditions for inflation targeting (see Table 1) tend to be "endogenous", *i.e.* more likely to be fulfilled after inflation targeting has been introduced. For example, the independence of the central bank and its understanding of the monetary transmission process may be strengthened once inflation targeting has been introduced. In addition, despite the absence of other nominal anchors, it may still be optimal under inflation targeting to have a monetary policy response to an exchange rate shock. The same applies to terms-of-trade shocks and to sudden stops in capital inflows, provided that the nature of these shocks is fully understood (see Annex A1).

Nevertheless, certain economic, financial and institutional requirements for successful inflation targeting should be addressed before fully-fledged inflation targeting is introduced in Russia.

- First, cross-country experience suggests that most successful transitions to inflation targeting have taken place after a considerable amount of disinflation (*i.e.* to single-digit levels) occurred already as double-digit inflationn rates tend to be more volatile and thus more difficult to target,

Figure 9. Inflation and GDP *per capita* in countries which have introduced inflation targeting

Inflation rate at start of IT

GDP per capita at start of inflation targeting
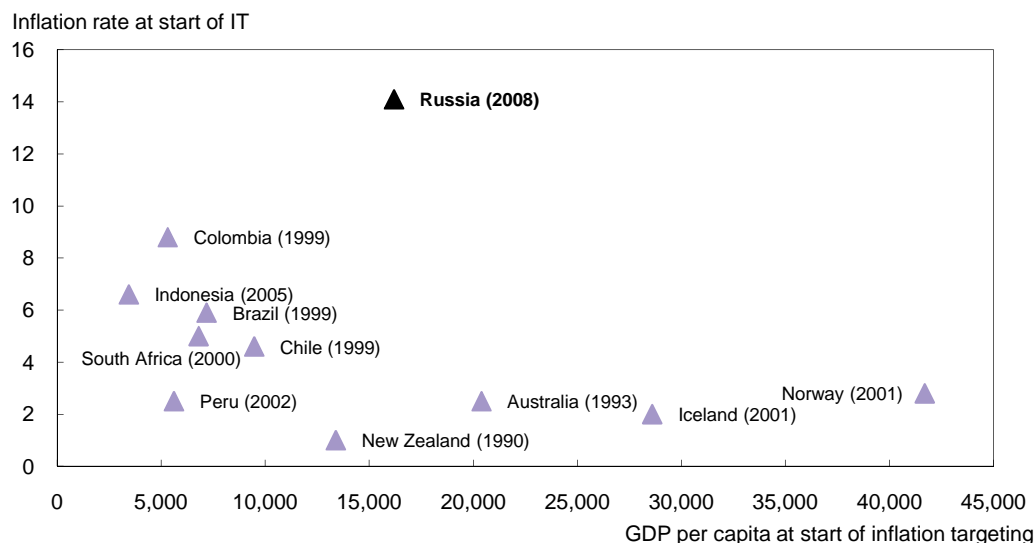
Source: IMF and OECD estimates.

(see Figure 9). The rapid disinflation during 2009 that has come with the deep recession and the slump in food and energy prices makes the outlook much more favourable in this respect than it has been hitherto. End-of-period inflation in 2009 will be about 9%, and the outlook for 2010 and beyond looks favourable for some further disinflation (OECD, 2009b).

- Secondly, successful inflation targeting, as with any market-based monetary policy framework, requires the availability of a full range of monetary policy instruments and a functioning transmission mechanism of monetary policy. While the CBR has developed its own sterilisation tools (mainly Bank of Russia "OBR" bonds), it has used them only sparingly, most likely due to concerns over damage to the CBR's balance sheet arising from the interest rate differential between foreign reserve assets and OBRs. At the same time, until late 2008 the CBR's policy rates had only a limited impact on interbank rates. In addition, after years of fiscal surpluses, the stock of government bonds dwindled and the market became increasingly thin, although, as with the level of inflation, this is another area where the recession has improved the situation, since the explosion of the budget deficit is being accompanied by an increase in bond issuance. At the same time, short-term interest rates are only loosely connected with long-term rates. Finally, the still relatively low level of bank intermediation in the Russian economy suggests that the transmission of monetary policy to the real economy remains limited.

- Thirdly, weaknesses in the banking system may undermine the credibility of inflation targeting in Russia since price stability can come into conflict with financial stability considerations.[9] Under inflation targeting, both the banking system and the real sector have to be able to withstand a monetary tightening cycle. The 2008-09 crisis suggests that financial stability concerns are paramount, which may mean that until macro-prudential regulation can be improved, the vulnerability of the banking system will be a drag on the credibility of an inflation targeting regime.

- Fourthly, the still large weight of food (see Figure 10) and administered prices in Russia's consumer price index may complicate inflation targeting. While the CBR's measure of core inflation could be used instead of headline inflation as the operational target, it excludes only the most volatile food items. A further narrowing of the inflation measure would, within the trade-off between transparency and controllability, increasingly, run the risk of becoming both non-transparent and irrelevant for the purchasing power of consumers. In fact, while choosing a more controllable inflation target in general increases the credibility of the central bank, since inflation targets will be met more often, choosing too narrow a measure may also undermine the credibility of the authorities if headline inflation deviates significantly and persistently from the target rate.

Table 1. Main traditional preconditions for successful inflation targeting

Strong fiscal position
Well-understood transmission mechanism between monetary instruments and inflation
Well-developed financial system
Central bank independence and a clear mandate for price stability
A reasonably well-developed ability to forecast inflation
Absence of other nominal anchors than inflation
Transparent and accountable monetary policy

Source: Jonas and Mishkin (2005).

Figure 10. Weight of food prices in CPI versus income in selected countries, 2007
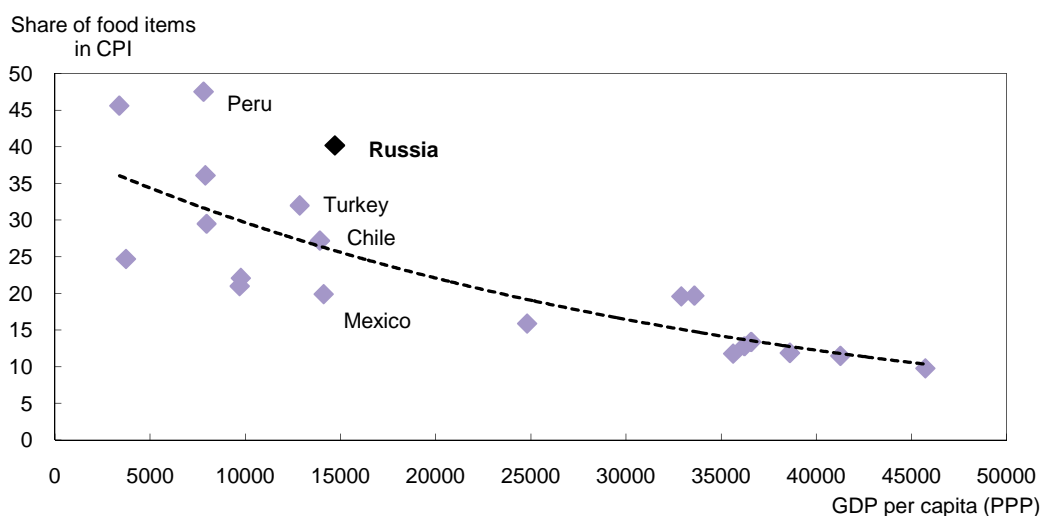
Note: The countries shown in this chart are: Australia, Brazil, Canada, Chile, Colombia, Euro area, Indonesia, Japan, Korea, Mexico, Peru, Philippines, Russia, South Africa, Sweden, Switzerland, Thailand, Turkey, the United Kingdom and the United States.

Source: IMF (WEO), ECB, OECD and national sources.

As regards exchange rate passthrough, which is also sometimes seen as complicating inflation targeting in the emerging markets (see Annex A1), there are indications that the impact of nominal exchange rate changes on inflation in Russia have been moderate since 2000 (see Annex A2). Even the strong depreciation seen in late 2008 and early 2009 had only a minor impact on inflation, although the passthrough appeared to be somewhat more rapid than in the recent past, when the moves in the exchange rate were much smaller.

Finally, in order to avoid early losses of credibility, the CBR may consider gradually strengthening the meaning of its inflation targets. In this regard, the CBR's "Inflation Reviews", which have been prepared since the beginning of 2008 along with its "Guidelines for the Single State Monetary Policy", are a useful starting point. In these documents, it has so far remained somewhat ambiguous whether inflation projections should be interpreted as targets against which the CBR is to be benchmarked. To the extent that the CBR progressively ceases to target the exchange rate, these projections can be complemented with hard inflation targets. Under fully-fledged inflation targeting, sustained deviation of the inflation forecast from the target would trigger a monetary policy response.

As regards a sound fiscal position, Russia has achieved low public debt levels that make a fiscal dominance of monetary policy unlikely. However, efforts aimed at strengthening medium-term budgetary frameworks and long-term fiscal sustainability would further strengthen the credibility of an inflation targeting framework in Russia.[10]

With respect to central bank independence, the CBR is *de jure* independent but *de facto* is in the middle range of central banks of countries with similar income levels (Arone *et al.*, 2007). The degree of central bank independence may rise "endogenously" once inflation targeting has been introduced. As regards central bank transparency, reasonable standards of openness and accountability have been reached (IMF, 2003) in particular as quarterly inflation reports were launched in 2008. In view of a more prominent role of the CBR under envisaged inflation targeting, however, more progress is needed with respect to explaining deviations from the CBR's inflation target and changes of monetary policy. In particular, the CBR might consider accelerating the timeliness and regularity of such explanations. In this context, the announcement of an advanced schedule for monthly meetings of the Board of Directors as well as regular monthly press conferences should be considered as communication tools.

5. Conclusions and recommendations

Against the backdrop of these considerations, the authorities' envisaged time frame of a few years for the transition to inflation targeting appears to be reasonable. It should be noted, though, that the increasing of exchange rate flexibility and the strengthening of the CBR's inflation targets should be complemented by a broader process of financial deepening and accelerated efforts to build reliable models for the monetary transmission process in Russia.

As regards the appropriate long-term target for price stability and the speed of disinflation in Russia, several considerations should be taken into account. First, while Balassa-Samuelson effects in Russia are estimated to be relatively small (OECD, 2006), the literature on inflation targeting in emerging markets suggests that there may be case for allowing for inflation rates around 1-2% higher than in advanced countries (see Annex A1 for a more detailed discussion). Secondly, the optimal speed of disinflation is difficult to determine. In any case, both the target itself and the path to reach it should be subject to a political consensus.

Finally, it should be stressed that inflation targeting in Russia would not have to exclude the careful analysis of the impact of monetary developments, in particular money supply and credit growth, on inflation and financial stability. Indirectly, such indicators would also allow taking asset price developments into account.[11]

Box 2. Recommendations on monetary and exchange rate policy

Exchange rate policy should gradually become more flexible in order to allow Russia to conduct its own monetary policy, taking into account domestic macroeconomic conditions. Preparations for inflation targeting should be accelerated as the exchange rate has or to a large extent lost its function as nominal anchor. In particular the authorities should:

- strengthen their commitment to price stability as the primary goal of monetary policy by amending the CBR's mandate in the central bank law;

- gradually increase exchange rate flexibility;

- gradually strengthen the meaning of the CBR's inflation targets;

- strengthen the institutional basis for monetary policy making by improving the CBR's communication policy;

- accelerate financial sector reforms aimed at financial deepening

- enhance the CBR's understanding of how monetary developments impact inflation and financial stability.

Notes

1.   According to the 1995 Central Bank Law, the goal of monetary policy is to "defend the currency, control inflation …". The Central Bank of Russia stated explicitly in 2001 in a monetary strategy document that resisting nominal appreciation of the rouble is a goal of monetary policy. The fact that these two goals of Russia's monetary policy may conflict has been pointed out already in OECD (2002, 2004 and 2006).

2.   In February 2005, the Central Bank of Russia (CBR) introduced an operational US dollar/euro basket as a reference for the daily management of the rouble's exchange rate. The weight of the euro in this currency basket, initially set at 10% has been gradually increased to 35% and 45%, broadly mirroring the trade share of the euro area in Russia's total foreign trade. At the same time, the CBR has also diversified its foreign exchange reserves into euro and occasionally intervened in the rouble-euro market.

3.   Russia formally introduced full rouble convertibility on 1 July 2006. In practice, however, Russia's capital account was already mostly open before that.

4.   It is well-documented in empirical studies that a positive terms-of-trade shock typically leads to an adjustment of the real exchange rate (Cashin, Céspedes and Sahay, 2004).

5.   The figure for the half life of the shock to inflation is computed as $\ln(0.5)/\ln(\beta)$.

6.   See IMF (2007) and references given there.

7.   During May to August 2009, the CBR largely refrained from interventions in the foreign exchange market, allowing for a higher degree of exchange rate flexibility than before the crisis. In September 2009, the CBR returned to its policy of buying foreign exchange in order to limit appreciation pressures. Since that time, it has been adjusting its trading range for the rouble following every intervention exceeding USD 700 m.

8.   See for example joint press release by the Central Bank of Russia and the European Central Bank as of 12 March 2009 which was released in the context of the Fifth Joint High-Level Eurosystem – Bank of Russia Seminar. It is stated here that the Central Bank of Russia "is still committed to switch to inflation targeting and will continue to scale down its involvement in the rate-setting process on the foreign exchange market for the purpose of moving to a floating exchange rate regime".

9.   For a discussion of the Russian banking system see Barnard (2009).

10.   OECD (2009a), Chapters 1 and 2, discusses the fiscal framework in Russia.

11.   See Trichet (2009).

ANNEX A1

INFLATION TARGETING IN EMERGING MARKETS
AND COMMODITY-EXPORTING COUNTRIES

Inflation targeting can be broadly defined as a strategy in which the central bank publicly announces a numerical medium-term inflation target and adjusts short-term interest rates if its inflation forecast deviates from the inflation target.[1] There is no target level for the exchange rate under inflation targeting, as the exchange rate matters for monetary policy only to the extent that it impacts inflation. As a result, inflation targeting may imply a large degree of exchange rate volatility although empirical studies carried out before the global economic and financial crisis of 2008/2009 suggest that exchange rate volatility (nominal or real) is not necessarily higher under inflation targeting (Edwards, 2006; and IMF, 2006).

Inflation targeting has been adopted in about 25 advanced and emerging economies. The shift towards inflation targeting started in the early 1990s in New Zealand, Canada Australia and Norway. Since the late 1990s, the move towards inflation targeting has spread to emerging market economies (*e.g.* Israel, the Czech Republic, Poland, Chile, South Africa and Brazil).[2] In general, inflation targeting is widely seen as successful in achieving price stability over the medium term and in anchoring long-term inflation expectations.[3] Nevertheless, the recent volatility in commodity prices has been a challenge for inflation targeting regimes across the globe as headline inflation rose above inflation targets. However, in countries where central banks have strong credibility, second-round effects and a rise in long-term inflation expectations have hardly materialised (IMF, 2008). In emerging market economies, where central banks in some cases still lack a track-record of credibility, inflation expectations rose in response to the recent rise in commodity prices until mid-2008 (*e.g.* in South Africa and Turkey), before turning back down as the global economy went into recession and commodity prices slumped.

It has often been argued that inflation targeting can be an appropriate anchor for monetary policy in emerging markets, provided that such countries meet certain preconditions. Such preconditions typically relate to a combination of institutional, technical, economic and financial areas (see Table A1.1). The relevance of these preconditions, both in terms of being necessary or sufficient conditions for achieving price stability after the introduction of inflation targeting, has, however, been controversial. For example, some have argued that most preconditions – such as central bank independence and sound fiscal policies – are not specific to inflation targeting and are relevant also for other monetary policy frameworks (Amato and Gerlach, 2000). In addition, some of the preconditions may be "endogenous", *i.e.* they are more likely to be fulfilled after the establishment of inflation targeting. The adoption of an inflation targeting framework can, for example, strengthen the institutional basis and the credibility of the central bank (IMF, 2006).

However, certain economic features of emerging market economies are likely to complicate inflation targeting in such countries (Mishkin, 2000). For example, if inflation is still at relatively high levels (*i.e.* in the double-digits), control over headline inflation is difficult and forecast errors are likely to be large. As a result, inflation targets are often likely to be missed, possibly undermining the credibility of the central bank. In addition, emerging market economies often exhibit a high degree of dollarization, in particular as regards the denomination of bank, corporate and household debt. Therefore, many emerging markets cannot afford to ignore the exchange rate when conducting monetary policy as a large depreciation may lead to financial instability.[4] A "benign neglect" of the exchange rate is also often not entirely possible due to a high degree of exchange rate pass-through and financially vulnerable emerging markets may even benefit from exchange rate smoothing (Roger *et al.*, 2009).[5] However, the degree of pass-through can

decline once inflation targeting has been introduced (Edwards, 2006). A high share of administered prices in consumer price indices, on the other hand, makes it difficult for the central bank to control headline inflation. Likewise, an exposure to volatile net capital inflows as well as frequent and large changes in the terms of trade renders inflation targeting in the emerging markets more challenging than in industrial countries.

Table A1.1. Preconditions for inflation targeting

Precondition	May lack for emerging markets	May lack for commodity-exporters	Possibly "endogenous"
Institutional			
Central bank independence	X		X
Strong institutional commitment to price stability	X		X
Technical			
Model-based forecasts of inflation	X		X
Model-based analysis of monetary transmission mechanism	X		X
Reliable data on current inflation and inflation expectations	X		X
Economic			
Moderate inflation rates	X		X
Prudent fiscal policy and low government debt	X	X(?)	X
Low sensitivity to exchange rate and commodity price changes	X	X	
Low degree of dollarization	X		
Low variability of capital account	X	X(?)	X(?)
De-regulated prices	X	X(?)	X(?)
Financial			
"Sound" banking system	X		X
"Well-developed" capital markets	X		X

Source: Authors' assessment based on literature cited in this box.

Whether inflation targeting is an appropriate monetary policy framework for commodity-exporting countries has been subject to debate. Most oil-exporting countries (*e.g.* in the Gulf Cooperation Council countries) have so far preferred to use the exchange rate as an anchor of monetary policy. However, such arrangements are likely to mainly reflect a lack of technical expertise.[6] In fact, large swings in the terms of trade of commodity-exporting countries make it difficult to stabilise the nominal exchange rate. Moreover, it is well documented that such shocks typically lead to a change of the real exchange rate (Cashin, Céspedes and Sahay, 2004) which can occur through changes in the nominal exchange rate or an inflation-differential *vis-à-vis* the trading partners of the country. As inflation tends to be persistent, the real exchange rate may overshoot under a fixed exchange rate regime in response to a positive terms-of-trade shock. As a result, fixed exchange rate regimes may result in alternating inflation-deflation periods (Svensson, 1997).[7]

The optimal monetary response to a terms-of-trade shock – in general and in commodity exporting countries – has remained controversial. Some have argued that a negative (positive) terms-of-trade shock should give rise to a monetary easing (tightening), *i.e.* a depreciation (appreciation) of the currency. In this context, it has been proposed that commodity-exporting countries peg their currency to an export price index, so as to combine the benefits of a nominal anchor with those of a floating exchange rate regime (Frankel, 2005).[8] In response to such proposals, advocates of inflation targeting have stressed that such a framework may lead to excessive changes in the monetary policy stance and entail the risk of deflation in response to a sharp rise in commodity prices (Svensson, 2006).[9] In addition, theoretical work on the optimal monetary policy response to changes in relative prices suggests that it is better to target core rather than broader measures of inflation (Aoki, 2001).

In general, under inflation targeting, the monetary policy response to a rise in the exchange rate (*i.e.* depreciation of the currency) would depend on the nature of the shock (*e.g.* Mishkin, 2002). If it is due to portfolio shifts with no impact on aggregate demand, monetary policy should tighten in order to limit pass-through to inflation. If on the other hand, the depreciation is due to a negative terms-of-trade shock which is also lowering aggregate demand, monetary policy might have to be eased.

As regards the optimal monetary policy response to a sudden stop in capital inflows, Caballero and Krishnamurthy (2005) point out that in advanced emerging market countries - which have achieved a reasonable degree of central bank credibility but are still subject to sudden stops – the raising of interest rates to defend the exchange rate due to "fear of floating" may be optimal from a contemporaneous perspective. In fact, in their model, the raising of interest rates has only a limited impact output as during a sudden stop output in these countries is mainly constrained by a shortage of external borrowing. However, the authors show that ex ante, this response may not be optimal since economic agents anticipating the central bank's tight monetary policy have an incentive to build up currency mismatches (*i.e.* to borrow in foreign currency without holding a sufficient amount of foreign assets).

As to the appropriate target level for inflation, it is often argued that emerging market central banks should aim for somewhat higher inflation rates than advanced countries due to Balassa-Samuelson effects (Masson *et al.*, 1997). According to Amato and Gerlach (2002) such effects may warrant a 1-2% higher inflation target in the emerging markets. For advanced countries, there is almost unanimous agreement that price stability should not be quantified near zero inflation rates due to downward nominal wage rigidity and the zero-bound on nominal interest rates (Jonas and Mishkin, 2005). As a result, most scholarly papers and central bank practitioners come to the conclusion that an inflation rate of 1-3% corresponds to price stability.

The optimal speed of disinflation in emerging markets should in theory be set to minimize the "sacrifice ratio" *i.e.* the ratio of loss of output to disinflation (Jonas and Mishkin, 2005). While the empirical literature in this area has identified several characteristics which affect the sacrifice ratio (including the structure of the economy, the degree of wage indexation, past history of inflation, the credibility of monetary policy and the openness of the economy), it has been difficult to pin down the optimal speed of disinflation for individual countries. As a result, the literature has often concluded that this decision should be based on a political consensus (Jonas and Mishkin, 2005).

Against the background of the above considerations, many countries – including commodity-exporting countries – have adopted more flexible versions of inflation targeting. By and large, the experience of commodity-exporting countries which have introduced inflation targeting has been positive with the exception of early policy mistakes in response to changes in the exchange rate.[10] On balance, it appears that this overall positive performance of inflation targeting regimes in emerging market and commodity-exporting countries has not been hampered by their export dependency on commodities or their relatively open economies. These successes appear to be largely attributable to four factors. First, most countries have introduced inflation-targeting when a degree of disinflation (often to single-digit inflation rates) had already taken place.[11] Second, many countries have gradually upgraded initially soft inflation targets to hard ones in order to avoid early losses of credibility. Third, the targeted measures of inflation have often excluded food, energy and administered prices. Finally, most countries have continued to smooth exchange rate movements in the early phase of inflation targeting.

In countries where long-term inflation expectations could not yet be fully stabilised, on the other hand, the level of the central bank's credibility has apparently been too low to withstand large exogenous shocks to headline inflation. In addition, policy mistakes due to a lack of rigorous understanding of the monetary transmission process, as well as inappropriate communication strategies in the case of missed targets, may have played a role in these cases.

Notes

1. For an overview of the literature on inflation targeting, see *e.g.* Bernanke *et al*. (1999) and Mishkin and Schmidt-Hebbel (2006).

2. In Chile, an early version of inflation targeting has been introduced in 1990 but fully-fledged inflation targeting was implemented only in 1999 (Schmidt-Hebbel and Werner, 2002).

3. For example, Bernanke *et al*. (1999) and Jonáš and Mishkin (2005) show empirically that the adoption of inflation targeting has been associated with an increase in monetary policy accountability and credibility, and a notable decline in inflation expectations.

4. In the literature, this argument has often been referred to as "fear of floating" (Calvo and Reinhart, 2002).

5. Under inflation targeting, a depreciation of the currency may be countered by monetary tightening if the pass-through to domestic inflation dominates the possible negative impact on domestic demand (depending on the nature of the exchange rate shock).

6. Under an exchange rate peg, such countries cannot pursue domestic goals when setting monetary policy as they import the monetary policy stance of the country they peg to. As the business cycle in oil-exporting countries is largely determined by oil price fluctuations, it is unlikely to be synchronised with that of the anchor (often an oil-importing) country.

7. In practice many commodity-exporting countries have often experienced only inflationary periods during upswings in commodity prices as deflation has been avoided by frequently abandoning the exchange rate peg during downswings of commodity prices.

8. Frankel (2005) suggests that this proposal can also be interpreted as an inflation targeting regime in which the central bank targets the export price instead of the consumer price index.

9. In addition, it has been stressed that the exchange rate under a currency peg to an export price index does not always respond to terms-of-trade changes in the desired direction. A terms-of-trade deterioration which is driven by a rise in export and import prices (where the rise in import prices is larger than that of export prices), for example, would lead under an export-price peg to an appreciation of the currency (Svensson, 2006).

10. For example, Mishkin (2002) argues that the Reserve Bank of New Zealand raised interest rates in response to the East Asian financial crisis in 1997, disregarding its negative impact on aggregate demand. Likewise, the central bank of Chile raised interest rates in 1998. Both countries suffered a recession as a result of these, in hindsight, policy mistakes.

11. In the case of Chile, inflation targeting was introduced in 1990 when the inflation rate was still at 20% p.a. However, fully-fledged inflation targeting was introduced only in 1999 when inflation had reached the low single digits. See Schmidt-Hebbel and Werner (2002) for further details on the case of Chile.

ANNEX A2

**ECONOMETRIC ESTIMATION OF THE EMPIRICAL DETERMINANTS
OF INFLATION IN RUSSIA**

The estimation of econometric models to economic variables in Russia is in general complicated by the fact that the sample size for such exercises is still relatively small, especially if one takes into account structural breaks, most notably the 1998 crisis. This caveat also applies to the empirical determinants of inflation. In fact, since consumer prices increased by almost 40% month-on-month in September 2008 when the Russian rouble lost more than 100% month-on-month, econometric regressions which include this period suggest that exchange rate pass-through is large (around 0.25) and instantaneous while other important determinants of inflation are insignificant. In view of possible non-linearities in the relationship between the exchange rate and inflation *via* import prices, such estimates may not be very informative for assessing the magnitude of exchange rate pass-through more recently. As suggested by Korhonen and Wachtel (2005) and the Economic Expert Group (2007), a more informative period for this purpose would start in 2000, thus also excluding the phase of post-crisis recovery in 1999.

In the applied literature on exchange rate pass-through[1], changes in the aggregate price level p are usually regressed on their own lags (to account for inflation persistence), lagged changes in the nominal exchange rate e to account for exchange rate pass-through, lagged changes of output y (*i.e.* postulating a backward-looking Phillips curve) and lagged changes of foreign prices p^*. In addition, other relevant lagged variables x are often included in such regressions. In Russia, x variables should include money supply growth and producer price inflation, as these variables have been found in other studies to be robust determinants of consumer price inflation (Economic Expert Group, 2007).

$$\Delta p_t = \sum_{k=1}^{n} \beta_k \Delta p_{t-k} + \sum_{k=1}^{n} \gamma_k \Delta e_{t-k} + \sum_{k=1}^{n} \chi_k \Delta y_{t-k} + \sum_{k=1}^{n} \kappa_k \Delta p^*_{t-k} + \sum_{k=1}^{n} \lambda_k \Delta x_{t-k} + \varepsilon_t$$

Estimation results for monthly data ranging from January 2000 to October 2009 suggest that exchange rate pass-through, measured in terms of the rouble against the dollar/euro currency basket, has been relatively low and affects consumer price inflation with a lag of around 4 months (see Table A2.1 – BASKET refers to the dollar-euro currency basket, PPI is the producer price index, and M2 is the broad money supply, all variables in monthly percentage changes). At the same time, money supply (lagged by 7 months) and producer prices (lagged by 4 months) are significant and robust determinants of consumer price inflation. Output growth or international prices are, on the other hand, not statistically significant in such regressions.[2] The findings do not change materially once exchange rate pass-through is measured in terms of the rouble's bilateral exchange rate against the dollar or the euro. Likewise, the reported results are broadly the same when core measures of consumer prices are used instead of headline inflation.

Table A2.1. Regression results

Dependent Variable: CPI
Method: Least Squares
Sample: 2000M01 2009M10
Included observations: 118

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI(-1)	0.754861	0.045705	16.51610	0.0000
BASKET(-4)	0.053603	0.016489	3.250880	0.0015
M2(-7)	0.054861	0.014609	3.755361	0.0003
PPI(-4)	0.047520	0.016949	2.803760	0.0059

Note: Estimated in monthly, seasonally adjusted percentage changes which are found to be stationary using standard tests for unit roots.

Source: Authors' calculations.

Recursive estimates of the exchange rate pass-through coefficient do, however, suggest a shift in the amount and or timing of pass-through in the past two years. The coefficient first rises in late 2008 and then falls sharply in 2009 (Figure A2.1).

Figure A2.1. Recursive estimates of exchange rate pass-through
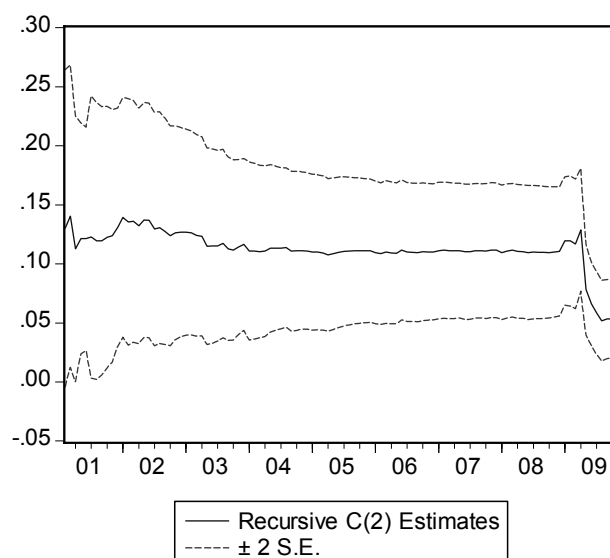
Source: Authors' calculations.

This recent period differs from the rest of the sample in that it has some months of large depreciation, whereas from 2000-07 there was only rare and limited depreciation, given that there was a trend appreciation of the rouble during this period. As exchange rate pass-through could be asymmetric, the regressions were reestimated with separate variables for currency appreciation and depreciation.[3] Indeed, over the full sample, this specification explains slightly more of the variance of monthly inflation than the one with a single exchange rate variable (Table A2.2 – the variables APP refer to the amount of appreciation (in per cent) in months when the rouble appreciated against the basket, while the DEP

variables refer to the percentage depreciation in months when the rouble weakened). Also, with the exception of the coefficient on the 4th lag of depreciation, which falls sharply in the recent period, the recursive estimates are more stable than in the original specification (Figure A2.2). This suggests threshold effects: with the larger depreciation seen during the crisis, passthrough was somewhat faster than during the earlier period. This is also consistent with the behaviour of inflation during the 1998 crisis, when the huge depreciation seen in August-September 1998 was immediately reflected in the CPI.

Table A2.2. Regression results with separate appreciation and depreciation variables

Dependent Variable: CPI
Method: Least Squares
Sample: 2000M01 2009M10
Included observations: 118

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI(-1)	0.696602	0.049808	13.98561	0.0000
APP(-2)	-0.124165	0.059803	-2.076250	0.0402
APP(-3)	0.103492	0.055007	1.881432	0.0625
DEP	0.052194	0.017493	2.983796	0.0035
DEP(-4)	0.073772	0.019772	3.731057	0.0003
M2(-7)	0.055439	0.014291	3.879379	0.0002
PPI(-4)	0.059637	0.017176	3.472042	0.0007

Source: Authors' calculations.

Figure A2.2. Recursive estimates of coefficients on exchange rate pass-through with separate variables for appreciation and depreciation
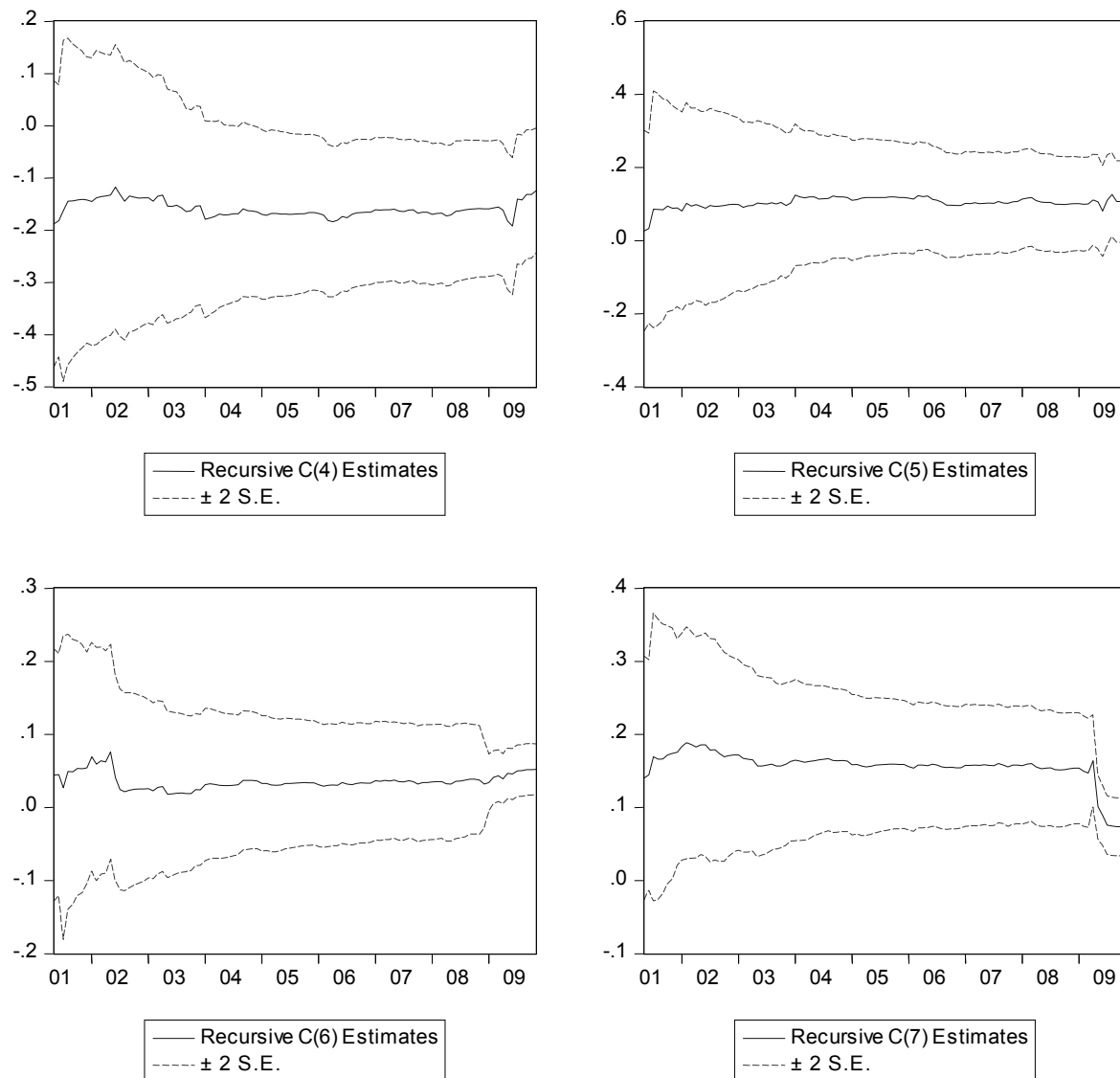
Notes

1.   See, for example, Pinto and Junior (2007) and Campa and Goldberg (2005).

2.   Foreign prices were approximated by German export prices.

3.   Kuran (1983) shows that price adjustments of firms with monopoly power can be more rigid downwards than upwards, and some empirical studies of exchange rate pass-through (*e g.* Alvarez *et al.*, 2008, Pollard and Coughlin, 2004) find evidence of asymmetry between the effects of appreciation and depreciation.

BIBLIOGRAPHY

Alvarez, R., P. Jaramillo and J. Selaive (2008), "Exchange rate pass-through into import prices: the case of Chile", *Central Bank of Chile Working Papers* N° 465, April 2008.

Amato, J. and S. Gerlach (2000), "Inflation targeting in emerging market and transition economies: Lessons after a decade", *European Economic Review*, 46, pp. 781-790.

Aoki, K. (2001), "Optimal Monetary Policy Responses to Relative-Price Changes", *Journal of Monetary Economics*, 48(2001), pp. 55-80.

Arnone, M., B. Laurens, J. Segalotto and M. Sommer (2007), "Central Bank Autonomy: Lessons from Global Trends", *IMF Working Papers*, pp. 1-53.

Ball, L. and N. Mankiw (1995), "Relative-Price Changes as Aggregate Supply Shocks", *Quarterly Journal of Economics*, Vol. 110 (February), pp. 161–93.

Barnard, G. (2009), "Russia's long and winding road to a more efficient and resilient banking sector", *Economics Department Working Papers* No. 731, OECD, Paris, www.olis.oecd.org/olis/2009doc.nsf/linkto/eco-wkp(2009)72.

Bernanke, B., T. Laubach, F. Mishkin and A. Posen (1999*), Inflation targeting: Lessons from the international experience*, Princeton University Press, Princeton.

Caballero, R. and A. Krishnamurthy (2005). "Inflation Targeting and Sudden Stops", in Bernanke and Woodford (eds.), *The Inflation Targeting Debate*, National Bureau of Economic Research, Chicago, IL.

Calvo, G. and C. M. Reinhart (2002), "Fear Of Floating", *Quarterly Journal of Economics*, Vol. 107, 2 May, pp. 379-408.

Campa, J. and L. Goldberg (2005), "Exchange Rate Pass-Through into Import Prices", *The Review of Economics and Statistics*, MIT Press, Vol. 87(4), pp. 679-690.

Cashin, P., L.F. Céspedes and R. Sahay (2004), "Commodity Currencies and the Real Exchange Rate", *Journal of Development Economics*, 75, pp. 239-268.

Central Bank of Russia (2008a), *Quarterly Inflation Review Q2 2008*, Moscow.

Central Bank of Russia (2008b), *Quarterly Inflation Review Q3 2008*, Moscow.

Economic Expert Group (2007), "Analysis of Relationships between Exchange Rate and Consumer Prices", *mimeo* in Russian.

Edwards, S. (2006), "The Relationship Between Exchange Rates and Inflation Targeting Revisited", *NBER Working Papers* 12163, April.

European Central Bank (2001), "Framework and Tools of Monetary Analysis", *ECB Monthly Bulletin*, May.

Frankel, J.A. (2005), "Peg the Export Price Index: A Proposed Monetary Regime for Small Countries", *Journal of Policy Modelling* 27, pp. 495-508.

International Monetary Fund (2006), "Does Inflation Targeting Work in Emerging Markets?", *World Economic Outlook*, September 2006, Chapter IV, International Monetary Fund, Washington, DC.

International Monetary Fund (2007), "Russian Federation: Selected Issues", *IMF Country Reports* No. 07/352, October.

International Monetary Fund (2008), "Is Inflation Back? Commodity Prices and Inflation", *World Economic Outlook*, October 2008, Chapter III, International Monetary Fund, Washington, DC.

International Monetary Fund (2008), "Russian Federation: 2008 Article IV Consultation–Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion", *IMF Country Reports* No. 08/309, September.

Junior, N. and R. Pinto (2007), "Inflation targeting and exchange rate pass-through", *Econ. Apl.*, Ribeirão Preto, Vol. 11, No. 2, June.

Jonas, J. and F. Mishkin (2005), "Inflation Targeting in Transition Economies: Experience and Prospects", in Bernanke and Woodford (eds.) *The Inflation Targeting Debate, National Bureau of Economic Research*, Chicago, IL.

Korhonen, I. and P. Wachtel (2005), "A Note on Exchange Rate Pass-through in CIS Countries", *BOFIT Discussion Papers* No. 2.

Kuran, T. (1983), "Asymmetric Price Rigidity and Inflationary Bias," *The American Economic Review*, Vol. 73, No. 3 (June), pp. 373-382

Masson, P., M. Savastano and S. Sharma (1997), "The Scope for Inflation Targeting in Developing Countries", *IMF Working Papers* No. 97/130.

Mishkin, F.S. (2000), "Inflation Targeting in Emerging-Market Countries", *American Economic Review*, American Economic Association, Vol. 90(2), pp. 105-109, May.

Mishkin, F.S. (2002), "Structural Issues for Successful Inflation Targeting in Transition Countries", 22nd National Bank of Poland Conference, "Monetary Policy in the Environment of Structural Change", Warsaw, October.

Mishkin, F.S. and K. Schmidt-Hebbel (2006), "Monetary Policy under Inflation Targeting: An Introduction," *Central Bank of Chile Working Papers* No. 396, December.

OECD (2002), *OECD Economic Surveys: Russian Federation*, Vol. 2002/05– February 2002, OECD, Paris.

OECD (2004), *OECD Economic Surveys: Russian Federation*, Vol. 2004/11 – September 2004, OECD, Paris.

OECD (2006), *OECD Economic Surveys: Russian Federation*, Vol. 2006/17 – November 2006, OECD, Paris.

OECD (2009a), *OECD Economic Surveys: Russian Federation*, Vol. 2009/6 – July 2009, OECD, Paris.

OECD (2009b), *OECD Economic Outlook*, Vol. 86, November 2009, OECD, Paris.

Pollard, P. and C. Coughlin (2004), "Size matters: asymmetric exchange rate pass-through at the industry level," *University of Nottingham Research Papers* 2004/13.

Roger, S., J. Restrepo and C. Garcia (2009), "Hybrid Inflation Targeting Regimes", *IMF Working Papers* No. 09/234, October 2009.

Schmidt-Hebbel, K. and A. Werner (2002), "Inflation Targeting in Brazil, Chile, and Mexico: Performance, Credibility, and the Exchange Rate", *Central Bank of Chile Working Papers* No. 171, July.

Svensson, L. E. O. (1997), "Exchange rate target or inflation target for Norway?", published in Anne Berit Christiansen and Jan Fredrik Qvigstad (eds.), *Choosing a Monetary Policy Target*, Scandinavian University Press (Universitetsforlaget AS), Oslo, pp. 120-138.

Svensson, L. E. O. (1998), Inflation Targeting in an Open Economy: Strict or Flexible Inflation Targeting, *Victoria Economic Commentaries*, Vol. 15, No. 1.

Svensson, L. E. O. (2006), "Comments on Jeffrey Frankel, Commodity Prices and Monetary Policy", presented at the NBER conference on Asset Prices and Monetary Policy, May 5-6, 2006.

Trichet, J.-C. (2009), "Credible alertness revisited", intervention at the symposium on "Financial stability and macroeconomic policy" sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 22 August 2009.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at
   www.oecd.org/eco/working_papers/

743.   *Fiscal federalism in Belgium: Challenges and possible improvements*
       (December 2009) by Willi Leibfritz

742.   *Product Market Regulation in Russia*
       (December 2009) by Paul Conway, Tatiana Lysenko and Geoff Barnard

741.   *How to reform the Belgian tax system to enhance economic growth*
       (December 2009) by Jens Høj

740.   *Improving the policy framework in Japan to address climate change*
       (December 2009) by Randall S. Jones and Byungseo Yoo

739.   *Health-care reform in Japan: controlling costs, improving quality and ensuring equity*
       (December 2009) by Randall S. Jones

738.   *Financial stability: overcoming the crisis and improving the efficiency of the banking sector in Japan*
       (December 2009) by Randall S. Jones and Masahiko Tsutsumi

737.   *Recent Oil Price Movements– Forces and Policy Issues*
       (December 2009) by Eckhard Wurzel, Luke Willard and Patrice Ollivaud

736.   *Promoting competition to strengthen economic growth in Belgium*
       (December 2009) by Tomasz Koźluk

735.   *Prudential Regulation And Competition In Financial Markets*
       (November 2009) by Rüdiger Ahrend, Jens Arnold and Fabrice Murtin

734.   *Keeping slovénian public finances on a sustainable path*
       (October 2009) Pierre Beynet and Willi Leibfritz

733.   *Pedal to the metal: Structural reforms to boost long-term growth in Mexico and spur recovery from the crisis*
       (October 2009) David Haugh and Agustin Redonda

732.   *Achieving higher performance: Enhancing spending efficiency in health and education in Mexico*
       (October 2009) Cyrille Schwellnus

731.   *Russia's long and winding road to a more efficient and resilient banking sector*
       (October 2009) Geoff Barnard

730. *How do institutions affect structural unemployment in times of crises?*
      (October 2009) Davide Furceri and Annabelle Mourougane

729. *Understanding the world trade collapse*
      (October 2009) Calista Cheung and Stéphanie Guichard

728. *Estonia and euro adoption: Small country challenges of joining EMU*
      (October 2009) Zuzana Brixiova, Margaret H. Morgan and Andreas Wörgötter

727   *Towards better schools and more equal opportunities for learning in Italy*
      (June 2009) Romina Boarini

726. *Iceland: Challenging Times for Monetary and Fiscal Policies*
      (August 2009) Andrea De Michelis

725. *Iceland: The Financial and Economic Crisis*
      (August 2009) David Carey

724. *The role of transparency in the conduct of monetary policy*
      (September 2009) Makoto Minegishi and Boris Cournède

723. *Raising education outcomes in Greece*
      (September 2009) Vassiliki Koutsogeorgopoulou

722. *Improving the performance of the public health care system in Greece*
      (September 2009) Charalampos Economou and Claude Giorno

721.   *Is there a case for price-level targeting?*
      (August 2009) Boris Cournède and Diego Moccero

720. *The challenge of restoring French competitiveness*
      (August 2009) Rafal Kierzenkowski

719. *Improving the functioning of the Slovenian labour market*
      (August 2009) Isabell Koske

718. *What drives sovereign risk premiums? An analysis of recent evidence from the Euro Area*
      (July 2009) David Haugh, Patrice Ollivaud, and David Turner

717. *The English National Health Service: an economic health check*
      (July 2009) Peter Smith and Maria Goddard

716. *Financial stability in the United Kingdom: Banking on prudence*
      (July 2009) Philip Davis

715. *Economic growth and the role of taxation- disaggregate data*
      (July 2009) Gareth D. Myles